SDMCAH & RC, UDUPI

6th International Conference

KSHAMATVAM 2026

Translational Ayurveda in Autoimmune Disorders : Bridging Classical Wisdom with Global Healthcare.

ISBN Number : 978-93-345-0009-7

HOST :

Sri Dharmasthala Manjunatheshwara College of Ayurveda, Hospital and Research Centre, Udupi, Karnataka, India

VENUE :

Bhavaprakasha Auditorium

PRE - CONFERENCE WORKSHOP | 29TH SEPTEMBER 2026

CONFERENCE | 30TH SEPTEMBER & 1ST OCTOBER 2026

SOUVENIR & SCIENTIFIC COMPENDIUM

Kshamatvam 2026 — Souvenir and Scientific Compendium

A compendium of invited and faculty contributions prepared for Kshamatvam 2026, the international conference on Ayurveda in autoimmune disorders.

Published by

SDM College of Ayurveda, Hospital and Research Centre

Kuthpady, Udupi 574 118, Karnataka, India

First edition, 2026

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KSHAMATVAM 2026

Translational Ayurveda in Autoimmune Disorders

ISBN: 978-93-345-0009-7

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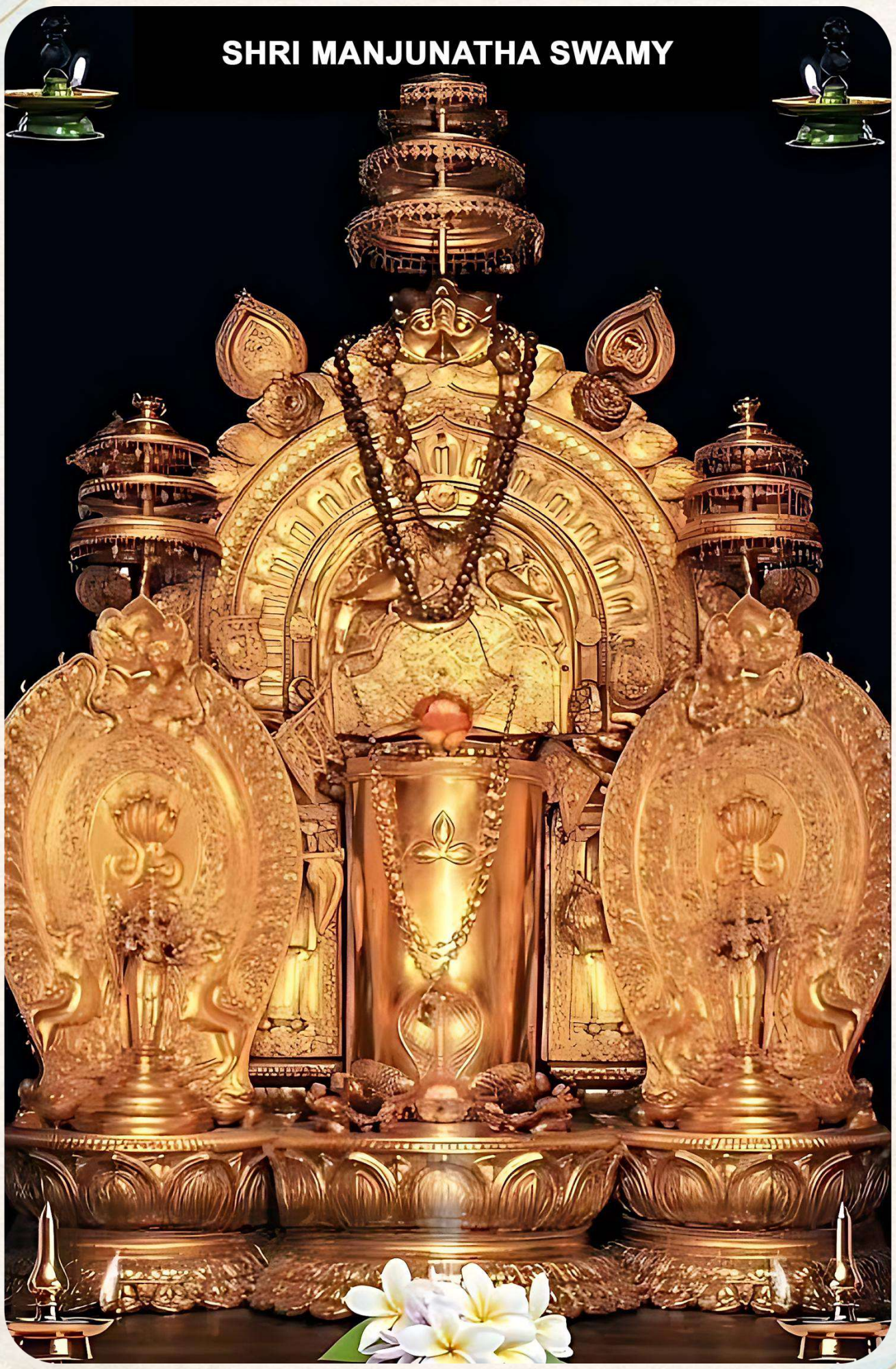
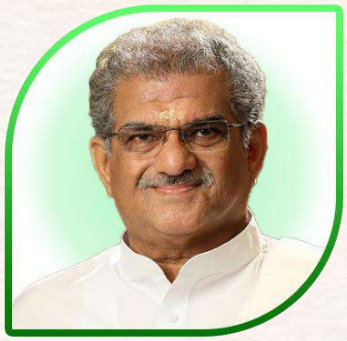
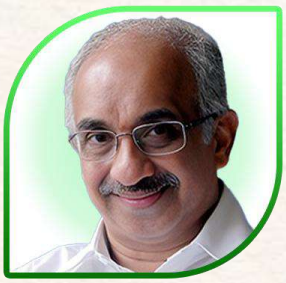

SHRI MANJUNATHA SWAMY

Padma Vibhushana
Dr. D. Veerendra Heggade

Dharmadhikari, Sree Kshethra Dharmasthala
Honorable Chancellor, Sri Dharmasthala Manjunatheshwara University, Dharwad, Karnataka
President, SDMET, (R), Ujire



Padma Vibhushana
Dr. D. Veerendra Heggade
Dharmadhikari, Sree Kshethra Dharmasthala
Honorable Chancellor, Sri Dharmasthala Manjunatheshwara University, Dharwad, Karnataka
President, SDMET, (R), Ujire



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SDMES (R), Ujire

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Secretary,
SDMES (R), Ujire

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SDMES (R), Ujire

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Chief Organizing Secretary
Principal,
SDMCAH & RC, Udupi

Dr. Prasanna N. Mogasale
Organizing Secretary
Professor,
Dept. of P.G Studies in Roganidana

Dr. Arhanth Kumar A
Organizing Secretary
Associate Professor,
Dept. of P.G Studies in Samhita, Siddhanta & Sanskrit

Foreword

It is a matter of deep satisfaction to place before you this souvenir and scientific compendium, brought out on the occasion of Kshamatvam 2026, the 6th International Conference hosted by Sri Dharmasthala Manjunatheshwara College of Ayurveda, Hospital and Research Centre, Udupi. The conference is held at the Bhavaprakasha Auditorium of our campus, with the pre-conference workshops on 29 September 2026 and the scientific sessions on 30 September and 1 October 2026.

The theme we have chosen, Translational Ayurveda in Autoimmune Disorders: Bridging Classical Wisdom with Global Healthcare, reflects a question our clinicians meet in the outpatient department almost every week. Autoimmune disorders are among the most difficult chronic conditions of our time. They are rising in incidence, they present with uncertain onset and unpredictable course, and the conventional approach of sustained immunosuppression, valuable as it is, carries burdens of its own over the years of a patient's life. Ayurveda comes to this problem with a vocabulary that was built for precisely such situations. Vyadhikshamatva does not describe immunity as a defence mechanism alone but as the capacity of a living system to resist and to recover. Agni and Ama speak to the metabolic dimension that contemporary research is only now placing at the centre of autoimmune pathogenesis. Ojas and Rasayana address resilience rather than suppression. These are not loose analogies waiting to be validated; they are working clinical categories that deserve to be examined with the full rigour of modern method.

That examination is what the word translational in our theme is meant to insist upon. It is not enough to restate classical concepts in immunological language, nor to test a formulation and report that it worked. The harder and more useful task is to build the bridge in both directions: to let biomedical findings sharpen our reading of the Samhitas, and to let classical reasoning suggest hypotheses that immunology would not have arrived at on its own. Our institution has tried to hold to that standard, and this conference is an invitation to a wider community to join in it.

The programme reflects that intent. Twelve scientific sessions bring together scholars from India, Germany, Italy, Argentina, Russia and the United States, alongside senior physicians and researchers from our own country, opening with a keynote address by Prof. Srinivasa Hejmadi Acharya. Four pre-conference workshop courses take up research models in autoimmune disorders, drug survey, Marma Chikitsa and outpatient-based Panchakarma procedures. Paper and poster presentations are organised under thirteen sub-themes ranging from Prakriti and Satmya to herbo-mineral immunomodulators and specialty-specific clinical management. An Ayurveda Expo, panel discussions and a cultural evening complete a gathering we expect to bring more than two thousand delegates to Udupi.

This volume is the scholarly record of that effort, and in some ways it will outlast the three days. It carries thirty contributions. Nine are invited essays from distinguished scholars and clinicians whose work has shaped the field, addressing Ojas as biological resilience, traditional foods and personalised nutrition, diagnostic advances in autoimmunity, Shodhana in immune-mediated disease, and integrative practice in Europe, Russia and at a tertiary neuropsychiatry centre. The remaining twenty-one come from the faculty of our own institutions at Udupi and Bengaluru, and their range is a fair portrait of what a teaching hospital does: conceptual studies on Vyadhikshamatva, Ama and Dushi Visha; documented case reports in paediatric psoriasis, dermatomyositis and Churg–Strauss syndrome; reviews of wound care, anorectal manifestations of inflammatory bowel disease, uveitis and autoimmunity in pregnancy; and work on biomarkers, immunomodulatory plants and Rasaushadhi. Read together, they show a department-by-department engagement with a single clinical problem, which is not something a conference can manufacture and not something that can be assembled quickly.

I record with gratitude the blessings and guidance of our Chief Patron, Padma Vibhushana Dr D. Veerendra Heggade, Dharmadhikari of Sree Kshethra Dharmasthala, whose vision has sustained this institution since 1958. My thanks are due to the patrons and office bearers of the SDM Educational Society, to the members of the Advisory Committee, and to our technical advisors for their counsel at every stage. I am particularly grateful to Dr Niranjan Rao, Vice Principal (Clinical), and Dr Nagaraj S, Vice Principal (Academic), whose steady support in matters clinical and academic has shaped both the conference and this volume. The Organising Secretaries, Dr Prasanna N. Mogasale and Dr Arhanth Kumar A, together with the registration, scientific, exhibition and workshop committees, have carried the weight of preparation with a diligence that deserves particular acknowledgement.

To the invited speakers who have accepted our invitation, and to every author in this volume who found time for writing amid clinical and teaching duties, I offer my sincere thanks. The responsibility for the views and the accuracy of each contribution rests with its authors, and that is as it should be in a volume meant to provoke discussion rather than close it.

It is my hope that this compendium will be consulted well after the conference has ended, and that the questions it raises will return to us as research proposals, as clinical protocols, and as better care for the patients who brought us to this subject in the first place.

Dr. Mamatha K. V.
Principal
SDM College of Ayurveda, Hospital and Research Centre, Udupi
Chief Organizing Secretary, Kshamatvam 2026
Udupi · September 2026

D. Veerendra Heggade
DHARMASTHALA - 574 216
KARNATAKA STATE

✆ : (08256) : 266644
E-Mail : dvheggade@hotmail.com

Date: 24-09-2026

MESSAGE

I am pleased to learn that Sri Dharmasthala Manjunatheshwara College of Ayurveda, Hospital and Research Centre, Udupi, is organizing the 6th International Conference, "Kshamatvam 2026," on the theme "Translational Ayurveda in Autoimmune Disorders – Bridging Classical Wisdom with Global Healthcare," from 30th September to 1st October 2026.

Recognising the immense potential of Ayurveda in promoting health and well-being, the Sri Dharmasthala Manjunatheshwara Educational Society has established AYUSH hospitals at Udupi, Hassan, Mangaluru, Chikkamagaluru, Bengaluru, Perika-Manipal, Dharmasthala and Nelamangala. Together, these hospitals have around 3,000 beds and serve nearly 5 lakh patients annually through outpatient and inpatient services. SDM institutions have also nurtured a strong global network of nearly 15,000 AYUSH alumni across India and around 300 overseas, who continue to promote AYUSH and carry its message worldwide. The excellence of SDM institutions and hospitals has earned national accreditations and honours, supported by dedicated, competent and internationally respected faculty. Our institutes offer modern, state-of-the-art facilities for student learning and comprehensive patient care. Our Ayurveda pharmacy provide practitioners non-comprising quality ayurveda pharmaceutical products.

In India, Ayurveda has evolved from the traditional Gurukula system into a structured and globally expanding system of education, research and healthcare. With strong Government support, research has expanded into clinical, interdisciplinary and integrative domains. The integration of AYUSH services into public healthcare, through Health and Wellness Centres at Primary Health Centres (PHCs), marks an important step towards mainstreaming Ayurveda and contributing to a healthier India. Ayurveda also holds considerable potential in addressing the growing burden of autoimmune and metabolic disorders, which therefore deserve greater attention in education, research and clinical practice. Strengthening early disease detection, preventive healthcare and meaningful integration across health sciences can help reduce the healthcare burden on society.

Globally, Ayurveda is gaining recognition, with Ayurveda recognised as a system of medicine in 16 countries and education offered in several parts of the world. The establishment of the WHO Global Traditional Medicine Centre at Jamnagar, Gujarat, in 2022 marked an important milestone in strengthening the global discourse on traditional medicine. Further, under the Government of India's "Heal in India" initiative, a dedicated AYUSH (AY) visa category has been introduced for foreign nationals seeking AYUSH treatment and wellness services.

I urge young Ayurveda researchers to generate robust evidence for its established principles and translate this knowledge into meaningful healthcare solutions. Greater focus should be placed on Ayurveda's potential in autoimmune and metabolic disorders, while strengthening its integration with contemporary healthcare and promoting its responsible adoption worldwide. Such efforts can help Ayurveda contribute not only to disease management but also to the larger goal of preserving and promoting health. I greatly appreciate the efforts of the organising committee in organising this conference around a theme that is both thoughtful and highly relevant to the present context.

I wish Kshamatvam 2026 every success. I am confident that the conference will provide a valuable platform for meaningful scientific exchange, collaboration and reflection, and that the delegates will return enriched by the knowledge, discussions and deliberations of the conference.

My best wishes to the organizers, researchers, clinicians and all the delegates for a fruitful and successful conference.

(D. VEERENDRA HEGGADE)

U.T. KHADER FAREED
Minister for
Health and Family Welfare,
Minority Welfare, Haj & Wakf

Room No.315-315A,
3rd Floor, Vidhana Soudha,
Dr. B.R. Ambedkar Veedhi,
Bengaluru-560 001
Telephone: 080-22252536
080-22033450
e-mail: healthminister2026@gmail.com

Dt: 25/09/2026

MESSAGE

I am happy to know that SDM College of Ayurveda, Hospital and Research Centre, Udupi is organising KSHAMATVAM, the 6th International Seminar on 'Translational Ayurveda in Autoimmune Disorders: Bridging Classical Wisdom with Global Healthcare' from 29th September to 1st October 2026, and is bringing out a souvenir on this occasion.

I hold Poojya Dr. D. Veerendra Heggade ji in the highest regard. Under his visionary leadership, the SDM Educational Society has built institutions in Ayurveda, Naturopathy and Yoga that have strengthened the AYUSH systems and served countless patients. His social reform initiatives, including rural development, the empowerment of women through self-help groups and de-addiction camps, have transformed the lives of lakhs of families across Karnataka. This seminar is yet another reflection of the values he has nurtured.

Autoimmune disorders place a growing burden on patients and on our healthcare system. The Government of Karnataka is committed to strengthening integrated healthcare, in which AYUSH systems work alongside modern medicine for the benefit of the people. A seminar that brings classical Ayurvedic knowledge together with scientific research and clinical evidence is a welcome step in this direction.

I am sure the deliberations will be useful to practitioners, researchers and students, and that the outcomes will help improve the care available to patients in our State and beyond.

I congratulate the management, the organising committee and the faculty of the college, and wish the seminar and the souvenir every success.

With best wishes,

(U T Khadar Fareed)

वैद्य राजेश कोटेचा
सचिव

Vaidya Rajesh Kotecha
Secretary

सत्यमेव जयते

भारत सरकार
आयुष मंत्रालय
आयुष भवन 'बी' ब्लॉक, जी.पी.ओ. कॉम्प्लेक्स,
आई.एन.ए. नई दिल्ली- 110023

Government of India
Ministry of Ayush
Ayush Bhawan, B-Block, GPO Complex,
INA, New Delhi-110023
Tel.: 011-24651950, Fax : 011-24651937
E-mail : secy-ayush@nic.in

D.O.No1908/secy/2026
19th August, 2026

Dear Dr. Mamathaji,

I acknowledge the receipt of invitation to grace Kshamatvam 2026- 6th International Conference on Translational Ayurveda in Autoimmune Disorders: Bridging Classical Wisdom with Global Healthcare, by Sri Dharmasthala Manjunatheshwara College of Ayurveda, Hospital and Research Centre, Udupi, Karnataka, to be held from 29th September to 1st October 2026.

By focusing on Autoimmune Disorders, the conference provides an important platform for academicians, clinicians, scientists, researchers and representatives from the Ayush sector to explore the potential of Ayurveda in prevention and management of Autoimmune Disorders. I am confident that the deliberations will contribute meaningfully to strengthen the translational applications of Ayurveda in promoting preventive and therapeutic approaches for Autoimmune Disorders.

I extend my best wishes to the organizers and participants for the success of Conference and regret my inability to attend due to prior official engagements.

With regards.

Yours sincerely,

(Rajesh Kotecha)

Dr. Mamatha K.V.
Principal & Chief Organising Secretary
KSHAMATVAM 2026
Sri Dharmasthala Manjunatheshwara College of Ayurveda,
Hospital & Research Centre
Udupi 574118, Karnataka
sdmcau@gmail.com

ಕರ್ನಾಟಕ ಸರ್ಕಾರ
ಆಯುಷ್ ಇಲಾಖೆ
ಧನ್ವಂತರಿ ರಸ್ತೆ, ಆನಂದರಾವ್ ವೃತ್ತದ ಹತ್ತಿರ, ಬೆಂಗಳೂರು - 560 009.
DEPARTMENT OF AYUSH
Dhanwantari Road, Near Anandarao Circle, Bangalore - 560 009.
Phone : 080-22876553
080-22877484
Fax : 080-22340139
email : directorayush@gmail.com

ದಿನಾಂಕ / Date :

MESSAGE

"यत्र आयुर्वेदः आधुनिकविज्ञानं च समन्वितं भवतः, तत्र आरोग्यस्य नूतनः मार्गः प्रशस्यते।"

"Where Ayurveda and modern science converge, new pathways towards health and healing emerge."

It gives me immense pleasure to convey my greetings on the occasion of the **National Seminar on "Ayurveda and Autoimmune Disorders"**, being organized at **Sri Dharmasthala Manjunatheshwara College of Ayurveda, Udupi**, from **29th September to 1st October 2026**.

Autoimmune disorders represent a significant and evolving challenge to contemporary healthcare. Their complex, multifactorial nature calls for a deeper understanding of immunity, nutrition, lifestyle, gut microbiome, inflammation and individual susceptibility. Ayurveda, with its holistic understanding of **Agni, Ama, Prakriti, Ojas, Rasayana and Vyadhi Samprapti**, offers a valuable conceptual and therapeutic framework that merits systematic scientific exploration.

The seminar provides a timely platform for bringing together **Ayurvedic scholars, clinicians, researchers and experts in contemporary medicine** to deliberate upon evidence-based and translational approaches to autoimmune disorders. The scientific programme, encompassing traditional foods and personalized nutrition, contemporary immunology, microbiome research, translational research, Rasashastra, neuroimmunological disorders, Shodhana therapies and collaborative medicine, reflects the need for interdisciplinary dialogue.

Autoimmune disorders are complex conditions involving dysregulation of immune tolerance and interactions among genetic, environmental, nutritional, metabolic and microbial factors. Their chronic and multisystem nature poses challenges in diagnosis, prevention and long-term management. The seminar therefore addresses an area where meaningful integration of traditional knowledge and modern scientific methodologies is particularly relevant. Ayurveda's holistic and individualized approach, its emphasis on prevention, diet, lifestyle, Agni and Rasayana, along with its extensive clinical experience. Need for greater standardization, robust clinical evidence, validated biomarkers and reproducible research methodologies. Interdisciplinary research, personalised medicine, microbiome studies, translational research and collaborative models integrating Ayurveda with contemporary medicine. Fragmented research, inadequate methodological rigour, inappropriate extrapolation of traditional concepts and insufficient long-term scientific validation.

The deliberations are expected to facilitate **evidence-based understanding of Ayurvedic principles in autoimmune disorders, identify promising areas for translational research, encourage collaborative clinical and scientific studies, strengthen research methodology, and promote responsible integration of Ayurveda with contemporary healthcare.** The pre-conference workshops further provide practical exposure to research models, Marma Chikitsa, external Panchakarma procedures and drug survey.

I congratulate the organizers for creating this meaningful academic platform and for bringing together eminent national and international experts. I am confident that the scholarly deliberations and exchange of knowledge will contribute to strengthening the scientific foundation of Ayurveda and opening new avenues for collaborative research and patient-centered healthcare.

ಕರ್ನಾಟಕ ಸರ್ಕಾರ

ಆಯುಷ್ ಇಲಾಖೆ

ಧನ್ವಂತರಿ ರಸ್ತೆ, ಆನಂದರಾವ್ ವೃತ್ತದ ಹತ್ತಿರ, ಬೆಂಗಳೂರು - 560 009.

DEPARTMENT OF AYUSH

Dhanwantari Road, Near Anandarao Circle, Bangalore - 560 009.

Phone : 080-22876553
080-22877484
Fax : 080-22340139
email : directorayush@gmail.com

ದಿನಾಂಕ / Date :

I extend my sincere appreciation to the **organizing institution, faculty, resource persons, researchers, clinicians, delegates and all those associated with this important academic Endeavour.**

With best wishes for the grand success of the Seminar.

Commissioner
(Dr Sunil Panwar IFS)
Department of AYUSH

डॉ. कौस्तुभ उपाध्याय
Dr. Kousthubha Upadhyaya
सलाहकार (आयुर्वेद)
Adviser (Ayurveda)
Tel : 011-2081 5348
Email : adviser-ayush@gov.in

सत्यमेव जयते

आयुष मंत्रालय
भारत सरकार
द्वितीय तल, एनबीसीसी कार्यालय परिसर, ब्लाक–03,
ईस्ट किदवई नगर, नई दिल्ली–110023
Ministry of Ayush
Government of India
2nd Floor, NBCC Office Complex, Block-03,
East Kidwai Nagar, New Delhi-110023

Message

It gives me immense pleasure to extend my warm greetings and best wishes to SDM College of Ayurveda, Hospital and Research Centre, Udupi, on the occasion of "KSHAMATVAM 2026 – the 6th International Ayurveda Conference" on the theme, "Translational Ayurveda in Autoimmune Disorders: Bridging Classical Wisdom with Global Healthcare."

Ayurveda, with its profound understanding of health, disease, and the individual as an integrated whole, has much to contribute to the evolving global discourse on chronic and autoimmune disorders. The endeavour to connect the timeless principles of Ayurveda with contemporary scientific inquiry and healthcare practices is both meaningful and timely.

I am confident that KSHAMATVAM 2026 will provide a valuable platform for scholars, clinicians, researchers, teachers, and students to exchange knowledge, foster collaboration, and explore innovative approaches for translating Ayurvedic wisdom into evidence-informed healthcare.

My heartfelt appreciation goes to the organisers for bringing together the academic and scientific community around such an important theme. May the deliberations, research, and exchange of ideas during this conference inspire new avenues of learning and contribute to the advancement of Ayurveda and the well-being of humanity.

I convey my best wishes for the grand success of "KSHAMATVAM 2026" and pray that the conference achieves its objectives and leaves a lasting impact on the field of Ayurveda and global healthcare.

Kousthubha Upadhyaya

Date:- 21.09.2026

Dr. Kousthubha Upadhyaya

डॉ. मनीषा उ. कोठेकर
सभापति
Dr. Maneesha U. Kothekar
Chairperson

भारतीय चिकित्सा पद्धति राष्ट्रीय आयोग
भारत सरकार
National Commission for Indian System of Medicine
Government of India

MESSAGE

It gives me immense pleasure to convey my warm greetings and best wishes to **Sri Dharmasthala Manjunatheshwara College of Ayurveda, Hospital & Research Centre, Udupi**, on the occasion of **KSHAMATVAM 2026 – the 6th International Ayurveda Conference**, being organized on the theme **"Translational Ayurveda in Autoimmune Disorders: Bridging Classical Wisdom with Global Healthcare."**

Autoimmune disorders, with their multifactorial nature, chronic course and significant impact on quality of life, require innovative and integrative approaches to prevention, diagnosis, management and long-term care. The theme of KSHAMATVAM 2026 is therefore highly relevant and timely. Translating the foundational wisdom of Ayurveda into contemporary healthcare requires a harmonious integration of **classical knowledge, rigorous scientific inquiry, clinical evidence, modern research methodologies and global health perspectives**.

Conferences such as KSHAMATVAM provide an important platform for scholars, clinicians, researchers, academicians and students to exchange knowledge, deliberate upon emerging evidence and explore new pathways for translational research. The pre-conference workshop and scientific sessions will, I am confident, encourage meaningful discussions on autoimmune disorders and contribute towards developing research-driven and patient-centric approaches.

I particularly appreciate the efforts of the organizers in bringing together **classical Ayurvedic wisdom and contemporary scientific perspectives**. Such academic initiatives can play a significant role in strengthening interdisciplinary collaboration and creating a stronger evidence base for the wider acceptance and responsible integration of Ayurveda in global healthcare.

I convey my best wishes for the grand success of **KSHAMATVAM 2026** and for the continued academic and research excellence of **Sri Dharmasthala Manjunatheshwara College of Ayurveda, Hospital & Research Centre, Udupi**.

With my best wishes for a meaningful, productive and inspiring conference.

Dr. Maneesha Upendra Kothekar

New Delhi
21.09.2026

Plot No. T-19, Ist & IInd Floor, Block-IV, Dhanwantri Bhawan, Road No. 66, Punjabi Bagh (West), New Delhi-110026
Phone No. 011-25221001, E-mail: chairman@ncismindia.org

Dear Dr. Mamatha K. V.,

Namaste and warm greetings.

I sincerely thank you for the kind invitation and for the honour of inviting me as the Guest of Honour at the inaugural function of KSHAMATVAM 2026 – 6th International Conference on "Translational Ayurveda in Autoimmune Disorders: Bridging Classical Wisdom with Global Healthcare."

I deeply appreciate your thoughtful invitation and the efforts of Sri Dharmasthala Manjunatheshwara College of Ayurveda in organizing this important academic event.

I convey my heartfelt appreciation to the organizing team and extend my warmest wishes for the grand success of KSHAMATVAM 2026. I am confident that the conference will provide a valuable platform for meaningful academic exchange and contribute to the advancement of translational Ayurveda.

With best wishes for a successful and enriching conference.

Warm regards,

Prof. Tanuja Nesari
Director/निदेशक
आयुर्वेद शिक्षण एवं अनुसंधान संस्थान
Institute of Teaching & Research in Ayurveda (ITRA)
(राष्ट्रीय महत्व का संस्थान / Institute of National Importance)
(आयुष मंत्रालय, भारत सरकार)
(Ministry of Ayush, Govt. of India, New Delhi)
"बी" डिविजन पुलिस स्टेशन के सामने, गुरुद्वारा रोड, जामनगर - 361 008
Opp. B – Division Police Station, Gurudwara Road, Jamnagar – 361 008
Gujarat (India)
Ph. +91-288-2552014
#AYUSH#ZindagiRaheKhush
Website: www.itra.ac.in

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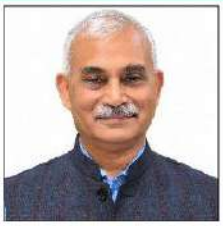
(An Autonomous Organization under the Ministry of Ayush, Govt. of India)

प्रो. (वैद्य) प्रदीप कुमार प्रजापति
Prof. (Vd.) Pradeep Kumar Prajapati
निदेशक / Director

D.O. No: Z-50/61/2026-AIIA/4160



MESSAGE

It is a matter of great pleasure to extend my warm greetings and best wishes on the occasion of the **International Conference on "Kshamatvam 2026: Translational Ayurveda in Autoimmune Disorders – Bridging Classical Wisdom with Global Healthcare"**, hosted by SDM College of Ayurveda, Udupi along with the associated pre-conference workshop.

Ayurveda has long recognized the dynamic relationship between *Vyadhi Kshamatva* (disease resistance), *Agni* (metabolic and digestive capacity), *Ojas* (vital resilience), and *Rasayana* (rejuvenative and promotive healthcare) as fundamental determinants of health and longevity. The classical wisdom succinctly emphasizes:

आयु: सत्त्वबलारोग्यस्वास्थ्यौज:प्रतिपत्तये। अग्निं रक्षेत् प्रयत्नेन सिद्धैराहारभेषजै:॥ (च.चि.15/242)

These principles acquire renewed significance in the contemporary era, particularly in the context of autoimmune disorders, which represent complex and multifactorial health challenges involving immune dysregulation, genetic predisposition, environmental influences, metabolism, lifestyle and chronic inflammation. Their complex nature calls for healthcare approaches that extend beyond disease-centric intervention and consider the individual as an integrated biological system.

The Ayurvedic concepts of *Agni*, *Ojas*, *Prakriti*, *Dosha* equilibrium and *Rasayana* offers a holistic framework that surely can contribute to the emerging paradigm of personalized and preventive healthcare. Translating these classical concepts into measurable biological parameters, validating them through contemporary scientific methodologies, and integrating them responsibly with modern healthcare can open new avenues for patient-centred management of chronic and complex disorders including autoimmune diseases.

The theme of **Kshamatvam 2026** is therefore both relevant and forward-looking. It will provide an important platform for *Vaidyas*, researchers, academicians, and scientists to engage in interdisciplinary dialogue and explore pathways for translating traditional knowledge into scientifically robust and globally relevant healthcare solutions. The pre-conference workshop will further provide an opportunity to strengthen research competencies, encouraging interdisciplinary interaction.

I commend the efforts of SDM College of Ayurveda, Udupi and all the organising members, faculty, researchers and delegates for bringing together this important international forum. I am confident that the deliberations of the conference and the scientific contributions presented in this compendium will stimulate further collaborative research and meaningful advances in the field of Ayurveda and autoimmune healthcare.

I extend my sincere wishes for the success of **Kshamatvam 2026** and for fruitful, inspiring and scientifically enriching deliberations.

With best wishes.

(Prof. (Vaidya) Pradeep Kumar Prajapati)

गौतमपुरी, सरिता विहार, मथुरा रोड, नई दिल्ली -110076
Gautampuri, Sarita Vihar, Mathura Road, New Delhi-110076
ई-मेल /E-mail: director@aiia.gov.in दूरभाष/Phone: 011-29948660

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Part One　Invited and Guest Contributions

Glimpses on Ayurvedic Approach in Understanding and Managing Autoimmune Disorders

Prof. (Dr) Srinivas Hejmadi Acharya, MD (Ayu), PhD
Distinguished Professor, All India Institute of Ayurveda, New Delhi / Goa (Ministry of AYUSH)

Abstract

In days to come, more illnesses likely to be added under the caption of autoimmune disorders as of now there could be more than a hundred illnesses considered. They present uncertain etiopathogenesis as well recovery trends.

Just corelating titles of illnesses with Ayurvedic names cannot justify unless and until the Samprapti is understood. Vyadhi Kshamatva- Pratyaneeka Bala which comes under Vikara Vighata Bhava (Host factors that resist illness) and presence of Aama apparently seems to have a greater weightage in knowing Samprapti of Autoimmune in addition to Rakta and Rasa Dushti.

Co-Presence of Ama may add to the complexity of clinical management and the chances of recovery. Prescribing Pachana, Doshavasechana and Shamana procedures need a very careful pre assessment of clinical condition and Bala of patient. Naimettika Rasayana may have special importance in the management of autoimmune disorders but a discriminate use of Rasayana therapy can only yield results. It is experienced in our clinics that the patients with autoimmune disorders demonstrated a better responses when internal medications preceded with Shodhana treatment.

Autoimmune condition precisely perceived as individuals own immune system hampering tissues and functioning of various systems in the body.

Autoimmune disorders as seen in todays' conventional clinics – could be more than a hundred names of illnesses to be listed under title. Clinical incidences are increasing alarmingly around the globe. Definitely not just because that you have more accessible to even efficient diagnostic today but also due to increased vulnerability of persons for such illnesses.

There could be more than 100 disorders that can be included under auto immune disorders.

The commoner titles could be – Rheumatoid Arthritis, Hashimoto's Thyroiditis, Celiac disease, Multiple Sclerosis, Systemic Sclerosis, Sjogren's syndrome etc.

These apparently turned the practitioners of conventional medicine to more different paradigm than ever before and new age to explore better immunosuppressant medications in industrial market.

In the prevailing situation of treating such illnesses under conventional practice, two words may sound more acceptable to all of us; (1) uncertain about etiopathogenesis and (2) uncertain about the treatment or recovery from illness.

A few common illnesses that can be stated here;

Joints and Muscles

- **Rheumatoid Arthritis (RA):** Causes inflammation, swelling, and pain in the joints.
- **Psoriatic Arthritis:** Joint inflammation combined with scaly skin patches (psoriasis).
- **Ankylosing Spondylitis:** A type of arthritis that primarily affects the spine.

(Ama Vata, Vatarakta)

Endocrine Glands

- **Type 1 Diabetes:** The immune system destroys insulin-producing cells in the pancreas.
- **Hashimoto's Thyroiditis:** Attacks the thyroid gland, leading to an underactive thyroid (hypothyroidism).
- **Graves' Disease:** Causes the thyroid gland to produce too much hormone (hyperthyroidism).
- **Addison's Disease:** Impacts the adrenal glands, which produce vital hormones.

(Jata Prameha, Gala Ganda, Gandarbuda)

Digestive System

- **Celiac Disease:** An immune reaction to eating gluten that damages the small intestine.
- **Inflammatory Bowel Disease (IBD):** Includes **Crohn's Disease** and **Ulcerative Colitis**, which cause chronic inflammation of the digestive tract.
- **Autoimmune Hepatitis:** The immune system attacks liver cells.

(Grahani, Pravahika, kamala)

Skin

- **Psoriasis:** Causes skin cells to multiply too quickly, resulting in thick, scaly patches.
- **Vitiligo:** Causes patches of skin to lose their color.
- **Alopecia Areata:** Causes the immune system to attack hair follicles, leading to hair loss.

(Kushta- kitibha, Shvitra, Indralupta)

Nervous System

- **Multiple Sclerosis (MS):** Damages the protective coating (myelin sheath) surrounding nerve cells.
- **Myasthenia Gravis:** Affects nerve impulses that allow the brain to control muscles.

(Urusthambha, Mudha Vata, Mamsavrita Vata)

Systemic (Affects Multiple Organs)

- **Systemic Lupus Erythematosus (Lupus / SLE):** Can affect the skin, joints, kidneys, blood cells, and heart.
- **Sjögren's Syndrome:** Primarily attacks the glands that produce saliva and tears, causing extreme dryness.
- **Scleroderma:** Causes the skin and connective tissues to thicken and harden.

(**Tvakgatavata, Kushta, Vatarakta)**

Knowing Bala and Immune in Ayurveda percepts

Immune activity as perceived under the term 'Bala 'mentioned in Ayurveda does encompass a very comprehensive topic and depict a profound approach towards psychosomatic vitality in human beings. If one attempts to focus on understanding Autoimmune disorders under the concept of Bala , this would definite open up new horizons of modern scientific investigation related to so called Autoimmune disorders.

Points to be noted under the concept of Bala:-

Bala is the functional outcome of 'OJUS' which is the pure essence of all Dhatu metabolism in the body. Rather purest form of normal Kapha Dosha is itself Bala **(prakritastu balam sleshma**). It is Bala who can control all vitiations in body.

बलंह्यलं निग्रहाय दोषाणां।

'Balam hi alam nigrahaya Doshanam (Roganam)'

Ayurveda advocate "Hita" practices for maintenance of health, but on the other hand the practice of 'Ahita' factors cannot be the solely factors for the appearance of illnesses (Vikara).

Even though whose physical contour is visibly thinner can at times have good Bala (vitality) on the contrary those appear to be sturdy physical stature may bear weaker Bala (vitality). This is because the Bala seems to be a compound effect of few many factors in an individual.

Bala in terms of Sattva Bala (psychic)-Shareera Bala(physical)-Chaitasik Bala (psychosomatic)

Bala in terms of Sarva Saathmya – Klesha saha (adaptability to unfavorable and stressors)

Bala as Pratyaneeeka specific and general immune mechanism of the body

Bala as anti stress

Bala adaptogenicity

Bala also as psychic immunity

Such a Bala is compounded by birth due to prakriti Dosha, obtained during the life due to lifestyles and exposure to varying situations and or accumulated by clinical efforts through certain Rasayana medicines etc. This comprehensive Bala is assessable in clinics by a trained Vaidya.

Ayurvedic terminologies like Vyadhi Kshamatva and *Pratyaneeka Bala* etc. often simulates the notions of immunity against disease and also cell/tissue specific immune functions. This specific information could be handful when we discuss upon autoimmune disorders affecting specific system or tissue beds.

The outcome of which could result in two kinds of Vyadhi Kshamatva (immune function against illness) namely (1) Vyadhi utpada Pratibhandaka (resist against the onset of illness) and (2) Vyadhi Bala Virodhaka (resist the virulence of illness). Though conceptually reasonable from conventional immunological knowledge, but hitherto no such explanations detailed nor implicated so far in modern medical texts of pathology.

In this end, it is important that, the *Bala* is a very comprehensive phenomenon, not just limiting to immunity but also the other aspects such as agility, strength and stability of systems like adaptation and balanced sensitivity, anti stress capabilities, integrity of the systems, neutralising and disintegration of harmful molecules, strength to execute activities, sustainability and so on.

Of late, scientist are still yet to find out the possibility of disease modifying factors among the host itself if not for the mutate variant of the parasites.

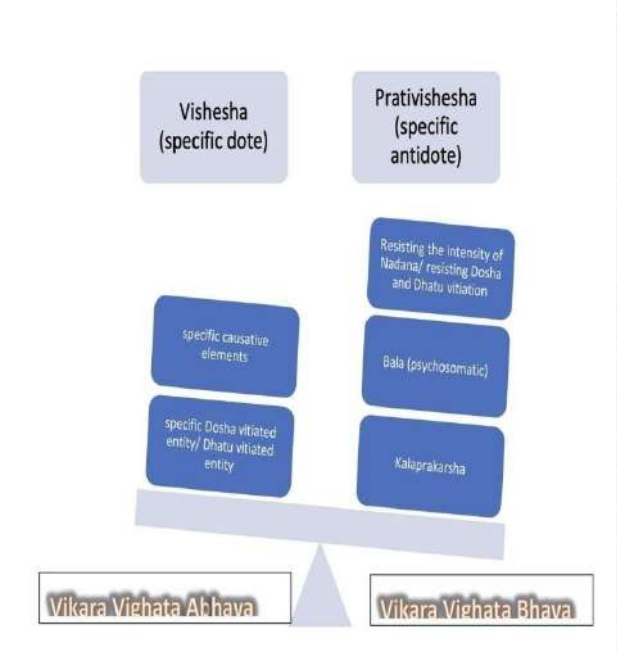
Understanding Clinical Facts of Realty

Appropriation (vulnerability) of Host body towards the Kaarana (disease inducing factor) is also necessary in the onset on illnesses. The host body itself incorporate a comprehensive interactive and supporting systems including tissue physiology, hormone and biochemicals who can enable or disable the disese process. Thus, Vikara Vighata Bhava (as part of functioning Bala) can completely or at least partially can resist the onset/process of illnesses. This logic is beautiful narrating Charaka Smhita.

इह खलु निदानदोषदूष्यविशेषेभ्यो विकारविघातभावाभावप्रतिविशेषा भवन्ति|

यदा ह्येते त्रयो निदानादिविशेषाः परस्परं नानुबध्नन्त्यथवा [१]
कालप्रकर्षादबलीयांसोऽथवाऽनुबध्नन्ति न तदा विकाराभिनिर्वृत्तिः,
चिराद्वाऽप्यभिनिर्वर्तन्ते, तनवो वा भवन्त्ययथोक्तसर्वलिङ्गा वा;
विपर्यये विपरीताः; इति
सर्वविकारविघातभावाभावप्रतिविशेषाभिनिर्वृत्तिहेतुर्भवत्युक्तः||४||

Charaka Samhita Nidana Sthana 4th chapter – 4th verses



(Diagrammatic Display on factors Vikara Vighata Bhava – Abhava both intrinsic and extrinsic factors.)

This is an interesting explanation regarding disease modifiers which result in:

1. Either person has a full blown symptom of illness which either affecting multiple systems or just involved a single tissue/system (sarva sampoorna Lakshana).
2. Possibly the condition may go acute intermittently or else controlled with medications in the remaining period (Yaapyata).
3. Where as another person has been diagnosed clinically and with the confirmatory laboratory tests but still the virulence of illness is not so high (Anu vyadhi).
4. There are also persons who have laboratory positive test on random investigation but never had any symptoms or complaints related to illness (kalapakarshat Baleeyanso).
5. The same is also true sometimes in genomic hierarchy that all members of the family do not exhibit the clinical symptoms though certain tests (lab) are invariably positive among family members (presence of Vikaravighata Bhava).

In the absence of desirable Bala (Vikara Vighata Abhava), it is possible that the disease can manifest. The outcome could be varying strength (virulence) of a specific disease among the different individuals in the society. This topic beautiful detailed in the ancient scripture Charaka Samhita (Charaka-Prameha Nidana)

Thus in precise, knowing about Vikrita Dosha, Vikrita Dhatu or Srotas or just arriving at the nearest title of an illness (Vyadhi naama -Systemic Sclerosis, RA etc.) could be fallacious in Ayurveda clinics particularly in conditions of Autoimmune disorders.

Aspects such as Individual Bala and Vikriti Bala (virulence of Illness) etc. need to be understood in the clinics to speak on individual based medical treatment for a given patient either or not suffering from autoimmune disorders. Obviously detailed in Charaka Samhita Vimana Sthana 'Vyadhitarupeeyam' chapter. Where the knowledge of inherent strength of the host (patient) as well virulence of illness (Vyadhi Bala as Guru/laghu) given an immense importance to decide suitable therapy which otherwise may prove detrimental (Charaka Samhita. Vimanasthana 7th Chapter, 4-6 Sloka)

Presence of Rakta Dushti in many of the illnesses - Vatarakta

It could be a bit of argument to pave a path for the major involvement of Rakta Dhatu in the pathological event of Autoimmune disorders. Our clinical observations dispel that in many autoimmune disorders apparently involving connective tissue, there seems to be a stalking presence of Rakta Dushti (vitiation Rakta Dhatu) and may be Rakta Avarana – a really complicating situation responsible for the progressive nature of illness and worsening clinical condition. Not ruling out the presence of Rasa Dushti which is very impeccable in the conditions like Scleroderma etc.

Positive clinical evidences are visible in few of the below autoimmune illnesses but could be many more;

Pemphigus, sjogren's Disease, Erythematosis- SLE, Scleroderma – Systemic sclerosis, various arthritic conditions including RA, some skin hypersensitive reactions etc.

Presence of Aama in autoimmune disorders

Unfortunately, if not for a disease entity like Amavata, the Vaidya may not often think necessary to think about Aama in the patients. It is often seen in few other autoimmune patients that the Avastha of Ama keeps fluctuating. Apakva Ama is indeed word to be thought about where there are not enough frank signs of Ama in the patients but they do demonstrate 'Anupashaya' and on the contrary respond better with Pachana treatment. Curiously enough, the commonest herbal or Ayurveda compound formula would prove to be very effective preceding to Ama Pachana.

In precise, the presence of hidden Ama in these patients are the cause for long trailing history of illness, for unpredictable responses and for the condition of virulence of the illness.

The Prescriptions

Entities like Agni, Bala and Ama conditions invariably should be on the top of clinical table, before a Vaidya can make any prescription for a person suffering from any type of autoimmune disorder. All the three above, are really good enough to modify drug activity (pharmacology) when administered to the patient under different situations. Clinical success in management of such a complex and chronic illness

depends on Vaidya's efficiency to get into individual based clinical conditions (Samprapti Avastha).

In addition, Pachana and Shodhana treatments preceding to any Ayurveda medicinal (Shamana) prescriptions can marvelously change the clinical situation and host responses to the treatment.

Not at the least, the Rasayana herbs could prove a great support for the management of autoimmune disorders, as discussed earlier that the involvement of Bala should not be forgotten in the prescription as this clinical condition is not just Dosha and Dushya. Role of Naimettika Rasayana is also to be appreciated in this context, as we can think of tissue or systemic specific Rasayana required in the specific clinical situation. **Discriminate use** of **Rasayana** herbs / medicine can impart better results. Whereas, a random or blind prescription of Rasayana indeed can prove to be a bad clinical practice.

Never the less, the Shamana therapies of Panchakarma is also of much help in certain autoimmune diseases. Present ayurveda practitioners are good enough to exploit this. In many cases these therapies as Abhyanga with specific medicated oils, or Svedana, Pizhichil, Patra Pinda Sveda, Avagaha Sveda, Shirodhara and thoughtful use of Nasya / Tarpana could at least help the patient in getting rid few irksome complaints, if not for a greater cure of illness.

The Science of Traditional Foods (Ahara Vijnana) and Personalised Nutrition in Under-standing Autoimmune Disorder Management

Dr. Vishweshwaraiah Prakash

Former Director, CSIR–CFTRI, Mysuru; Distinguished Scientist, CSIR, India; Hon. Vice-President, IUNS

Abstract : Autoimmune conditions are driven by chronic systemic inflammation, gut microbial imbalances, and damage to the intestinal barrier. Modern clinical nutrition increasingly recognizes the power of personalized dietary interventions alongside standard medical therapies. India's traditional food systems (Ahara Vijnana) offer a time-tested approach to personalized nutrition that modern food science can explain through chemical structure, nutrient delivery, and metabolic processing. This brief overview paper prepared specifically for the symposium Kshamatvam 2026 proceedings examines the food science principles underlying traditional culinary techniques—including lipid-based extraction using clarified butter (ghee), spice interactions, cereal-legume protein synergy, and micro-fermentation. These are discussed using them as demonstrative examples. It brings out their role in calming gut inflammation, repairing the gut barrier, and supporting metabolic balance. By linking traditional wisdom with food metabolism, one can visualise a practical, science-backed framework for managing by understanding autoimmune health in greater depth.

Key Words: Ahaara Vijnana, personalised nutrition, Agni and Ama, Siddha Gritha, Traditional Foods, modern chemistry, Protein synergy.

Autoimmune diseases occur when the immune system mistakenly attacks healthy tissues, a process driven by modern diets rich in Ultra processed foods, refined sugars, and unstable fats. These foods damage the protective gut lining—causing a "leaky gut"—which allows toxins like lipopolysaccharides (LPS) into the bloodstream and triggers widespread inflammation. India's traditional culinary system (Ahara Vijnana) addresses this by personalizing diet based on individual digestive capacity (Agni) and the person's constitution. Poor digestion creates toxic metabolic byproducts (Ama), modernly understood as inflammatory cytokines and advanced glycation products. Classical guidelines prevent this accumulation by advocating fresh, easily digestible foods and warning against incompatible combinations (Viruddhahara), which modern chemistry confirms can create irritating lipid oxidation products.

Traditional spices and preparation methods actively target these inflammatory pathways. Compounds like curcumin in turmeric, piperine in black pepper, and gingerols in ginger reduce inflammation and support digestion, while spices and herbs like cinnamon and holy basil help stabilize blood sugar moderately. Because compounds like curcumin do not dissolve well in water, traditional practices use Siddha Ghrita—infusing spices into warm clarified butter (ghee). Combining curcumin with piperine and dissolving it into a lipid matrix shields the active ingredients from stomach acid and delivers them directly through the lymphatic system, increasing their systemic absorption by up to hundred folds more bioavailability.

In addition to lipid extraction, heritage practices optimize protein quality, gut microbes, and mineral intake. Pairing staple grains with lentils, legumes and pulses balances essential amino acids (lysine and methionine), providing a fairly complete protein that stabilizes many blood parameters. Natural micro-fermentation in foods like Idli or Dosa breaks down anti-nutrients and produces short-chain fatty acids like butyrate, which nourish colon cells, repair tight junctions to fix a leaky gut, and calm immune responses. As a topping I would like to mention that brief spice blooming (Tadka) releases beneficial lipophilic oils, while traditional cookware (such as cast iron or clay) distributes heat evenly and adds trace minerals, offering a complete, practical approach to partially assist in managing autoimmune health.

Summary: Linking modern gastroenterology with the core principles of Ahara Vijnana shows that traditional food systems are built on sound principles of food chemistry and digestive metabolism. Use of certain foods in the processes described in Tradition practices, generates molecules for repairing the leaky gut barrier, reducing metabolic toxicity (Ama), optimizing nutrient delivery through fat matrices, and promoting healthy gut microbes. These traditional dietary practices provide an effective, natural companion to modern medical treatments for autoimmune conditions on a food based approach.

Key References

- Prakash Vishweshwaraiah, A Glimpse at India's Food Culture. Review Monograph. in the Book entitled Herbaceuticals the beginning of the Journey of Nutraceuticals (2nd edition), India; 2026 (In Print)
- Fasano A. All disease begins in the (leaky) gut: role of zonulin-mediated gut permeability in auto-inflammatory diseases. F1000Res. 2020;9.
- Aggarwal BB, Harikumar KB. Potential therapeutic effects of curcumin against inflammatory diseases. Int J Biochem Cell Biol. 2009;41(1):40-59.
- Jamuna Prakash, Vaisundara V, Prakash Vishweshwaraiah, eds. Nutritional and Health Aspects of Traditional Foods in South Asian Countries. Elsevier; 2020.
- Charaka Samhita. Sutrasthana & Annapanavidhi Adhyaya. Chaukhambha Orientalia; 2018.

Ojas and Immunity: Reconsidering Ojas as a Principle of Biological Resilience

Dr. Rammanohar Puthiyedath

Professor and Research Director, Amrita School of Ayurveda, Kollam, Kerala

Abstract

Ojas is one of the most important, and one of the most difficult to translate, concepts in Ayurvedic physiology. It is routinely equated with immunity, largely because classical sources link it to strength, resistance to disease, and the preservation of life. Yet the classical descriptions point to something considerably broader. Ojas is described as the supreme essence of the dhātus, seated in the heart yet pervading the whole body, and as the very basis on which bodily existence depends. It is tied not only to disease resistance but to nourishment, strength, vitality, psychological stability, and resistance to depletion, and it is discussed in relation to Rasa, Kapha, Bala and Śukra in ways that resist reduction to any single anatomical structure or physiological system.

This article proposes that Ojas is better understood as a multidimensional principle of psychophysical and biological resilience, expressed across four interlocking dimensions: mental resilience, physical stamina and recovery, immune competence, and the preservation of physiological reserve with ageing. The classical descriptions of Ojas are read alongside the contemporary understanding of immunity, and a conceptual distinction is proposed between Agni and Ojas: the dynamic processes of recognition, discrimination, processing and elimination involved in host defence appear to have greater functional affinity with Agni, while Ojas may represent the underlying integrity, reserve and resilience that allow the organism to respond appropriately and to recover from challenge. This reading avoids collapsing Ojas into a single modern biomedical equivalent while offering a framework through which the concept can be made researchable.

Keywords: Ojas, immunity, Agni, Bala, Rasa, Kapha, Śukra, resilience, ageing, Ayurveda

Introduction

Among the foundational concepts of Ayurvedic physiology, Ojas occupies a distinctive and somewhat awkward position. It is commonly translated as vital essence, vitality, or strength, and in contemporary discussion it is increasingly rendered simply as immunity — a translation that has gained popularity precisely because Ojas is traditionally linked to resistance against disease. The equation is convenient, but it may also be too narrow.

Read closely, the classical descriptions situate Ojas within a considerably larger physiological framework. It is called the tejas of the dhātus, linked to Rasa, connected with Kapha and Bala, and discussed in relation to Śukra [1]. It is said to be essential to the continued existence of the body, and its depletion is described as producing a characteristic constellation of physical and psychological change rather than a narrow susceptibility to infection. Taken together, these descriptions suggest that Ojas was never intended as a specialised mechanism of defence against pathogens alone.

Modern biology, meanwhile, has moved well past the older idea of immunity as little more than antibody production and microbial elimination. Contemporary immunology encompasses innate and adaptive recognition, physical barriers, inflammation, complement activity, phagocytosis, antigen presentation, cellular and humoral responses, tolerance, regulation, memory and tissue repair [2]. Immune function is, in turn, deeply entangled with nutrition, metabolism, sleep, stress, ageing, and the nervous and endocrine systems [3,4]. This expanded picture of immunity creates room to reconsider Ojas without forcing the two concepts into an artificial one-to-one correspondence.

The central proposition of this article is that Ojas should be understood not as the Ayurvedic equivalent of immunity, but as a multidimensional principle of biological and psychophysical resilience, of which immune competence is one manifestation among several.

The Classical Description of Ojas

The description of Ojas in the Aṣṭāṅga Hṛdaya is particularly important for grasping its multidimensional character. Vāgbhaṭa writes:

ओजस्तु तेजो धातूनां शुक्रान्तानां परं स्मृतम्।
हृदयस्थमपि व्यापि देहस्थितिनिबन्धनम्॥ ३७॥
स्निग्धं सोमात्मकं शुद्धमीषल्लोहितपीतकम्।
यन्नाशे नियतं नाशो यस्मिंस्तिष्ठति तिष्ठति॥ ३८॥
निष्पद्यन्ते यतो भावा विविधा देहसंश्रयाः।

Ojas tu tejo dhātūnāṃ śukrāntānāṃ paraṃ smṛtam;
hṛdayastham api vyāpi dehasthiti-nibandhanam.
Snigdhaṃ somātmakaṃ śuddham īṣal-lohita-pītakam;
yan-nāśe niyataṃ nāśo yasmiṃs tiṣṭhati tiṣṭhati.
Niṣpadyante yato bhāvā vividhā dehasaṃśrayāḥ.

Ojas, in this account, is the supreme essence of the dhātus, culminating in Śukra. Though seated in the heart, it pervades the body and forms a basis for the maintenance of bodily existence; it is described as unctuous, Soma-like, pure, and faintly reddish-yellow. Its destruction entails the destruction of the organism, while life and bodily existence persist for as long as it remains, and diverse bodily phenomena are said to arise from it [1].

Several ideas worth pausing on emerge from this short passage. Ojas is explicitly tied to the entire dhātu system rather than to any single tissue. It is described as having both a central and a systemic character — hṛdayastha yet vyāpi, seated in the

heart yet pervasive. It is called deha-sthiti-nibandhanam, a basis or determinant of the body's continued existence. And its presence is linked to the emergence of diverse bodily phenomena. Already, this is a considerably broader remit than immunity.

Ojas, Tejas and the Significance of Colour

The description of Ojas as tejo dhātūnām repays closer attention. Tejas carries a semantic field of brilliance, transformation, intensity and energetic potency, yet Ojas is simultaneously called soma-ātmaka, which suggests its nature cannot be reduced to a purely fiery principle. The classical description thus brings together dimensions of physiological organisation that might, on the surface, appear to sit in tension with one another.

Its characterisation as īṣal-lohita-pītakam — slightly reddish-yellow — also invites reflection. A literal reading simply registers this as a classical physical description. But one might reasonably ask whether the reddish-yellow hue carries a symbolic or functional significance connected to tejas and the capacity for energy transformation. A modern reader might be tempted to associate such imagery with a substrate or system capable of supporting energy production and release — the idea that the colour signals something like "combustibility," or energetic potential. This is an intriguing possibility, but it should be flagged clearly as an interpretive hypothesis rather than presented as the intended meaning of the classical author.

What the passage makes clear is that Ojas is described using both soma and tejas language. It is therefore neither purely inert substance nor simply an active defensive process; it appears to occupy a conceptual space somewhere between substance, vitality and function.

Ojas, Life and Biological Integrity

Perhaps the strongest statement in the passage is this: yan-nāśe niyataṃ nāśo yasmiṃs tiṣṭhati tiṣṭhati — "when it is destroyed, destruction is inevitable; when it remains, [the organism] remains" [1]. This places Ojas at the level of organismal integrity itself, not merely at the level of disease resistance.

Immunity is essential to survival, but it is not synonymous with life. A person can possess an intact immune system and still lose physiological integrity through starvation, severe trauma, metabolic collapse, neurodegeneration, or other forms of systemic failure. The classical description of Ojas therefore points to a concept operating at a higher level of biological organisation than immunity alone: Ojas is not simply something the organism deploys to fight disease, but something bound up with its capacity to remain a living, integrated, functioning whole. This is a powerful basis for understanding Ojas as resilience rather than as defence.

Ojas and the Generation of Bodily Functions

The line niṣpadyante yato bhāvā vividhā dehasaṃśrayāḥ — that diverse bodily phenomena arise from, or depend upon, Ojas — argues further against a narrow immunological reading [1]. If Ojas participates conceptually in the emergence and maintenance of diverse bodily functions, its biological expression should be expected to be multidimensional rather than confined to host defence. This is consistent with the proposition, developed below, that Ojas manifests across several observable domains: mental stability, physical strength and endurance, resistance to and recovery from illness, preservation of vitality, and the maintenance of function across the lifespan. The classical text thus offers an internal Ayurvedic basis for looking beyond immunity, well before any comparison with modern biology is attempted.

Ojas and the Dhātus

The statement ojas tu tejo dhātūnāṃ śukrāntānāṃ paraṃ smṛtam places Ojas at the culmination of the dhātu sequence, associating it with the essence of the dhātus collectively rather than with any one isolated tissue [1]. This matters when set alongside other classical descriptions. Ojas is intimately related to Rasa (rasātmakaṃ vahaty ojaḥ); it is associated with Kapha and Bala (prākṛtaṃ tu balaṃ śleṣmā), a relationship reinforced by descriptions of ślaiṣmika ojas; and it is discussed in relation to Śukra, including its characterisation as the mala of Śukra [1].

These descriptions need not be read as competing or contradictory definitions. They may instead represent different physiological vantage points on a single multidimensional phenomenon: Rasa highlights nourishment and circulation, Kapha highlights stability, cohesion, support and protection, Śukra highlights generative and reproductive vitality, and the dhātu description as a whole highlights systemic integration. Together, they suggest that Ojas concerns the organism's capacity to maintain and express vitality across several dimensions at once, rather than any one of them in isolation.

Ojas and Mental Resilience

The first of the four dimensions proposed here is mental resilience — the capacity to withstand psychological challenge while retaining functional stability and the ability to recover [5]. This does not mean the absence of fear, sadness, stress or emotional disturbance; it refers instead to the capacity to experience disturbance without losing one's fundamental psychological integrity.

This concept bears directly on the Ayurvedic understanding of Ojas, since Ojas is described as a determinant of overall bodily stability rather than merely a component of antimicrobial defence. Modern biology increasingly recognises the interdependence of psychological and physiological resilience: chronic stress can alter autonomic regulation, endocrine signalling, sleep, metabolism and immune function, and persistent physiological stress can, in turn, shape mood, cognition and behaviour [3]. Mental resilience, in other words, is not a purely psychological phenomenon walled off from the rest of physiology, and Ojas may be hypothesised to represent, at least in part, a psychophysical capacity to remain stable under challenge — a hypothesis anticipated in the physiological

literature's own attempts to connect Ojas to stress-responsive neuroendocrine regulation [6].

This also helps explain why reducing Ojas to immunity falls short. A person may have entirely adequate immune competence while still experiencing poor stress tolerance, impaired recovery, and psychological fragility. Ojas, on this reading, potentially encompasses the broader state within which immune competence sits.

Ojas and Physical Stamina

The second dimension is physical stamina. The association between Ojas, Kapha and Bala is important here: prākṛtaṃ tu balaṃ śleṣmā links normally functioning Kapha with Bala, and the description of ślaiṣmika ojas strengthens the connection between Ojas and the stabilising, sustaining functions associated

with Kapha [1]. Physical stamina, of course, is more than muscular strength — it includes endurance, exercise tolerance, recovery, and the capacity to withstand physiological stress — which suggests a loose conceptual chain: Ojas → physiological reserve → Bala → physical performance. This is offered as a conceptual model rather than a literal classical equation; Bala may be understood as manifested functional capacity, while Ojas represents one of the underlying conditions that sustain it.

A later statement in the same discussion is especially valuable here: ojo-vṛddhau hi dehasya tuṣṭi-puṣṭi-balodayaḥ — "with the increase of Ojas, there arise in the body satisfaction, nourishment and strength" [1]. This is a remarkably broad functional description. Ojas does not merely confer resistance to infection; its increase is linked to tuṣṭi, a state of satisfaction or well-being, to puṣṭi, nourishment and development, and to bala, strength. Together these three point toward systemic flourishing rather than narrow defence, and the verse offers strong classical support for reading Ojas as a determinant of vitality in the broadest sense.

Ojas and Immunity

The third dimension is immunity itself, and it is here that the modern comparison is most often drawn — though the relationship needs to be formulated carefully. Ojas is not the immune system. Modern immunity comprises physical barriers, innate recognition, complement, phagocytosis, inflammatory responses, antigen presentation, T-cell and B-cell responses, antibodies, immune memory, tolerance and regulatory mechanisms — a set of dynamic biological processes [2]. Ojas appears to describe something broader: the capacity of the organism to remain robust and integrated while these processes unfold.

The relationship might therefore be expressed this way: Ojas supports immune resilience rather than constituting immunity itself. An Ojas-rich state would be expected to support appropriate immune responsiveness, adequate resistance to infection, controlled inflammatory responses, preservation of tissue integrity during illness, effective recovery, and the restoration of physiological equilibrium once the challenge has passed. This is a different proposition from simply having a "strong immune system." Excessive immune activation can itself cause tissue injury, and biological robustness requires regulation as much as reactivity [2,7]. Ojas may therefore sit conceptually closer to immune resilience than to immune activation.

Agni and the Functional Processes of Immunity

This distinction leads naturally to Agni, which is fundamentally associated with transformation, processing and discrimination [8]. Modern immune biology involves closely analogous functional processes: the immune system must recognise biological patterns, distinguish potentially harmful from harmless stimuli, process antigens, activate appropriate responses, and eliminate threats [2,7]. This creates a useful conceptual correspondence — the dynamic processes of recognition, processing, discrimination and elimination involved in biological defence may have greater functional affinity with Agni than with Ojas.

This is not a claim that Agni is literally the immune system. The distinction is rather between process and condition: Agni as a principle of active processing and transformation, Ojas as a principle of underlying integrity and resilience. A useful conceptual triad follows — Agni for processing, transformation and appropriate response; Ojas for integrity, reserve and resilience; Bala for manifested functional capacity — and this distinction may offer a more sophisticated Ayurvedic framework for engaging with immunology than a simple Ojas-equals-immunity equation allows.

Ojas and Stress-Induced Depletion

The classical description becomes still more significant when Vāgbhaṭa turns to the factors that deplete Ojas:

ओजः क्षीयेत कोपक्षुद्ध्यानशोकश्रमादिभिः॥ ३९॥

Ojaḥ kṣīyeta kopa-kṣudh-dhyāna-śoka-śramādibhiḥ — Ojas is depleted by anger, hunger, excessive preoccupation, grief, exertion, and similar factors [1]. The inclusion of psychological states alongside physiological deprivation — kopa (anger), kṣudh (hunger), dhyāna (excessive preoccupation or brooding), śoka (grief), śrama (exertion or fatigue) — is telling. This list crosses the conventional modern boundary between "mental" and "physical" stress, which is exactly what one would expect if Ojas represents an integrated psychophysical state rather than a purely somatic reserve.

The organism does not, after all, experience psychological and physiological stress as wholly independent events: chronic psychological stress can alter sleep, endocrine function, autonomic activity, metabolism and immune regulation, while physical deprivation and excessive exertion can similarly affect psychological functioning [3]. The classical list offers a genuinely interesting basis, then, for interpreting Ojas as a reserve depleted by cumulative psychophysiological burden rather than by any single category of stressor.

The Phenotype of Ojas Depletion

The consequences of this depletion are described immediately afterward:

बिभेति दुर्बलोऽभीक्ष्णं ध्यायति व्यथितेन्द्रियः।
दुःच्छायो दुर्मना रूक्षो भवेत्क्षामश्च तत्क्षये॥४०॥

Bibheti durbalo 'bhīkṣṇaṃ dhyāyati vyathitendriyaḥ / duḥcchāyo durmanā rūkṣo bhavet kṣāmaś ca tat-kṣaye — with depletion of Ojas, a person becomes fearful and repeatedly weak, preoccupied or distressed, with disturbed senses; the complexion deteriorates, the mind becomes unhappy, and the body grows dry and emaciated [1].

What makes this description striking is how thoroughly multisystemic it is. Ojas depletion is not framed simply as heightened susceptibility to infection; it includes psychological change (fear, mental distress), functional weakness (durbala), sensory disturbance (vyathitendriya), altered appearance (duḥchāya), mental ill-being (durmanā), and somatic depletion (kṣāma). It reads almost as the inverse of a multidimensional resilience phenotype, and it provides some of the strongest classical evidence that Ojas extends well beyond immunity as conventionally understood.

The Three Stages of Ojas Disorder: Visraṃsa, Vyāpat and Kṣaya

Alongside this general phenotype of depletion, the classical literature offers something more granular: a staged nosology of Ojas pathology. The Suśruta Saṃhitā describes three progressively severe conditions that arise when Ojas is disturbed — visraṃsa (displacement or dislodgement), vyāpat (derangement or corruption), and kṣaya (depletion or loss) — and, notably, attributes them to much the same causes already encountered in the Aṣṭāṅga Hṛdaya: injury, tissue wasting, anger, grief, excessive preoccupation, exertion and hunger [9].

अभिघातात्क्षयात्कोपाच्छोकाद्ध्यानाच्छ्रमात्क्षुधः।
ओजः सङ्क्षीयते ह्येभ्यो धातुग्रहणनिःसृतम्।
तेजः समीरितं तस्माद्विस्रंसयति देहिनः॥२३॥
तस्य विस्रंसो व्यापत् क्षय इति त्रयो दोषाः, लिङ्गानि भवन्ति वर्णभेदो ग्लानिस्तन्द्रा सन्धिविश्लेषो गात्राणां सदनं दोषच्यवनं क्रियासन्निरोधश्च विस्रंसे,
स्तब्धगुरुगात्रता वातशोफो निद्रा च व्यापन्ने,
मूर्च्छा मांसक्षयो मोहः प्रलापो मरणमिति च क्षये॥२४॥

Abhighātāt kṣayāt kopāc chokād dhyānāc chramāt kṣudhaḥ;
ojaḥ saṅkṣīyate hy ebhyo dhātu-grahaṇa-niḥsṛtam;
tejaḥ samīritaṃ tasmād visraṃsayati dehinaḥ.
Tasya visraṃso vyāpat kṣaya iti trayo doṣāḥ, liṅgāni bhavanti — varṇa-bhedo glāniḥ tandrā sandhi-viśleṣo gātrāṇāṃ sadanaṃ doṣa-cyavanaṃ kriyā-sannirodhaś ca visraṃse,
stabdha-guru-gātratā vāta-śopho nidrā ca vyāpanne,
mūrcchā māṃsa-kṣayo mohaḥ pralāpo maraṇam iti ca kṣaye.

From injury, tissue depletion, anger, grief, excessive preoccupation, exertion and hunger, Ojas becomes diminished and dislodged from its hold on the dhātus [9]. Three conditions follow, each with its own signature. Visraṃsa — the mildest, and implicitly the most reversible — presents as a change or dulling of the complexion, lassitude, drowsiness, looseness or separation at the joints, heaviness of the limbs, dislodgement of the doṣas from their normal sites, and a general hindrance of bodily activity. Vyāpat, the intermediate stage, is marked by stiffness and heaviness of the body, vāta-type swelling, and pronounced drowsiness or somnolence. Kṣaya, the most severe, presents as fainting, wasting of the flesh, confusion, delirious speech, and — in its most advanced form — death [9].

The text is equally explicit about what follows from this staging:

पूर्वोक्तानि च लिङ्गानि मरणं च बलक्षये। तत्र विस्रंसे व्यापन्ने च क्रियाविशेषैरविरुद्धैर्बलमाप्याययेत्; इतरं तु मूढसञ्ज्ञं वर्जयेत्॥२८॥

Pūrvoktāni ca liṅgāni maraṇaṃ ca bala-kṣaye. Tatra visraṃse vyāpanne ca kriyā-viśeṣair aviruddhair balam āpyāyayet; itaraṃ tu mūḍha-saṃjñaṃ varjayet.

These same signs, and death, occur also in the depletion of Bala; but in visraṃsa and in vyāpat, the physician should restore strength through appropriate, non-contradictory measures, while the further condition — kṣaya attended by loss of consciousness — should be given up as untreatable [9]. This is an early and unusually blunt statement of therapeutic futility, reserved for the point at which Ojas has been depleted beyond the possibility of recovery.

This triad sharpens several of the arguments already made about Ojas. First, it confirms that classical authors were already thinking about Ojas depletion as a graded process rather than a binary present-or-absent state — an idea directly relevant to the case, made throughout this article, for a multidimensional and quantifiable Ojas phenotype rather than a single biomarker. Second, the symptom pattern at each stage maps unevenly but suggestively onto categories recognisable in contemporary medicine. The picture of dislodged doṣas and disrupted function in visraṃsa invites comparison with autoimmune-type dysregulation, in which the body's own regulatory mechanisms misfire rather than simply weaken — though the comparison is easier to draw than to substantiate: a systematic review of Ayurvedic treatment for rheumatoid arthritis, the paradigm autoimmune joint disease, found the available trial evidence too limited to support firm conclusions [10]. The stiffness, oedema and lethargy of vyāpat resembles the low-grade inflammatory and fatigue states seen in chronic immune-mediated or metabolic disease; and the wasting, confusion and, at the extreme, death of kṣaya aligns with frank immunodeficiency and terminal systemic failure — a spectrum with an obvious modern analogue in diabetes mellitus, a condition for which Ayurveda's traditional framework has itself drawn renewed translational

interest [11]. None of these correspondences should be mistaken for an exact equivalence — resisting that kind of collapse is precisely the argument of this article — but the graded structure of the classical model is difficult to explain if Ojas is understood only as resistance to infection, and considerably easier to explain if Ojas is understood as a depletable reserve of organismal integrity, consistent with the resilience framework proposed here.

It is also worth relating this triad to the Aṣṭāṅga Hṛdaya's account of ojaḥ-kṣaya discussed above. Vāgbhaṭa's description of fear, repeated weakness, disturbed senses, poor complexion, unhappiness and emaciation reads, in this light, less like a single undifferentiated state and more like a composite drawn from across the vyāpat–kṣaya end of the Suśruta spectrum — a reminder that the classical tradition did not treat Ojas depletion as one uniform event, but as a continuum whose stage determines both its clinical picture and its treatability.

Restoration of Ojas

The classical therapeutic response is equally revealing:

जीवनीयौषधिक्षीररसाद्यास्तत्र भेषजम्।

Jīvanīya-auṣadhi-kṣīra-rasādyās tatra bheṣajam — jīvanīya medicines, milk, and nourishing preparations are prescribed as remedies in this context [1]. The treatment is not aimed at any specific immune pathway; it is directed toward the restoration of vitality and nourishment, which again supports reading Ojas as an organism-wide state rather than a localised defensive mechanism. The therapeutic logic here is restorative rather than narrowly antimicrobial, and it has an important contemporary parallel: modern medicine increasingly recognises that recovery from illness depends not only on the elimination of pathogens but also on adequate nutrition, sleep, metabolic support, physical rehabilitation, psychological support, and the restoration of physiological reserve [4]. The two conceptual domains are not identical, but the parallel is worth investigating further.

Ojas and Slow Ageing

The fourth dimension is the preservation of vitality with ageing. Ageing brings progressive change in physiological reserve, tissue repair, immune regulation, metabolism, musculoskeletal function, neuroendocrine regulation and recovery capacity [12,13]. Healthy ageing is therefore not simply the absence of disease; it is the preservation of functional capacity, and this provides a natural context for Ojas. If Ojas represents biological integrity and reserve, its maintenance could, at least in principle, correspond to the preservation of function and resilience across the lifespan.

The relevant question is therefore not whether Ojas prevents ageing, but whether the preservation of Ojas corresponds to the preservation of physiological reserve and healthspan. This framing also offers a conceptual bridge to Rasāyana, which might be viewed — as a hypothesis rather than an established equivalence — as a group of interventions intended to preserve or enhance the biological conditions represented by Ojas: nourishment, strength, vitality, resistance and longevity [14]. This is not the same as the modern concept of anti-ageing therapy; the possible correspondence lies instead in the shared idea of preserving functional capacity and resilience as age advances.

Ojas and the Four Dimensions of Resilience

Figure 1 summarises this picture: the four domains of resilience developed below, tracked across the five graded states already introduced — Ojo-vṛddhi, Prākṛta ojas, and the Suśruta triad of visraṃsa, vyāpat and kṣaya.

Figure 1. The Ojas spectrum. Four domains of resilience — mental, physical, immune, and ageing — tracked across five graded states, from Ojo-vṛddhi (increase) through the baseline (Prākṛta ojas) to the Suśruta Saṃhitā's triad of depletion: Ojo-visraṃsa, Ojo-vyāpat and Ojaḥ-kṣaya [1,9]. Beyond loss of consciousness, kṣaya is described as untreatable (Sū. 15.28).

The classical descriptions can be drawn together, then, into four major domains. Mental resilience is the capacity to remain psychologically stable and to recover from stress; the depletion of Ojas is associated with fear, mental distress and excessive preoccupation. Physical stamina is the capacity to sustain activity, tolerate physiological challenge and recover; the increase of Ojas is associated with puṣṭi and bala. Immune resilience is the capacity to mount appropriate biological defence, regulate the response and recover from illness; Ojas may provide the underlying physiological conditions for effective immune function rather than constituting the immune system itself. And the preservation of vitality with ageing is the capacity to retain physiological reserve, functional capacity and resilience across the lifespan; Ojas may therefore be conceptualised as a determinant of healthspan rather than merely a determinant of resistance to infection.

These four dimensions are not separate compartments so much as facets of one integrated property, and they interact continuously. Poor nutrition can reduce physical reserve and impair immunity. Chronic psychological stress can disturb sleep, metabolism and immune regulation. Persistent inflammation can impair physical function and psychological well-being. Ageing can erode reserve across all four domains at once [3,4,12,13]. Viewed this way, the four dimensions look less like a list and more like different expressions of a single underlying capacity.

From Resistance to Resilience

The distinction between resistance and resilience may be the conceptual key to understanding Ojas. Resistance asks whether the organism can prevent or overcome a particular threat; resilience asks whether it can maintain its integrity during the challenge and recover afterward [5]. Immunity, in the modern sense, is principally concerned with biological defence and regulation; Ojas may encompass the broader capacity of the organism to remain itself in the face of challenge.

This distinction explains why Ojas can simultaneously be associated with immunity, strength, nourishment, psychological stability, reproductive vitality, recovery, and the preservation of life — all of these can be understood as expressions of biological resilience rather than as a loose bundle of unrelated attributes.

Ojas as an Emergent Property of the Dhātu System

The phrase ojas tu tejo dhātūnām allows for a further conceptual possibility. Rather than treating Ojas as a discrete substance produced by a single organ, it might be considered an emergent property of adequately functioning, adequately nourished physiology — which would explain its association with the dhātus as a whole. Rasa provides the context of nourishment, the successive dhātus provide structural and functional organisation, and Śukra represents the culmination of the sequence; Ojas is described as their finest essence [1]. On this reading, Ojas is not simply another item on a list of tissues but what becomes possible once the organism is sufficiently nourished, integrated and resilient — a picture compatible with the earlier verse linking the increase of Ojas to tuṣṭi, puṣṭi and bala, and one that ties Ojas to the flourishing of the organism rather than only to its defence.

Towards a Researchable Concept of Ojas

The question for contemporary Ayurveda is perhaps not "What is the modern equivalent of Ojas?" — a question that assumes Ojas must correspond to a single modern biological entity — but rather: what measurable phenotype would Ayurveda predict in an individual possessing abundant Ojas? Such a phenotype could be investigated across several domains at once: an immune domain covering immune competence, inflammatory regulation, infection resistance and recovery [2,7]; a physical domain covering muscle strength, endurance, exercise tolerance, activity capacity and recovery; a psychological domain covering stress resilience, emotional stability, cognitive well-being and recovery from psychological challenge [3,5]; a metabolic domain covering metabolic flexibility, nutritional sufficiency and adaptation to metabolic stress [4]; an ageing domain covering functional capacity, frailty, physiological reserve and healthspan [12,13]; and a recovery domain covering the speed and completeness with which physiological systems return to baseline after challenge.

This framing would yield a multidimensional Ojas phenotype rather than a single Ojas biomarker — one that could, in principle, be investigated prospectively. Individuals classified according to an operationalised assessment of Ojas could be followed over time to determine whether differences in Ojas correspond to measurable differences in physical resilience, immune function, psychological resilience, recovery, and healthy ageing. Framed this way, Ojas becomes a testable systems-level hypothesis rather than an abstract historical concept, without being prematurely reduced to a single modern biological variable.

A Proposed Ayurvedic–Biomedical Conceptual Framework

The emerging framework can be summarised as a cascade. Agni governs processing, transformation, discrimination and appropriate response. Ojas represents biological integrity, physiological reserve, psychophysical resilience and the capacity to sustain life. Bala represents manifested strength, stamina and functional capacity. And the observable phenotype that results spans mental resilience, physical endurance, immune resilience, recovery, and healthy ageing.

This is not a claim of direct biomedical equivalence; it is a functional correspondence model, intended to preserve the conceptual distinctions within Ayurveda while identifying domains in contemporary biology through which those concepts might be investigated.

Conclusion

Ojas is often described as the Ayurvedic equivalent of immunity, but the classical literature suggests something considerably broader. It is described as the supreme essence of the dhātus, associated with Śukra, situated in the heart yet pervasive throughout the body, and fundamental to the maintenance of bodily existence. Its increase is linked to tuṣṭi, puṣṭi and bala; its depletion produces weakness, fear, mental distress, altered appearance and wasting; and it is depleted by anger, hunger, excessive mental preoccupation, grief and exertion, and restored through jīvanīya measures, milk and nourishment [1]. The Suśruta Saṃhitā's further staging of this depletion into visraṃsa, vyāpat and kṣaya shows that the classical tradition already conceived of Ojas pathology as graded rather than binary, with treatability itself a function of how far the depletion has progressed [9]. These descriptions sit uneasily within the narrow concept of immunity, but they are entirely consistent with a concept of multidimensional biological and psychophysical resilience.

Ojas may therefore be considered across four interconnected dimensions — mental resilience, physical stamina and recovery, immune resilience, and the preservation of physiological reserve with ageing — and the distinction from Agni is equally important: the immune system's dynamic processes of recognition, discrimination, processing and elimination may have greater functional affinity with Agni, while Ojas may represent the underlying integrity and reserve that allow the organism to sustain those processes and recover from their physiological demands [2,7,8]. The classical description ojas tu tejo dhātūnām further suggests that Ojas belongs to a level of

organisation broader than any single physiological subsystem, and its relationships with Rasa, Kapha, Bala and Śukra reinforce this multidimensionality.

The more useful question, then, may not be "What is Ojas in modern biology?" but "What state of biological organisation does the Ayurvedic concept of Ojas describe, and what measurable phenotype would be expected when that state is present or depleted?" This shift — from equivalence to functional correspondence, and from a single biomarker to a multidimensional phenotype — may offer a more rigorous pathway for bringing Ojas into dialogue with contemporary biology. Understood this way, Ojas is not simply the body's capacity to fight disease, but its capacity to remain vital, integrated and resilient in the face of continuous biological, psychological and environmental challenge.

Note: Artificial intelligence tools were used to assist in refining the language and generating the figure. The ideas, concepts, interpretations, and intellectual content presented in this article are solely those of the author.

References

1. Vāgbhaṭa. Aṣṭāṅga Hṛdayam, Sūtrasthāna, Chapter 11 (Doṣādi Vijñānīya), verses 37–40. In: Srikantha Murthy KR, translator. Vāgbhaṭa's Aṣṭāṅga Hṛdayam: Text, English Translation, Notes, Appendices and Indices, Vol. 1, Sūtrasthāna. Varanasi: Chaukhambha Krishnadas Academy.
2. Marshall JS, Warrington R, Watson W, Kim HL. An Introduction to Immunology and Immunopathology. Allergy Asthma Clin Immunol. 2018;14(Suppl 2):49.
3. Segerstrom SC, Miller GE. Psychological Stress and the Human Immune System: A Meta-Analytic Study of 30 Years of Inquiry. Psychol Bull. 2004;130(4):601–630.
4. Calder PC. Nutrition, Immunity and COVID-19. BMJ Nutr Prev Health. 2020;3(1):74–92.
5. Southwick SM, Bonanno GA, Masten AS, Panter-Brick C, Yehuda R. Resilience Definitions, Theory, and Challenges: Interdisciplinary Perspectives. Eur J Psychotraumatol. 2014;5:25338.
6. Walton KG, Pugh NDC. Stress, Steroids, and 'Ojas': Neuroendocrine Mechanisms and Current Promise of Ancient Approaches to Disease Prevention. Indian J Physiol Pharmacol. 1995;39(1):3–36.
7. Netea MG, Joosten LAB, Latz E, et al. Trained Immunity: A Program of Innate Immune Memory in Health and Disease. Science. 2016;352(6284):aaf1098.
8. Singh A, Agrawal S, Patwardhan K, Gehlot S. Overlooked Contributions of Ayurveda Literature to the History of Physiology of Digestion and Metabolism. Hist Philos Life Sci. 2023;45(2):13.
9. Suśruta. Suśruta Saṃhitā, Sūtrasthāna, Chapter 15 (Doṣadhātumalakṣayavṛddhi Vijñānīya), verses 23–28. In: Bhishagratna KL, translator. The Sushruta Samhita: An English Translation. Varanasi: Chowkhamba Sanskrit Series Office.
10. Park J, Ernst E. Ayurvedic Medicine for Rheumatoid Arthritis: A Systematic Review. Semin Arthritis Rheum. 2005;34(5):705–713.
11. Banerjee S, Debnath P, Rao PN, Tripathy TB, Adhikari A, Debnath PK. Ayurveda in Changing Scenario of Diabetes Management for Developing Safe and Effective Treatment Choices for the Future. J Complement Integr Med. 2015;12(2):101–110.
12. Nikolich-Žugich J. The Twilight of Immunity: Emerging Concepts in Aging of the Immune System. Nat Immunol. 2018;19(1):10–19.
13. Clegg A, Young J, Iliffe S, Rikkert MO, Rockwood K. Frailty in Elderly People. Lancet. 2013;381(9868):752–762.
14. Tripathi JS, Singh RH. The Concept and Practice of Immunomodulation in Ayurveda and the Role of Rasayanas as Immunomodulators. Anc Sci Life. 1999;19(1–2):59–63.

When Tolerance Fails: Recent Advances in Autoimmune Diagnosis, from Evidence to Algorithm

Dr. Shashikiran Umakanth

Senior Consultant Physician, Department of Internal Medicine; Medical Superintendent, Dr. TMA Pai Hospital, Manipal Academy of Higher Education

Abstract

Interpretation of the antinuclear antibody (ANA) test depends on the probability of autoimmune disease before the test is performed. This principle is known as pre-test probability. Because a significant proportion of healthy individuals test ANA-positive, indiscriminate testing increases diagnostic uncertainty rather than resolving it, and ANA testing does not satisfy the three classical criteria for a valid population screening test. This review describes recent advances that extend, without replacing, this pre-test discipline. These include multiplex bead-based autoantibody panels, the International Consensus on Antinuclear Antibody Patterns (ICAP) supported by artificial intelligence-assisted immunofluorescence reading, evidence that autoantibodies such as anti-dsDNA and anti-CCP precede clinical disease by years, and biomarkers, including type I interferon signatures and the organ-specific markers KL-6 and CCL18, that inform individualised therapy and monitoring. A Clinical Decision Support System that encodes this reasoning is described and demonstrated alongside the oral presentation of this work.

Keywords: Autoimmune diseases; Antinuclear antibodies; Pre-test probability; Clinical decision support systems; Biomarkers

Introduction

Autoimmune diseases are diagnosed through a combination of clinical assessment and selective serology. No single laboratory test is diagnostic in isolation. The antinuclear antibody (ANA) test, performed by indirect immunofluorescence on HEp-2 cells, remains the most widely ordered serological screening test. Its interpretation depends on the probability of autoimmune disease that existed before the test was ordered, a principle known as pre-test probability.

This pre-test discipline is not consistently applied in practice. A positive ANA result occurs in a significant proportion of healthy individuals, more often in women, and its prevalence increases further with age and intercurrent viral illness. [1] When the test is ordered without an antecedent clinical indication, a positive result does not improve the diagnosis; it brings in uncertainty, results in unnecessary further testing, and causes anxiety in patients who did not require testing.

This review sets out the principle of pre-test probability and clinical suspicion-directed evaluation as the foundation for autoimmune diagnosis, and examines recent advances in autoantibody testing, novel biomarkers, and clinical decision support against this foundation. Literature was identified through targeted searches of PubMed, prioritising studies from the past three years alongside foundational references, rather than a formal systematic search. The review closes with a description of a Clinical Decision Support System built on these principles, demonstrated alongside the oral presentation of this work.

A Case

Consider, for illustration, a 32-year-old schoolteacher who presents with six weeks of fatigue and non-specific joint discomfort, without rash, oral ulcers, alopecia, or photosensitivity. Examination findings are unremarkable. A routine health check that she has requested includes an antinuclear antibody (ANA) test, which comes positive at a titre of 1:160 with a speckled pattern. She is referred for a rheumatology opinion. The reasoning set out in this review is the reasoning that determines what should happen next in her care.

Pre-Test Probability: The First Principle of Rational Testing

Pre-test probability is the estimated likelihood that a patient has the disease being screened before any test result is known, based on clinical history, examination findings, and disease prevalence in the relevant population. It is not a statistical nicety. It determines how a test result should be interpreted. A positive result on a specific test carries little diagnostic value if the pre-test probability was already low, because even a low false-positive rate produces more false positives than true positives when the underlying disease is uncommon.

Applied to autoimmune serology, this principle explains why an ANA test ordered in a patient with a low pre-test probability of autoimmune disease, for example a patient presenting with isolated nonspecific fatigue, is more likely to reflect background positivity than true disease. The test has not helped in making a correct diagnosis in this situation. It has introduced a diagnostic problem where none previously existed.

Clinical Suspicion as the Primary Diagnostic Instrument

Because of this, clinical suspicion must direct the evaluation, not follow it. A carefully taken history remains the most sensitive diagnostic instrument available to the clinician. Symmetric small-joint pain that improves with movement, a photosensitive

malar rash, dry eyes and dry mouth persisting for months, and digits that turn white and then blue in the cold are patterns that, gathered patiently at the bedside, carry more diagnostic weight than a panel of ten antibodies ordered reflexively.

Autoimmune medicine has always rested on this order of priority. Clinical pattern first, selective serology second. Serology is confirmatory and refining, not exploratory. A patient with a convincing clinical picture and a negative initial test may warrant further evaluation; a patient with no suggestive features and an incidental positive result generally does not.

Why the Antinuclear Antibody Cannot Be a Screening Test

A common question in clinical teaching is why the ANA is not used as a screening test in the way blood glucose or blood pressure are used in routine health checks. The answer lies in three conditions that any valid screening test must satisfy, first articulated by Wilson and Jungner for the World Health Organization in 1968. [2]

First, the disease being sought must be common enough in the population being screened that a positive result is more often true

than false. Diabetes and hypertension are common. Autoimmune connective tissue diseases are comparatively rare in an unselected population, so an incidental positive ANA is more frequently a false alarm than a true diagnosis.

Second, the test itself must be sufficiently specific. Unlike glucose or blood pressure measurement, the ANA test turns positive in a significant proportion of individuals with no autoimmune disease at all. [1]

Third, there must be a proven intervention that improves outcome when the disease is identified early. For glucose and blood pressure, this evidence is well established. For an asymptomatic positive ANA, no equivalent early intervention yet exists.

Table 1 summarises this comparison. A test that is technically available is not the same as a test that is fit for population screening.

Table 1. The three criteria for a valid population screening test, applied to glucose/blood pressure versus ANA

Criterion	Blood Glucose / Blood Pressure	Antinuclear Antibody (ANA)
Disease prevalence in screened population	High: diabetes and hypertension are common	Low: autoimmune connective tissue disease is uncommon in an unselected population
Test specificity in asymptomatic individuals	High: a positive result usually reflects a true abnormality	Limited: positive in a significant proportion of healthy people
Proven benefit of early intervention	Strong, well-established evidence	No established early intervention for asymptomatic positivity

Source: Adapted from Wilson JMG, Jungner G. Principles and Practice of Screening for Disease. World Health Organization; 1968. [2]

From Single Antibodies to Multiplex Panels: The Role of ICAP and Artificial Intelligence

Multiplex bead-based immunoassays now screen for dozens of autoantibodies simultaneously from a single serum sample, replacing the earlier practice of ordering individual antibodies sequentially.

Interpretation of ANA immunofluorescence patterns has been standardised by the International Consensus on Antinuclear Antibody Patterns (ICAP), a collaborative effort that established nomenclature and reporting criteria for the twenty-nine recognised HEp-2 patterns. [3] Before this consensus, interpretation of a given pattern varied between laboratories and individual observers, limiting its reproducibility.

Artificial intelligence-assisted systems have been developed to read HEp-2 immunofluorescence images, with the aim of reducing the subjectivity inherent in manual interpretation. A pilot study comparing AI-assisted reading with classical visual interpretation reported good to very good agreement between the two approaches, particularly at higher titre cut-offs. [4] These systems do not replace clinical assessment. They improve the consistency and reproducibility of the serological component of that assessment.

The Preclinical Autoimmune State

A separate line of evidence concerns the timing of autoantibody appearance relative to clinical disease. In a study of United States military personnel, anti-double-stranded DNA (anti-dsDNA) antibodies were detectable in individuals who later developed systemic lupus erythematosus (SLE), in some cases several years before diagnosis, with antibody levels accumulating as diagnosis approached. [5]

A parallel finding has been reported in rheumatoid arthritis (RA). Anti-cyclic citrullinated peptide (anti-CCP) antibodies and rheumatoid factor were detected in blood donors many years before the onset of clinically apparent RA, with anti-CCP carrying the stronger predictive value of the two. [6]

These findings extend the role of autoimmune serology beyond confirming disease that has already declared itself. In defined high-risk populations, such as first-degree relatives of patients with SLE or RA, autoantibody testing is being studied as a means of anticipating disease that is still developing, a use distinct from population screening because it is targeted at groups with an already elevated pre-test probability.

Beyond Autoantibodies: Cytokines, Interferon Signatures, and Organ-Specific Biomarkers

Autoantibodies represent only one part of a wider field of autoimmune biomarkers. Type I interferon signatures, gene expression patterns reflecting chronic activation of the interferon pathway, are used to stratify patients with SLE and to predict response to targeted therapies such as Janus kinase (JAK) inhibitors, supporting treatment selection guided by an individual patient's immune activity rather than a uniform approach. [7]

Organ-specific biomarkers extend this monitoring role. In systemic sclerosis, serum Krebs von den Lungen-6 (KL-6) and CCL18 track the progression of associated interstitial lung disease (ILD): elevated KL-6 predicts decline in forced vital capacity, and CCL18 predicts radiological progression, offering a non-invasive complement to repeated high-resolution computed tomography. [8] A study of seventy-six Indian patients with systemic sclerosis similarly found that serum KL-6 correlated with pulmonary function decline and was significantly elevated in patients with progressive lung disease. [9]

Together, these markers support a shift from uniform immunosuppression toward biomarker-guided, individualised immune modulation, in which the choice and intensity of therapy is informed by an individual patient's biological profile.

Table 2 summarises the markers discussed in this section alongside the preclinical autoantibodies described above.

Table 2. Selected autoantibodies and biomarkers relevant to autoimmune diagnosis

Marker	Associated Disease	Diagnostic / Clinical Relevance	Reference
Anti-dsDNA	Systemic lupus erythematosus	May precede clinical diagnosis by several years	[5]
Anti-CCP	Rheumatoid arthritis	Predicts future disease development; stronger predictive value than rheumatoid factor	[6]
Type I interferon signature	Systemic lupus erythematosus	Stratifies disease activity; predicts response to JAK inhibitors	[7]
KL-6 / CCL18	Systemic sclerosis-associated interstitial lung disease	Track disease progression; non-invasive complement to repeated HRCT	[8,9]

HRCT = high-resolution computed tomography; JAK = Janus kinase.

From Evidence to Algorithm: The Role of Clinical Decision Support

Diagnostic tools carry risk in proportion to their availability. A test ordered without a clinical question does not answer one, and an algorithm built without sound clinical reasoning does not improve diagnostic accuracy. It simply automates existing error. The evidence summarised above is useful only when organised around the same pre-test discipline that has always guided sound clinical practice, applied at a larger and more systematic scale.

A Clinical Decision Support System (CDSS) for autoimmune diagnosis is designed to formalise this discipline. [10] Instead of presenting an unranked list of serological results, such a system guides the user from a pattern of clinical suspicion toward an evidence-based set of differential diagnoses. It also incorporates antibody profiles, ICAP patterns, and relevant biomarkers within a single structured pathway. It does not replace clinical judgement. It encodes the judgement. A CDSS of this kind, developed by the author, is demonstrated alongside the oral presentation of this work.

Returning to the Case

The schoolteacher introduced at the outset of this review had a low pre-test probability of systemic autoimmune disease based on the history and examination. No photosensitive rash, no oral ulcers, no synovitis, no sicca symptoms, no Raynaud phenomenon. Applying the reasoning discussed above, her positive ANA was interpreted within this clinical context rather than in isolation. No multiplex autoantibody panel, ICAP-classified titre, or interferon signature testing was necessary to reach this judgement. Each of the advances described in this review remains available if her clinical picture changes. She was reassured, advised on the specific features that should prompt her to come back for review, and required no further serological testing. At review eighteen months later, she remained clinically well. Her case demonstrates the diagnostic discipline this review has described. A test result acquires meaning only in relation to the clinical probability that preceded it.

Conclusion

The advances reviewed here, multiplex autoantibody panels, standardised and increasingly automated interpretation of immunofluorescence patterns, the recognition of a preclinical autoimmune state, and an expanding panel of cytokine and organ-specific biomarkers, extend what a clinician can know about the immune status of patient. None of them replaces the discipline of pre-test probability and clinical suspicion that has governed autoimmune diagnosis throughout. The question for our clinical practice is not whether we should adopt each new test as it becomes available, but whether, for the patient under evaluation, it improves on the clinical picture already available. The Clinical Decision Support System demonstrated alongside this work is offered as one instrument for organising that

evidence, not as a substitute for the clinical reasoning it is built to support.

References

6. Satoh M, Chan EKL, Ho LA, et al. Prevalence and sociodemographic correlates of antinuclear antibodies in the United States. Arthritis Rheum. 2012;64(7):2319–2327.
2. Wilson JMG, Jungner G. Principles and Practice of Screening for Disease. Public Health Papers No. 34. Geneva: World Health Organization; 1968.
3. Chan EKL, Damoiseaux J, Carballo OG, Conrad K, de Melo Cruvinel W, Francescantonio PLC, et al. Report of the First International Consensus on Standardized Nomenclature of Antinuclear Antibody HEp-2 Cell Patterns 2014–2015. Front Immunol. 2015;6:412.
4. Mayr S, Dollinger M, Ehrenstein B, Günther F, Krammer O, Schuster A, et al. Pilot Study of AI-Assisted ANA Immunofluorescence Reading—Comparison with Classical Visual Interpretation. J Clin Med. 2025;14(19):6924.
5. Arbuckle MR, McClain MT, Rubertone MV, Scofield RH, Dennis GJ, James JA, Harley JB. Development of autoantibodies before the clinical onset of systemic lupus erythematosus. N Engl J Med. 2003;349(16):1526–1533.
6. Rantapää-Dahlqvist S, de Jong BAW, Berglin E, Hallmans G, Wadell G, Stenlund H, Sundin U, van Venrooij WJ. Antibodies against cyclic citrullinated peptide and IgA rheumatoid factor predict the development of rheumatoid arthritis. Arthritis Rheum. 2003;48(10):2741–2749.
7. Ishihara R, Watanabe R, Shiomi M, Fujita Y, Katsushima M, Fukumoto K, Yamada S, Hashimoto M. The Type I Interferon Axis in Systemic Autoimmune Diseases: From Molecular Pathways to Targeted Therapy. Biomolecules. 2025;15(11):1586.
8. Volkmann ER, Tashkin DP, Kuwana M, Li N, Roth MD, Charles J, et al. Progression of interstitial lung disease in systemic sclerosis: The importance of pneumoproteins Krebs von den Lungen 6 and CCL18. Arthritis Rheumatol. 2019;71(12):2059–2067.
9. Dubey S, Agrawal AO, Kakade G, Patel Z, Balakrishnan C, Samant R. Role of serum biomarkers KL-6, SP-D and CCL-18 in assessing interstitial lung disease in systemic sclerosis: A prospective observational study from India. Lung India. 2026;43(3):271–276.
10. Umakanth S. ANA & Autoimmune Serology Pathway [Internet]. MEDiscuss.org; 2026 [cited 26 August 2026]. Available from: https://mediscuss.org/cdss/autoimmune-profile-evaluator

Declaration

This manuscript is original, has not been published previously, and is not under consideration for publication elsewhere. The author is solely responsible for its content. The Clinical Decision Support System described and demonstrated in this work (reference 10) was developed by the author; this is declared as a non-financial conflict of interest, and its performance has not been independently validated outside the author's own institution

Ayurveda and Autoimmunity: A European Academic Perspective

Prof. Dr. Med. Christian S. Kessler, MA, MSc

Integrative Health Care and Prevention, Institute of Environmental Medicine and Integrative Health (EMIH), University of Augsburg, Germany

Abstract

Autoimmune diseases now affect roughly one in ten people, and the incidence of several of these conditions continues to rise. Modern immunotherapy has transformed their prognosis, yet it typically controls rather than resolves disease and still leaves the nutritional, psychosocial, and environmental dimensions of pathogenesis largely unaddressed. Ayurveda, one of the world's most elaborate codified systems of traditional medicine, offers a multimodal, personalized, and prevention-oriented clinical framework whose potential relevance to immune-mediated diseases merits rigorous scientific attention. This short communication reflects on Ayurveda and autoimmunity from a European academic perspective, drawing on two decades of clinical Ayurveda research conducted in Germany. It argues that the WHO Global Traditional Medicine Strategy 2025–2034 opens a historic window for genuinely bilateral, methodologically rigorous research collaboration between Indian and European institutions. A call for action outlines five priorities: equitable research partnerships, whole-systems and confirmatory trial designs with harmonized outcomes, validated and reproducible Ayurvedic diagnostics, robust pharmacovigilance and product quality assurance, and sustainable academic structures for translational Ayurveda research.

Keywords: Ayurveda; autoimmune diseases; integrative medicine; whole medical systems; translational research; evidence-based medicine

Introduction

Autoimmune diseases have quietly become one of the defining health challenges of our time. A population-based analysis of 22 million individuals in the United Kingdom found that nineteen common autoimmune disorders together affect approximately one in ten people, with rising incidence rates for several of them [1]. Although modern immunotherapy has profoundly improved the prognosis of many of these conditions, it typically controls rather than resolves them, and it leaves largely untouched the nutritional, psychosocial, and environmental dimensions increasingly implicated in their pathogenesis. It is precisely at this interface – chronicity, multifactoriality, and the need for sustained lifestyle change – that codified traditional systems of medicine such as Ayurveda may have something substantive to contribute. The WHO Global Traditional Medicine Strategy 2025–2034, adopted by the World Health Assembly in 2025, explicitly calls for the evidence-based integration of traditional, complementary and integrative medicine into health systems worldwide [2]. For European academic medicine, the question is therefore no longer whether to engage with Ayurveda, but how to do so well.

Converging Lines of Evidence

Ayurveda approaches immune-mediated disease through a coherent theoretical framework in which digestion and metabolism (*agni*), the accumulation of metabolic residues (*āma*), individual constitution (*prakṛti*), and carefully sequenced regimens of nutrition, daily routine, manual therapies, and cleansing procedures occupy centre stage. These concepts are not identical with modern immunology and should not be forced into premature equivalence. Yet their structural resonance with contemporary research on the gut–immune axis, barrier integrity, chronobiology, and personalized medicine is striking – and heuristically productive.

Clinical research supports cautious optimism. In a double-blind, double-dummy pilot trial in rheumatoid arthritis, classical individualized Ayurveda proved broadly comparable to methotrexate over 36 weeks, with a favourable adverse-event profile [3] – a hypothesis-generating result that still awaits adequately powered replication. Our own group showed in a randomized controlled trial in Berlin that a complex, individualized Ayurvedic intervention was both feasible and effective under European academic conditions in knee osteoarthritis, outperforming guideline-based conservative conventional care on the primary outcome [4], with effects sustained in secondary analyses over twelve months [5]. Osteoarthritis is not an autoimmune disease, but this trial established proof of principle that whole-systems Ayurveda can be evaluated rigorously outside India. Directly relevant to autoimmunity, the NutriFast trial demonstrated that a seven-day fast followed by a plant-based diet improved disease activity and cardiometabolic parameters in rheumatoid arthritis [6] – findings that converge conspicuously with classical Ayurvedic principles of therapeutic depletion (*langhana*). Systematic reviews and meta-analyses indicate genuine potential across rheumatic and musculoskeletal conditions, while also documenting substantial heterogeneity in methodology and reporting [7].

Scientific Rigour as a Form of Respect

A European academic perspective must resist two symmetrical temptations: dismissing Ayurveda wholesale as unscientific, and romanticizing it beyond the reach of critical inquiry. Both are, each in its own way, disrespectful. Taking a knowledge system with a documented scholarly history of more than two millennia seriously means applying to it the best available scientific methods – no more leniently, and no more harshly, than we

apply them to biomedicine itself. This includes the validation of diagnostic instruments such as *prakṛti* assessment tools, whose current heterogeneity limits reproducibility and thus the very personalization research that makes Ayurveda scientifically interesting and challenging at the same time [8]. And it includes uncompromising pharmacovigilance and product quality assurance: cases of heavy-metal exposure from unregulated, non-prescription supply chains in Europe illustrate what is at stake [9]. Rigorous quality control protects patients – and it protects the reputation of the tradition itself.

A Call for Action

Five priorities follow for the decade ahead. First, we need genuinely bilateral research consortia between Indian and European institutions, with shared governance, shared data, and shared authorship, in which Ayurvedic scholarship shapes the research questions rather than merely supplying the interventions. Second, we need methodological pluralism combined with uncompromising rigour: whole-systems and pragmatic trial designs, adequately powered confirmatory trials in defined autoimmune conditions such as rheumatoid arthritis and inflammatory bowel disease, and harmonized core outcome sets that allow evidence to accumulate across studies. Third, validated and reproducible Ayurvedic diagnostics are a precondition for credible personalization research. Fourth, Ayurvedic medicinal products used in Europe require robust regulatory pathways, systematic pharmacovigilance, and manufacturing quality assurance at the highest attainable standard. Fifth, all of this presupposes sustainable academic structures – professorships, university outpatient services, and curricula – that anchor traditional medicine research within the primary health care and academic mainstream rather than at its margins [10].

Conclusion

The Sanskrit term *kṣamatvam* denotes forbearance and tolerance – the very capacity whose loss defines autoimmune disease, and the very virtue that fruitful cooperation between medical cultures requires. If Indian and European academic medicine continue to meet on these terms – curious, critical, and mutually respectful – translational Ayurveda research in autoimmune disorders could become a model case for what the WHO strategy envisions: traditional wisdom and modern science working not in parallel, but together.

References

1. Conrad N, Misra S, Verbakel JY, Verbeke G, Molenberghs G, Taylor PN, et al. Incidence, prevalence, and co-occurrence of autoimmune disorders over time and by age, sex, and socioeconomic status: a population-based cohort study of 22 million individuals in the UK. Lancet. 2023;401(10391):1878–90.
2. World Health Organization. Global traditional medicine strategy 2025–2034. Geneva: World Health Organization; 2025.
3. Furst DE, Venkatraman MM, McGann M, Manohar PR, Booth-LaForce C, Sarin R, et al. Double-blind, randomized, controlled, pilot study comparing classic Ayurvedic medicine, methotrexate, and their combination in rheumatoid arthritis. J Clin Rheumatol. 2011;17(4):185–92.
4. Kessler CS, Dhiman KS, Kumar A, Ostermann T, Gupta S, Morandi A, et al. Effectiveness of an Ayurveda treatment approach in knee osteoarthritis – a randomized controlled trial. Osteoarthritis Cartilage. 2018;26(5):620–30.
5. Kessler CS, Jeitler M, Dhiman KS, Kumar A, Ostermann T, Gupta S, et al. Ayurveda in knee osteoarthritis – secondary analyses of a randomized controlled trial. J Clin Med. 2022;11(11):3047.
6. Hartmann AM, Dell'Oro M, Spoo M, Fischer JM, Steckhan N, Jeitler M, et al. To eat or not to eat – an exploratory randomized controlled trial on fasting and plant-based diet in rheumatoid arthritis (NutriFast-Study). Front Nutr. 2022;9:1030380.
7. Kessler CS, Pinders L, Michalsen A, Cramer H. Ayurvedic interventions for osteoarthritis: a systematic review and meta-analysis. Rheumatol Int. 2015;35(2):211–32.
8. Venkatesh A, Johansson L, Sivanandan PV, Gopakumar SP, Sankaranarayanan K, Kessler CS, et al. Prakriti (constitutional typology) in Ayurveda: a critical review of Prakriti assessment tools and their scientific validity. Front Med (Lausanne). 2025;12:1656249.
9. Acharya-Büch R, Ivaki P, Jeitler M, Murthy V, Kessler CS. A case report of adult lead poisoning following the use of nonprescription Ayurvedic medication in Germany. Complement Med Res. 2026;33(1):59–68.
10. Puthiyedath R, Dhruva A, Kamal Perera P, Kessler CS. Editorial: The increasing relevance of traditional medicine systems for the primary health care sector and general practice: global research perspectives, volume II. Front Med (Lausanne). 2026;13:1820234.

Declaration

The author declares that this manuscript is free from plagiarism, has not been published previously, and is not under consideration for publication elsewhere. Claude Fable 5 has been used to assist in ensuring an optimal flow of language and to condense the content.

Conflict of interest

The author is a member of the scientific advisory board of the company Bruno Zimmer, a board member of the German Medical Doctors' Association for Ayurveda-Medicine (DÄGAM e.V.), and receives honoraria for lecturing Ayurveda at Sonne und Mond, Berlin

Integrative Approaches in Neuroimmunological Disorders: Perspectives from a Tertiary Neuropsychiatry Centre

Dr. Kavyashree Kulamarva, Dr. Umesh Chikkanna, Dr. Kishore Kumar Ramakrishna

Department of Integrative Medicine, NIMHANS, Bengaluru

Neuropsychiatric disorders of autoimmune origin are complex conditions that require multimodal intervention. There is increasing recognition of their biological basis, allowing them to be reframed as biologically driven mental health conditions rather than purely psychiatric disorders, thereby enabling more targeted interventions. Since immune system dysfunction involves several underlying inflammatory pathways, multimodal intervention may offer better treatment outcomes. Considering the existing gap in post-acute phase management and effective rehabilitation, alternative therapies appear to have significant scope in holistic, patient-centric care. The integration of Ayurveda and Yoga with conventional care as adjuvants may support relapse prevention, modulation of gut and systemic inflammation, reduction of residual neuroinflammatory burden, and rehabilitation of persistent neuropsychiatric deficits that may continue for months or years after the acute episode. This paper highlights the Ayurvedic understanding of these disorders, the line of management followed at a tertiary neuropsychiatric centre, and recommendations for future structured multimodal clinical trial protocols.

Keywords: Neuroimmunology, Neuropsychiatry, Ayurveda, Yoga, Integrative medicine, Rasayana, mind-body therapy

3. Introduction

Neuropsychiatric disorders are increasingly understood not merely as disorders of neurotransmission but as conditions with a substantial immune and inflammatory component. Elevated pro-inflammatory cytokines, altered neurotransmitter metabolism, and hypothalamic-pituitary-adrenal axis dysregulation have been consistently implicated in mood, psychotic, and cognitive disorders (1). Neuroinflammatory mediators can also disrupt neurogenesis and synaptic plasticity, providing a mechanistic bridge between chronic peripheral immune activation and central neuropsychiatric symptoms (2). At the more severe end of this spectrum, autoimmune encephalitides such as anti-NMDA receptor encephalitis frequently present first to psychiatric services, with the majority of patients showing prominent behavioural, psychotic, or catatonic features before neurological signs emerge, making early recognition of an immune aetiology essential to outcome (3).

Despite this growing mechanistic understanding, conventional immunotherapy and psychopharmacology alone often leave patients with residual symptoms, relapse, or treatment-related morbidity, prompting clinicians and patients to look toward complementary and integrative strategies (1,3). A previous systematic review has documented several RCTs on effect of Ayurveda single herbs, formulations and external therapies on immune system functioning with nil or minimal adverse effects (4). While structured yoga and meditation practices have shown measurable effects on inflammatory biomarkers, including reductions in interleukin-6, in clinical populations with depression and other chronic inflammatory conditions (5).

The advancement of immunotherapy has substantially improved the management of acute immune-related neuropsychiatric presentations. However, current care models often lack a multisystem or whole-system approach that can support relapse prevention, enhance treatment outcomes, and promote functional rehabilitation. Given the severity, chronicity, and treatment-related morbidity associated with immune-mediated neuropsychiatric conditions, reliance on a single-system approach may have important limitations, particularly in addressing residual symptoms and adverse effects. In this context, the present paper aims to describe integrative Ayurveda and Yoga approaches for immune-related neuropsychiatric conditions, drawing on clinical experience from an integrative tertiary neuropsychiatric centre.

4. Rationale for an Integrative Approach

Immune system–related disorders are complex in both etiopathology and symptomatology. Substantial evidence suggests that factors such as gene–environment interactions, individual susceptibility, chronic stress, and long-standing low-grade inflammation can trigger immune dysregulation, directly contribute to neuropsychiatric disorders, or perpetuate pre-existing conditions (6,7). Chronic stress and immune pathways share a bidirectional relationship, providing a mechanistic bridge through which psychological interventions may influence immune outcomes.

The field of psychoneuroimmunology describes the multidirectional relationship through which psychological and behavioural factors influence the functioning of the nervous and immune systems. Neuropsychiatric manifestations may also arise as complications of pre-existing autoimmune conditions. Owing to the complex etiopathogenesis and persistent chronicity of symptoms, these disorders often require sustained interventions, contributing to treatment fatigue and a substantial burden for patients. A complete understanding of the pathogenesis of immune-related neuropsychiatric manifestations remains limited (8). Although the medical community increasingly recognizes the overlap between immune dysfunction and psychiatric disorders, the mechanisms underlying this association remain incompletely understood. Given the heterogeneous aetiology, variable clinical presentation, and multisystem involvement of these conditions, a biopsychosocial

model of care appears essential for improving treatment outcomes and reducing patient burden (9).

5. The Neuroimmune–Neuropsychiatric Interface

Neuroinflammation is mainly understood as a shared final pathway across many neurological and psychiatric conditions, rather than a disease-specific phenomenon. As an inflammatory response, the microglia and astrocytes release cytokines such as IL-6, TNF-α, and IL-1β, which can alter synaptic function, neuronal survival, leukocyte trafficking, and downstream inflammatory signaling. IL-6 has a particularly important dual role: it can support repair in some contexts, but in excess it promotes astrogliosis and microglial activation, linking peripheral immune activation to central inflammatory responses. TNF-α also participates in normal homeostasis, yet sustained elevation is associated with neuroinflammation and neurodegenerative or neuropsychiatric pathology (10).

The HPA axis and gut-brain are closely associated with immune regulation. Chronic stress can dysregulate the HPA axis and increase the gut permeability, which in turn can contribute to inflammatory signaling and affect the brain function through immune, neural, and endocrine routes (11). The disruption of the blood-brain barrier (BBB) is another critical factor that allows circulating cytokines, antibodies, and immune complexes to gain access to the central nervous system and intensify inflammatory injury. Together these mechanisms create a plausible bridge between systemic immune activation and neuropsychiatric symptoms. Autoimmune encephalitides are a typical example of autoimmune neuropsychiatric disorders. Neuropsychiatric lupus and multiple sclerosis are the second most common conditions demonstrating significant involvement of immune system dysfunction. Functional neurological disorders are a complex and still evolving space. Recent studies suggest immune dysregulation points to possible immune-related pathways(12).

6. Ayurvedic Perspectives of Neuro inflammation-Auto immune response

Similar to autoimmune conditions affecting various organ systems, the neuropsychiatric manifestations of autoimmune origin can be explained through the concept of 'Ojo vikṛti' (vitiation of ojas). The factors influencing an individual's 'Sahaja bala' (innate strength/immunity) may be genetic and environmental in nature, such as being born in a geographical region where the population is naturally robust, racial influence, time of birth, hereditary factors, a pleasant mental disposition, and dietary habits, as described in the Charaka Saṃhitā (13). Given the lack of a clearly established aetiology and risk factors for autoimmune disorders, modern medical science has similarly emphasized comparable susceptibility factors in its own understanding of causation (14).

The Samprāpti (aetiopathogenesis) of neuropsychiatric disorders in Āyurveda may be understood as follows: predominant risk factors affecting an individual's Sahaja bala—such as a lack of 'Samharṣa' (which may be correlated with chronic stress) and the compromised quality of Bīja, Kṣetra, Sātmya, and Āhāra (representing genetic, environmental, and dietary risk factors)—serve as predisposing factors for an autoimmune neuropsychiatric trigger. When such predisposed individuals are further exposed to causative factors, this leads to dysfunction of 'Jāṭharāgni' and 'Rasa Dhātvagni', resulting in the accumulation of 'Āma' (correlating with gut-associated inflammation).

Continued exposure to these aetiological factors progressively heightens the inflammatory process and causes vitiation of the 'Vātādi' doṣas—predominantly involving Apāna and Samāna Vāta in the initial stage, and subsequently extending to Prāṇa, Udāna, and Vyāna Vāta, along with Sādhaka Pitta and Tarpaka Kapha, in the later stages of disease progression. This cascade impairs the functioning of 'Rasa Dhātu' and 'Rasavaha Srotas', ultimately culminating in 'Ojo Visraṃsa' (displacement of ojas), characterized by features such as Sandhi Vaiśleṣya (laxity of joints), Gātra Sāda (fatiguability), Doṣa Cyavana (persistent movement of morbid doṣas), and Kriyāsannirodha (inhibition of normal physical and mental functioning). These features are typically observed in mild to moderate presentations of the disease. In more severe conditions, such as an acute encephalopathic state, features of 'Ojo Vyāpat' (vitiation of ojas) or Ojokṣaya may manifest, including Śopha (correlating with persistent neuroinflammation), Stabdha/Guru Gātratā (sluggishness of the body), Glāni (mental exhaustion), moorcha/moha (confusion/altered consciousness), Pralāpa (delirium), Praṇa bhaya/Chintā/Indriya vyatha (correlated to behavioural sympstoms). Owing to the intimate association between the Rasavaha and Manovaha Srotas, an 'Ūrdhvagati' (upward movement) of the morbid doṣas occurs, giving rise to clinical features resembling 'Mada', 'Mūrchā', or 'Unmāda', reflecting a disturbance in higher mental functions (15).

Ayurvedic management of auto immune neuropsychiatric disorders focus on correction of Agni, Srotoṣodhana by purificatory procedure like Virechana (Kāya and Shiras) followed by Vatahara, Balya treatment such as Basti which my help in preventing the further relapse. Moordhni taila procedures may be adopted based on the symptoms such as anxiety, depression, behavioral and sleep disturbance. Several Rasayana dravyas show promising immunomodulatory and neuroprotective evidence: Ashwagandha (*Withania somnifera*) demonstrates anti-inflammatory, adaptogenic, and neuroprotective action (16); Barahmi (*Bacopa monnieri)* exhibits cognitive-enhancing and antioxidant effects (17); Mandukaparni (*Centella asiatica)* supports neuroprotection (18). However, evidence remains heterogeneous, with variability in standardization, dosage, and extraction methods, necessitating rigorous pharmacovigilance (19). Panchakarma-based palliative approaches—including Virechana, Basti and Shirodhara—require further validation through robust clinical trials for autoimmune neuropsychiatric conditions.

7. Yoga and Mind–Body Interventions

Several studies have documented the beneficial effects of yoga in neuropsychiatric illness and in improving outcomes in autoimmune disorders (20,21). As a mind–body intervention, yoga acts through well-defined neurophysiological mechanisms, including enhancement of vagal tone, promotion of parasympathetic dominance over sympathetic overactivity, reduction of circulating cortisol, downregulation of pro-inflammatory cytokines such as IL-6 and TNF-α, and improvement of heart rate variability (HRV) (22,23). These mechanisms collectively help restore autonomic and neuroendocrine balance, dampening the chronic low-grade inflammation that underlies autoimmune neuropsychiatric pathology.

Regular practice of specific *Prāṇāyāma* (breath-regulation techniques) and *Āsanas* (postures), when combined with mindfulness-based practices such as meditation and body-awareness training, is believed to modulate the hypothalamic–pituitary–adrenal (HPA) axis and vagal afferent pathways, thereby attenuating the inflammatory cascade implicated in disease exacerbation. Such practices are increasingly incorporated as adjunctive, non-pharmacological therapy alongside conventional and Ayurvedic management, contributing to the prevention of symptom relapse, delaying disease progression, and enhancing overall psychological resilience and quality of life. Given the low cost, safety, and accessibility of yoga-based interventions, they represent a promising complementary approach warranting further validation through well-designed randomized controlled trials in autoimmune neuropsychiatric populations (24).

8. Perspective from NIMHANS as a Tertiary Neuropsychiatry Centre

In the acute phase of autoimmune neuropsychiatric disorders, the primary line of management remains intensive biomedical care, including immunomodulatory interventions such as intravenous immunoglobulin (IVIG), plasmapheresis, high-dose corticosteroids, and, where clinically indicated, long-term prophylactic antibiotics. Although these treatments are often essential for controlling the initial neuroinflammatory crisis, they may be associated with systemic adverse effects, including disruption of gut microbiota and treatment-related morbidity (25). Management becomes particularly challenging when immune-mediated presentations overlap with primary psychiatric disorders, as this may complicate diagnosis, treatment response, and long-term rehabilitation planning (26).

The role of integrative systems is therefore most relevant after acute stabilization, with emphasis on relapse prevention, modulation of gut and systemic inflammation, reduction of residual neuroinflammatory burden, and rehabilitation of persistent neuropsychiatric deficits that may continue for months or years after the acute episode. Yoga may contribute as a mind–body regulatory practice by supporting neurorehabilitation, autonomic balance, and psychosocial recovery. Such approaches should be delivered within structured monitoring frameworks, with careful attention to safety, herb–drug interactions, and clinical contraindications. At a tertiary neuropsychiatric centre, this model requires coordinated multidisciplinary care involving neurologists, psychiatrists, Ayurveda physicians, yoga therapists, and rehabilitation professionals.

10. Challenges and Future Scope

The major challenge in developing integrative care for immune-related neuropsychiatric disorders is the limited availability of standardized, high-quality evidence. Existing studies on Ayurveda, Yoga, Rasayana therapies, Panchakarma, and mind–body practices are promising but vary in design, sample size, intervention protocols, and outcome measures. Future research should therefore focus on well-designed clinical trials using biomarker-linked outcomes such as cytokine levels, cortisol, heart rate variability, gut microbiome changes, cognition, relapse rates, and safety monitoring, including herb–drug interactions. Quality control of Ayurvedic formulations, pharmacovigilance, and interdisciplinary training are also essential for responsible integration. Neuroimmunological disorders require acute biomedical stabilization, but Ayurveda and Yoga may offer complementary value during recovery by supporting relapse prevention, residual symptom management, autonomic balance, cognition, sleep, and psychosocial rehabilitation. Structured collaboration between neuropsychiatry, immunology, Ayurveda, Yoga, and rehabilitation sciences can help develop safe, standardized, and evidence-based integrative care models.

11. Conclusion

Neuroimmunological disorders with psychiatric manifestations require a comprehensive and multidisciplinary approach that addresses immune dysregulation, neuroinflammation, psychological distress, and long-term functional impairment. While biomedical interventions remain essential for acute stabilization and disease control, integrative approaches such as Ayurveda and Yoga may provide supportive value during recovery and rehabilitation. By focusing on Agni correction, Srotoshodhana, Rasayana therapy, autonomic regulation, stress reduction, and psychosocial restoration, these systems may complement standard care when applied safely and systematically. The experience from a tertiary neuropsychiatry centre highlights the need for structured protocols, careful monitoring, and collaborative practice between modern medicine, Ayurveda, Yoga, and rehabilitation sciences. Future integrative models should be evidence-based, patient-centred, and designed to improve relapse prevention, residual symptom management, and overall quality of life.

12. Declarations

Conflict of interest-None

13. References

1. Felger JC, Lotrich FE. Inflammatory cytokines in depression: neurobiological mechanisms and therapeutic implications. Neuroscience. 2013;246:199-229.
2. Rahman MM, Mim SA, Tumpa MAA, Sarker MT, Ahmed M, Alghamdi BS, et al. Exploring the management approaches of cytokines including viral infection and neuroinflammation for neurological disorders. Cytokine. 2022;157:155962.
3. Subeh GK, Lajber M, Patel T, Mostafa JA. Anti-N-methyl-D-aspartate receptor encephalitis: a detailed review of the different psychiatric presentations and red flags to look for in suspected cases. Cureus. 2021;13(5):e15188.
4. Vallish BN, Dang D, Dang A. Nature and mechanism of immune boosting by Ayurvedic medicine: A systematic review of randomized controlled trials. *World J Methodol*. 2022;12(3):132-147. Published 2022 May 20. doi:10.5662/wjm.v12.i3.132
5. Nugent NR, Brick L, Armey MF, Tyrka AR, Ridout KK, Uebelacker LA. Benefits of yoga on IL-6: findings from a randomized controlled trial of yoga for depression. Behav Med. 2021;47(1):21-30.
6. Afridi R, Seol S, Kang HJ, Suk K. Brain-immune interactions in neuropsychiatric disorders: Lessons from transcriptome studies for molecular targeting. *Biochem Pharmacol*. 2021;188:114532. doi:10.1016/j.bcp.2021.114532
7. Peedicayil J. Genome-Environment Interactions and Psychiatric Disorders. *Biomedicines*. 2023;11(4):1209. Published 2023 Apr 19. doi:10.3390/biomedicines11041209
8. bLiu Y, Tu Z, Zhang X, Du K, Xie Z, Lin Z. Pathogenesis and treatment of neuropsychiatric systemic lupus erythematosus: A review. *Front Cell Dev Biol*. 2022;10:998328. Published 2022 Sep 5. doi:10.3389/fcell.2022.998328
9. Tripathi A, Das A, Kar SK. Biopsychosocial Model in Contemporary Psychiatry: Current Validity and Future Prospects. *Indian J Psychol Med*. 2019;41(6):582-585. Published 2019 Nov 11. doi:10.4103/IJPSYM.IJPSYM_314_19
10. Bertollo AG, Santos CF, Bagatini MD, Ignácio ZM. Hypothalamus-pituitary-adrenal and gut-brain axes in biological interaction pathway of the depression. *Front Neurosci*. 2025;19:1541075. Published 2025 Feb 6. doi:10.3389/fnins.2025.1541075
11. Kaur G, Behl T, Bungau S, et al. Dysregulation of the Gut-Brain Axis, Dysbiosis and Influence of Numerous Factors on Gut Microbiota Associated Parkinson's Disease. *Curr Neuropharmacol*. 2021;19(2):233-247. doi:10.2174/1570159X18666200606233050
12. Paredes-Echeverri S, Maggio J, Bègue I, Pick S, Nicholson TR, Perez DL. Autonomic, Endocrine, and Inflammation Profiles in Functional Neurological Disorder: A Systematic Review and Meta-Analysis. *J Neuropsychiatry Clin Neurosci*. 2022;34(1):30-43. doi:10.1176/appi.neuropsych.21010025
13. Agnivesha. Charaka. Charaka Samhita. Sharira sthana, verse 12. Edited by Jadavaji Trikamji Acharya. reprint ed. Varanasi: Choukamba surabharati; 2011.p. 332.
14. Kumar M, Yip L, Wang F, Marty SE, Fathman CG. Autoimmune disease: genetic susceptibility, environmental triggers, and immune dysregulation. Where can we develop therapies?. *Front Immunol*. 2025;16:1626082. Published 2025 Aug 7. doi:10.3389/fimmu.2025.1626082
15. Sushruta A. Sushruta Samhita. Sutrasthana, verse 24.Translated by K. R. Srikantha Murthy. Vol. 1. Varanasi: Chaukhambha Orientalia; 2010.p.105.
16. Mishra LC, Singh BB, Dagenais S. Scientific basis for the therapeutic use of Withania somnifera (Ashwagandha): a review. Altern Med Rev. 2000;5(4):334-46.
17. Aguiar S, Borowski T. Neuropharmacological review of the nootropic herb Bacopa monnieri. Rejuvenation Res. 2013;16(4):313-26.
18. Gohil KJ, Patel JA, Gajjar AK. Pharmacological review on Centella asiatica: a potential herbal cure-all. Indian J Pharm Sci. 2010;72(5):546-56.
19. Thatte U, Bhalerao S. Pharmacovigilance of ayurvedic medicines in India. Indian J Pharmacol. 2008;40(Suppl 1):S10-2.
20. Streeter CC, Gerbarg PL, Saper RB, Ciraulo DA, Brown RP. Effects of yoga on the autonomic nervous system, gamma-aminobutyric-acid, and allostasis in epilepsy, depression, and post-traumatic stress disorder. Med Hypotheses. 2012;78(5):571-9.
21. Pascoe MC, Thompson DR, Ski CF. Yoga, mindfulness-based stress reduction and stress-related physiological measures: a meta-analysis. Psychoneuroendocrinology. 2017;86:152-68.
22. Meyer HB, Katsman A, Sones AC, Auerbach DE, Ames D, Rubin RT. Yoga as an ancillary treatment for neurological and psychiatric disorders: a review. J Neuropsychiatry Clin Neurosci. 2012;24(2):152-64.
23. Nagy S, Tague K, Ossorio A, Patel N, Callahan R, Jose E, et al. The effects of yoga on the mental health of individuals with autoimmune disorders: a scoping review. Cureus. 2025;17(1):e77669.
24. Balasubramaniam M, Telles S, Doraiswamy PM. Yoga on our minds: a systematic review of yoga for neuropsychiatric disorders. Front Psychiatry. 2013;3:117.
25. Quagliariello, A., Del Chierico, F., Russo, A., et al. (2018). Gut microbiota profiling and gut–brain axis in PANDAS patients: An exploratory study. *Frontiers in Cellular and Infection Microbiology*, 8, 230.
26. Frankovich, J., Swedo, S., Murphy, T., et al. (2017). Clinical Management of Pediatric Acute-Onset Neuropsychiatric Syndrome: Part II—Use of Immunomodulatory Therapies. *Journal of Child and Adolescent Psychopharmacology*, 27(7), 574–593.

An Ayurvedic View of Modern Immunology through a Co.M.S. Perspective: Agni, Āma, Ojas and the Intelligence of Self-Regulation

Dr. Antonio Morandi

Ayurvedic Point, Milan, Italy

Abstract

Modern immunology increasingly understands immunity not merely as defense against pathogens, but as a contextual system of discrimination, tolerance, memory, repair, and ecological negotiation. This conceptual chapter examines modern immunology through Collaborative Medicine and Science (Co.M.S.), a framework designed to create dialogue between Āyurveda and biomedicine without reducing one system to the categories of the other. Using Co.M.S. reformulation and modeling, immune function is interpreted through agni as discriminative-transformative capacity, āma as pathological non-assimilation or misprocessed biological information, and ojas as systemic coherence and resilience. Doṣa, srotas, and prakṛti further describe patterns of immune behavior, barrier function, and individual variability. These constructs are placed in dialogue with pattern recognition, danger signaling, regulatory T-cell tolerance, microbiota-mediated immune education, and trained immunity. The resulting model does not claim direct equivalence between Ayurvedic concepts and molecular mechanisms. Instead, it offers a functional and testable framework for patient stratification, stage-specific care, and epistemology-sensitive research in autoimmune, allergic, infectious, and chronic inflammatory disease.

Keywords: Āyurveda; Co.M.S.; immunology; agni; āma; ojas

7. Introduction

Modern immunology is no longer only the science of defense against pathogens. It is increasingly understood as a science of discrimination, tolerance, memory, inflammation, repair, surveillance, and ecological negotiation. The immune system does not simply attack what is foreign and spare what is self. It continuously interprets context: danger, tissue damage, microbial signals, metabolic state, barrier integrity, commensal coexistence, and previous immune experience [1-6]. This makes immunology one of the most suitable fields for dialogue with Āyurveda through Co.M.S.

From an Ayurvedic point of view, immunity cannot be reduced to one entity. It involves agni, because immunity requires transformation, digestion, discrimination, and correct processing of internal and external inputs. It involves āma, because immune confusion may arise from what is not properly processed or assimilated. It involves ojas, because immune resilience depends on systemic coherence, vitality, and the capacity to preserve identity without rigidity. It involves doṣa, because immune responses may become mobile, sharp, hot, heavy, obstructive, depleted, or unstable. It involves srotas, because immunity depends on circulation, communication, tissue interfaces, and barriers. Finally, it involves prakṛti, because individuals respond differently to the same antigen, pathogen, food, drug, season, stressor, or treatment [13,14].

A Co.M.S. approach does not translate ojas as "immunity," āma as "toxins," or agni as "metabolism." These equivalences are useful only as preliminary approximations and become misleading if taken literally. Co.M.S. instead asks how modern immunological phenomena can be reformulated through Ayurvedic functional categories without reducing either system to the other [7-10]. The aim is not to claim that Āyurveda already contained modern immunology, but to show that Ayurvedic epistemology can generate meaningful models for immune function, dysregulation, and therapeutic personalization.

3. Methodological Approach

This chapter uses a conceptual, narrative approach organized by the Co.M.S. operations of reformulation, modeling, and localization [7-10]. Reformulation makes Ayurvedic concepts intelligible in contemporary scientific language while preserving their relational meaning. Modeling places these concepts in dialogue with established immunological findings and generates hypotheses rather than one-to-one equivalences. Localization adapts the resulting framework to the constitution, current imbalance, disease stage, environment, and treatment context of the individual. The analysis draws on foundational immunology literature concerning innate recognition, danger signaling, inflammation, immune tolerance, microbiota, and trained immunity [1-6,11,12], together with classical Ayurvedic sources and published Co.M.S. work [7-10,13,14].

4. Main Content

3.1 From Self/Non-Self to Context and Danger

Classical immunology was strongly shaped by the distinction between self and non-self. This model remains important, but it is not sufficient. Janeway's theory of pattern recognition shifted attention toward innate immune receptors that recognize conserved microbial structures and help activate adaptive immune responses [1]. Iwasaki and Medzhitov subsequently described how innate immune sensing controls the magnitude and quality of adaptive immunity [2]. The danger model proposed by Matzinger emphasized that immune activation also depends on signals of tissue stress and damage, not foreignness alone [3]. Medzhitov further described inflammation as a physiological protective response to infection, injury, or noxious stimuli that can become pathological when excessive, chronic, or poorly resolved [4].

Modern immunology therefore increasingly sees immunity as contextual. Innate immune cells detect patterns, tissue cells release alarm signals, antigen-presenting cells interpret the local

environment, and adaptive responses are shaped by the character of the threat, tissue context, microbiota, and regulatory mechanisms. Regulatory T cells are essential for maintaining tolerance to self-antigens and limiting excessive responses [5]. The microbiota educates and modulates immunity, while immune mechanisms help maintain a balanced relationship with commensal organisms [6]. Innate immune cells may also develop trained immunity, a functional memory involving metabolic and epigenetic reprogramming [11,12].

This view is compatible with an Ayurvedic systemic perspective. Immunity is not a military system alone; it is an intelligence of relationship. It must distinguish danger from nourishment, pathogen from symbiont, self from altered-self, injury from normal transformation, and useful inflammation from destructive inflammation. In Ayurvedic terms, this discriminative field can be examined through agni, ojas, and properly regulated doṣa.

3.2 Agni as Immunological Discrimination

Agni is often translated as digestive fire, but this is too narrow. Agni is the principle of transformation, discrimination, assimilation, and correct processing at every level [13,14]. Digestive agni transforms food; dhātu agni sustains tissue transformation; mental agni processes perception and experience. In a Co.M.S. immunological model, agni may be understood as the organism's capacity to process biological information appropriately.

Immunity depends on processing. Antigens are processed and presented; inflammatory signals are interpreted; damaged cells are cleared; microbial metabolites are evaluated; tolerance is maintained or broken; and immune memory is formed or suppressed. Balanced agni allows the organism to respond without losing proportion: to defend without excessive destruction, tolerate without collapsing, inflame without remaining chronically inflamed, and remember without becoming trapped in pathological memory.

Agni is not identical to metabolism, antigen processing, or inflammatory signaling. It is a functional principle that includes transformational and discriminative processes but is not reducible to any one of them. Co.M.S. therefore models agni as a cross-level capacity expressed through digestion, metabolism, immunity, tissue maintenance, and cognition.

3.3 Āma and Misprocessed Biological Information

Āma is commonly translated as toxins, but this is inadequate. Āma is what remains incompletely processed, poorly transformed, improperly assimilated, or wrongly integrated [13,14]. It may be digestive, metabolic, immunological, psychological, environmental, or informational.

Many immune disorders involve forms of misprocessing. Autoimmunity involves misdirected recognition. Allergy involves disproportionate responses to ordinarily harmless antigens. Chronic inflammation involves persistent danger signaling or failure of resolution. Dysbiosis alters microbial ecology and immune education. These phenomena are not identical to āma, but they are intelligible through āma as pathological non-assimilation.

In a Co.M.S. model, āma may be understood as a field of misprocessed biological information rather than one molecule or biomarker. It may manifest clinically as heaviness, obstruction, inflammatory residue, immune confusion, impaired clearance, altered microbiota, metabolic stagnation, or chronic low-grade activation. This language does not replace autoantibodies, cytokines, complement, lymphocyte subsets, or innate immune pathways. It adds a systemic account of why immune information may become persistent, obstructive, and poorly integrated.

3.4 Ojas as Immune Coherence and Resilience

Ojas is central to an Ayurvedic view of immunity. It is associated with vitality, strength, essence, and resistance to disease, yet it should not be reduced to "the immune system." It is better understood as systemic coherence: the capacity to maintain identity, stability, resilience, and adaptive intelligence [13,14].

Modern immunology contains partially comparable, but non-equivalent, concepts: immune tolerance, barrier integrity, regulatory networks, tissue resilience, controlled inflammation, immunological memory, and host-microbiota symbiosis [5,6]. A healthy organism does not protect itself through constant aggression. It protects itself through proportionate regulation. Ojas represents this deeper capacity for stable but flexible protection.

When ojas is strong, the organism can respond to threat while limiting collateral damage, tolerate food and commensals, recover after infection or inflammation, and maintain boundaries without rigidity. When ojas is depleted or disturbed, responses may become weak, excessive, misdirected, or poorly resolved. Recurrent infection, post-infectious fatigue, autoimmune vulnerability, hypersensitivity, and poor recovery may therefore be examined as different patterns of ojas impairment rather than as one undifferentiated deficiency.

3.5 Doṣa and Patterns of Immune Dysregulation

The doṣa provide a functional language for different immune patterns [13,14]. Vāta governs movement, communication, variability, and nervous-immune coordination. Vāta disturbance may appear as hypersensitivity, fluctuating symptoms, poor recovery, autonomic dysregulation, dryness, tissue depletion, pain, fatigue, or unpredictable relapses.

Pitta governs transformation, heat, sharpness, penetration, and inflammatory force. Pitta disturbance is evident in acute inflammation, fever, burning, redness, ulceration, and sharp immune attacks. Pitta is not identical to inflammation, but inflammatory states often express Pitta-like guṇa such as uṣṇa, tīkṣṇa, sara, and drava.

Kapha governs structure, cohesion, stability, lubrication, and protection. Healthy Kapha supports barrier integrity, mucosal protection, repair, and immunological steadiness. Pathological Kapha, especially when mixed with āma, may produce heaviness, stagnation, congestion, edema, impaired clearance, and obstructed communication.

The same disease may pass through different doṣic phases. An autoimmune disease may begin with Kapha/āma obstruction, flare with Pitta inflammation, and later produce Vāta depletion. A post-viral syndrome may combine residual āma, disturbed agni, depleted ojas, and unstable Vāta. This dynamic reading prevents the clinician from treating "inflammation" as one uniform process. The relevant questions are: what pattern is present, in what terrain, at what stage, and with what condition of agni, āma, ojas, and tissue involvement?

3.6 Srotas, Barriers, and the Ecology of Immunity

Modern immunology increasingly emphasizes barriers and tissue interfaces: skin, gut, lung, mucosa, lymphatic structures, blood-brain barrier, and tissue-resident immune cells. Immunity is distributed across sites where the organism meets its environment.

Āyurveda describes circulation, transformation, communication, nourishment, and elimination through srotas [13,14]. Srotas are not merely anatomical tubes; they are functional fields of movement and exchange. If they are obstructed, inflamed, depleted, or overloaded, immune regulation may be disturbed.

The gut is a particularly important example. Modern immunology recognizes the microbiota as essential for immune development, tolerance, and inflammatory regulation [6]. Āyurveda places digestion and agni at the center of health because the gut is a site where food, microbes, environment, metabolism, and immunity meet. Co.M.S. can therefore read gut immunity as a convergence of agni, āma, srotas, ojas, and doṣa without reducing microbiome science to Āyurveda or Āyurveda to microbiome science.

3.7 Prakṛti and Individual Immune Response

People differ in infection susceptibility, vaccine response, allergy, autoimmunity, inflammatory tone, microbiota composition, drug response, and recovery. Genetics, epigenetics, sex, age, microbiome, environment, stress, diet, sleep, and prior exposures all contribute. Āyurveda addresses such variability through prakṛti, the constitutional pattern of the individual [13,14].

Prakṛti is not merely body type. It is a psycho-physiological pattern that influences metabolism, stress response, disease tendency, and therapeutic response. A Vāta-predominant person may show variable reactivity and susceptibility to depletion; a Pitta-predominant person may show intense inflammatory responses; and a Kapha-predominant person may show congestion, sluggish clearance, or metabolically linked inflammation. These are tendencies, not deterministic predictions. Vikṛti, agni, āma, ojas, age, season, environment, and disease stage define the present situation.

5. **Discussion:** Clinical and Research Implications

A Co.M.S. view suggests that immune disease should not be understood only through the amount of immune activity. Immunosuppression or immunomodulation may be necessary in severe disease, but the broader clinical aim is restoration of coherent regulation. Ayurvedic supportive reasoning therefore considers agni, āma, ojas, doṣa, srotas, constitution, and stage alongside conventional diagnosis and monitoring.

Care should be stage-specific. In an acute Pitta-dominant flare, cooling and anti-inflammatory logic may be appropriate as supportive care. In Kapha/āma obstruction, channel-clearing and agni correction may precede nourishment. In Vāta depletion, aggressive fasting or detoxification may worsen the patient. In ojas depletion, restorative and rasāyana-oriented care may become central. These principles do not replace urgent medical evaluation, antimicrobial therapy, vaccination, corticosteroids, biologics, or other indicated interventions.

Modern drugs may also be interpreted through Ayurvedic logic without replacing pharmacology. Corticosteroids, biologics, immunosuppressants, antihistamines, antibiotics, vaccines, and probiotics have systemic effects that vary with the patient's terrain. Co.M.S. asks how an intervention's qualities and actions interact with prakṛti/vikṛti, agni, āma, ojas, and the current doṣic state [10].

Research can test whether Ayurvedic pattern recognition adds predictive value. Patients may be stratified by prakṛti, agni, āma, ojas, doṣic pattern, and disease stage, then studied using inflammatory markers, autoantibodies, cytokines, microbiome profiles, metabolomics, vaccine response, clinical activity, fatigue, quality of life, and treatment tolerance. This is epistemology-sensitive research: contemporary scientific methods applied to questions generated from Ayurvedic logic [7-10].

6. Conclusion

An Ayurvedic view of modern immunology begins from a different premise: immunity is not only defense, but coherent intelligence - the capacity to distinguish, transform, tolerate, remember, repair, and protect without losing proportion. Modern immunology increasingly recognizes this complexity through pattern recognition, danger signals, tolerance, regulatory T cells, microbiota-mediated immune education, and trained immunity [1-6,11,12].

Āyurveda describes this field through agni, āma, ojas, doṣa, srotas, prakṛti, and samprāpti. Agni provides discrimination and transformation; āma describes failed processing; ojas represents coherence and resilience; doṣa characterize patterns of response; srotas describe pathways and interfaces; and prakṛti frames individual variability.

Co.M.S. allows these systems to communicate without reducing one to the other. Modern immunology contributes molecular and cellular precision, while Āyurveda contributes systemic, constitutional, and functional intelligence. Immune disease can then be understood not only as failure of defense, but as disturbance of relationship between self and environment, inflammation and repair, memory and response, individuality and adaptation. Health is the restoration of that relationship as coherent, proportionate, and living order.

References

1. Janeway CA Jr. Approaching the asymptote? Evolution and revolution in immunology. Cold Spring Harb Symp Quant Biol. 1989;54:1-13. doi:10.1101/SQB.1989.054.01.003.
2. Iwasaki A, Medzhitov R. Control of adaptive immunity by the innate immune system. Nat Immunol. 2015;16(4):343-353. doi:10.1038/ni.3123.
3. Matzinger P. The danger model: a renewed sense of self. Science. 2002;296(5566):301-305. doi:10.1126/science.1071059.
4. Medzhitov R. Origin and physiological roles of inflammation. Nature. 2008;454(7203):428-435. doi:10.1038/nature07201.
5. Sakaguchi S, Yamaguchi T, Nomura T, Ono M. Regulatory T cells and immune tolerance. Cell. 2008;133(5):775-787. doi:10.1016/j.cell.2008.05.009.
6. Belkaid Y, Hand TW. Role of the microbiota in immunity and inflammation. Cell. 2014;157(1):121-141. doi:10.1016/j.cell.2014.03.011.
7. Morandi A. The challenges of a new path of research in Ayurveda. Ann Ayurvedic Med. 2018;7(1-2):9-13.
8. Morandi A. One Medicine: The Need for a Common Conceptual Framework. J Res Ayurvedic Sci. 2023;7:181-182.
9. Manohar PR, Morandi A, Delle Fave A. The integration quagmire: why we need to watch our steps. Anc Sci Life. 2015;34(3):123-125. doi:10.4103/0257-7941.157145.
10. Morandi A, Minniti MC, Nambi ANN. Translating Ayurvedic concepts to modern drug structures: a novel paradigm. J Ayurveda Integr Med. 2025;16:101203. doi:10.1016/j.jaim.2025.101203.
11. Netea MG, Joosten LAB, Latz E, Mills KHG, Natoli G, Stunnenberg HG, O'Neill LAJ, Xavier RJ. Trained immunity: a program of innate immune memory in health and disease. Science. 2016;352(6284):aaf1098. doi:10.1126/science.aaf1098.
12. Netea MG, Domínguez-Andrés J, Barreiro LB, Chavakis T, Divangahi M, Fuchs E, et al. Defining trained immunity and its role in health and disease. Nat Rev Immunol. 2020;20(6):375-388. doi:10.1038/s41577-020-0285-6.
13. Sharma RK, Dash B, translators. Caraka Saṃhitā. Varanasi: Chowkhamba Sanskrit Series Office; publication date varies by volume.
14. Srikantha Murthy KR, translator. Aṣṭāṅga Hṛdaya. Varanasi: Krishnadas Academy; publication date varies by volume.

Evidence-Based Evaluation of Ayurvedic Shodhana Therapies in Autoimmunity

Dr. Prashanth A. S.

Principal and Professor, Department of Kayachikitsa, Ayurveda Mahavidyalaya College and Hospital, Hubli

Autoimmunity is a condition where the immune system of the body, which normally defends against viruses, bacteria, and other microbial agents, mistakenly attacks its own healthy cells, tissues, and organs.[1] This self-targeting process can lead to inflammation and damage throughout the body, resulting in chronic diseases such as systemic lupus erythematosus, rheumatoid arthritis, and type 1 diabetes mellitus.[1,2] Autoimmunity is a condition in which the body's immune system mistakenly attacks its own healthy cells, tissues, and organs, resulting in more than 80 different autoimmune diseases.[2,3] When this natural defense system fails to recognize self, it triggers inflammation and tissue damage.[1,2]

Under normal physiological conditions, the immune system employs central and peripheral tolerance mechanisms to ensure that T lymphocytes and B lymphocytes do not react against the body's own proteins (self-antigens or autoantigens). In autoimmune responses, these tolerance mechanisms fail, resulting in a loss of immunological tolerance. This breakdown permits the generation of autoreactive lymphocytes and autoantibodies that attack healthy host tissues, leading to persistent inflammation and tissue damage characteristic of autoimmune diseases.[3]

Causative Factors4

The precise cause of autoimmune diseases in an individual remains unclear; however, their development is generally attributed to a complex interaction of genetic susceptibility, environmental triggers, and hormonal or demographic factors.

Genetic predisposition plays a crucial role, as certain susceptibility genes, particularly those within the human leukocyte antigen (HLA) complex, are inherited and significantly increase the risk of developing autoimmune diseases.

Environmental factors, including viral, bacterial, and fungal infections, exposure to certain chemicals, tissue injury, ultraviolet radiation, smoking, and chronic psychological stress, may trigger or exacerbate autoimmune responses in genetically susceptible individuals.

Furthermore, **hormonal and demographic factors** influence disease occurrence, with nearly **75% of autoimmune diseases affecting women**, suggesting an important role of sex hormones and other biological differences in immune regulation.

Commonly Encountered Autoimmune Diseases 4

Autoimmune diseases may be **organ-specific** or **systemic**, depending on the target of the immune response.

- Organ-specific autoimmune diseases include **type 1 diabetes mellitus**, which primarily affects the pancreatic β-cells, and **Hashimoto's thyroiditis**, which involves the thyroid gland. Systemic autoimmune diseases include **rheumatoid arthritis** and **systemic lupus erythematosus (SLE)**, which predominantly affect the joints and connective tissues but may also involve multiple organ systems.
- Gastrointestinal autoimmune disorders include **Celiac disease**, **Crohn's disease**, and other forms of **Inflammatory bowel disease**,
- **Multiple sclerosis** is a chronic autoimmune disorder affecting the central nervous system.

Ayurvedic Insights into the Management of Autoimmune Disorders

According to Ayurveda, Shodhana Chikitsa (Panchakarma) aims to eliminate vitiated Doshas, Ama (metabolic toxins), and correct Mandagni (impaired digestive and metabolic function), thereby restoring physiological balance. The five principal purification procedures (Shodhana)—Vamana, Virechana, Basti, Nasya and Raktamokshaṇa (where indicated)—are described as measures to re-establish Dosha equilibrium and maintain health. Emerging experimental and clinical studies suggest that Panchakarma may influence inflammatory and immune-related pathways; however, further high-quality clinical evidence is required to establish its role in the management of autoimmune diseases.

Principles and Practices of Ayurveda in Autoimmunity

- **Ama[5]:** In Ayurveda, *Ama* refers to incompletely digested or improperly metabolized substances that accumulate within the body due to impaired digestion and metabolism. Ama is believed to obstruct the Srotas (body channels), disturb the equilibrium of Doshas, and contribute to the initiation and progression of disease, including conditions comparable to autoimmune disorders.
- **Agni[6]:** *Agni* (digestive and metabolic fire) is considered the fundamental regulator of digestion, metabolism, and tissue nourishment. Impairment of Agni (*Mandagni*) leads to the formation of Ama, resulting in metabolic dysfunction and the manifestation of various disease processes.
- **Ojas[7]:** *Ojas* is regarded as the essence of all Dhatus and the basis of Vyadhikshamatva (disease resistance or immunity). Depletion or impairment of Ojas compromises the body's resistance to disease; therefore, restoration and preservation of Ojas constitute an important therapeutic objective following purification (*Shodhana*) and rejuvenation (*Rasayana*) therapies.

Shodhana Chikitsa in Autoimmune Disorders

Shodhana Chikitsa[8] is the principal bio-purificatory therapy in Ayurveda, aimed at eliminating vitiated Doshas, correcting Mandagni, removing Ama, restoring the integrity of Srotas, and

re-establishing physiological homeostasis. It comprises five classical purification procedures—Vamana, Virechana, Basti, Nasya, and Raktamokshana (where indicated)—which are selected according to the patient's Prakrti, Dosha predominance, stage of disease, and overall clinical condition. In the context of autoimmune disorders, Shodhana therapy is intended to reduce Doshic imbalance, improve metabolic function, enhance tissue nourishment, and facilitate the restoration of Vyadhikshamatva (host resistance).

Classical Panchakarma Procedures

- **Vamana (Therapeutic Emesis):** Vamana is primarily indicated for Kapha-predominant disorders. It facilitates the elimination of aggravated Kapha and associated Ama from the upper gastrointestinal tract and respiratory system, thereby restoring Doshic equilibrium.
- **Virechana (Therapeutic Purgation):** Virechana is the principal therapy for Pitta disorders. It promotes the elimination of vitiated Pitta and metabolic waste products through the lower gastrointestinal tract and is traditionally indicated in disorders involving Rakta and Pitta vitiation.
- **Basti (Medicated Enema):** Basti is regarded as the most effective therapy for Vata disorders. Administered in the form of herbal decoction (*Niruha Basti*) or medicated oil (*Anuvasana Basti*), it acts systemically to regulate Vata, nourish tissues, and restore physiological balance.
- **Nasya and Raktamokshana:** Nasya involves the administration of medicated formulations through the nasal route and is indicated for diseases affecting the head and neck region (*Urdhvajatru Vikaras*). Raktamokṣana, when clinically indicated, is employed to eliminate vitiated blood (*Dushta Rakta*) in localized inflammatory disorders, particularly certain skin and vascular conditions.

Phases of Shodhana Therapy

Shodhana Chikitsa is performed in three sequential phases.

- **Purvakarma (Preparatory Measures):** This phase includes Snehana (internal and external oleation) and Svedana (sudation), which facilitate the mobilization of vitiated Doṣas and Ama from peripheral tissues toward the gastrointestinal tract for subsequent elimination.
- **Pradhana Karma (Principal Purification):** This phase comprises the selected purification procedure—Vamana, Virechana, Basti, Nasya or Raktamokṣaṇa—based on the patient's constitution, Doṣa predominance, disease stage, and strength.
- **Paschat Karma (Post-procedural Care):** Following purification, patients undergo a gradual dietary regimen (*Saṃsarjana Krama*) along with appropriate Rasayana therapies and lifestyle modifications to restore digestive capacity, replenish tissues, promote recovery, and maintain long-term health.

Therapeutic Objectives of Shodhana Chikitsa

The primary objective of Shodhana therapy is to eliminate accumulated Ama and vitiated Doshas from the body, thereby reducing obstruction within the Srotas and restoring metabolic homeostasis. Correction of Mandagni improves digestion and metabolism, prevents further Ama formation, and supports proper tissue nourishment. Through these mechanisms, Shodhana aims to restore Doṣic balance, strengthen Ojas, enhance Vyadhikshamatva, and reduce the likelihood of disease recurrence.

Proposed Mechanisms of Action in Autoimmune Disorders

From an Ayurvedic perspective, Shodhana facilitates the removal of Ama, which is considered a major pathogenic factor responsible for Dosha vitiation and Srotorodha (channel obstruction). Experimental and preliminary clinical studies have suggested that Panchakarma interventions may influence inflammatory processes by reducing circulating inflammatory mediators, improving antioxidant status, and modulating immune responses. In addition, procedures such as Basti and Virechana are proposed to improve gastrointestinal function and intestinal homeostasis, thereby supporting the concept of correction of Mandagni and systemic metabolic balance. However, further well-designed randomized controlled trials are required to establish these mechanisms conclusively.

Clinical Applications in Autoimmune Disorders

Among Panchakarma procedures, Basti is extensively employed in the management of Amavata (Rheumatoid Arthritis), particularly using formulations such as Vaitarana Basti, to alleviate Vata predominance, reduce pain and stiffness, and improve functional mobility. Virechana is frequently indicated in Pitta-Rakta predominant disorders, including Eka Kustha (Psoriasis), where it aims to eliminate vitiated Pitta and Rakta Dosha. Nasya is utilized in disorders involving the Urdhvajatru Pradesha, facilitating the elimination of accumulated Doṣas from the head and neck region. Raktamokshana, where clinically indicated, is employed in selected inflammatory skin disorders and localized vascular conditions to eliminate Dushta Rakta and reduce localized inflammation according to classical Ayurvedic principles.

Evidence Based Research – Case Study

1. Medical Management of Lichen Planus Through Ayurvedic Principles

Lichen Planus[9] is a chronic immune-mediated inflammatory skin disorder that correlates with Kitibha Kushta[10] in Ayurveda, a condition predominantly involving Vata and Kapha Doshas. An open-label, single-arm clinical study involving 30 patients (20–65 years) with Lichen Planus of less than two years duration evaluated an Ayurvedic treatment protocol consisting of Ama Pachana with Mustha Choorna, Sadya Snehapana with Tikta Shadpala Ghrita, Abhyanga and Swedana, followed by Virechana using Nimbamritadi Eranda Taila, and Shamana Chikitsa with Karappan Kashaya and Haridra Khanda, along with appropriate diet and lifestyle modifications. Clinical assessment based on itching (Kandu), discoloration (Shyavata),

roughness (Parushata), hardness (Kinakharasparsha), and lesion thickness (Ghanatwa) showed highly significant improvement in all parameters ($p < 0.0001$). Overall, 46.7% of patients had marked improvement, 23.3% moderate improvement, 26.7% mild improvement, and only 3.3% remained unchanged, with no reported adverse effects. These findings suggest that Panchakarma-based Ayurvedic management, particularly Virechana followed by appropriate Shamana therapy, dietary regulation, and lifestyle modification, is a safe and effective approach for reducing the clinical manifestations of Kitibha Kushta (Lichen Planus).

From an Ayurvedic perspective, Gara Visha is described as an artificial (Samyogaja) poison formed by the combination of toxic (Savisha) and non-toxic (Nirvisha) substances. According to Acharya Charaka and Chakrapani, it produces delayed toxic effects due to its characteristic Kalanthara-Avipaki property, meaning it remains undigested for a prolonged period and is generally non-fatal. As Lichen Planus is considered a metabolic disorder with probable impairment of Dhatwagni, the treatment aims to reverse the pathological process by pacifying aggravated Vata and Kapha, normalizing Twak, and purifying Dooshita Rakta. Therefore, Virechana with Laghu Ahara for Rakta Shodhana, along with Samanya Kushta Chikitsa, Koshta Shodhana, Shamana Oushadhis and strict Pathya-Apathya, was adopted as the therapeutic approach.

2. Case Study: Ayurvedic Management of Gambhira Vatarakta

Gambhira Vatarakta[11] is a disorder predominantly affecting the joints with presenting symptoms like Sandhishula (pain), Sandhi shotha (swelling), Sandhi Graha (stiffness) Sparsh-asahishnuta (tenderness). Gambhira Vatarakta in modern view has similarity with Rheumatoid Arthritis[12]. The occurrence of Rheumatoid arthritis with deformity is common in the post pubertal males, and post-menopausal females. C-Reactive Protein is a predisposing factor for the manifestation of Chronic Rheumatoid Arthritis. The prevalence of Poly Arthritis varies between populations but is around 1% with a strong male predominance (10:1). A study on Gambhira Vatarakta was taken up to find out the possible effects of Ayurvedic therapies in its management. Virechana is one of the Shodhana chikitsa in the management of Gambhira Vatarakta. The objectives of the study were to study the efficacy of Virechana in reducing the raised C Reactive Protein level. Materials and Methods: 20 patients were included in this clinical study. Subjects were given Panchatikta Guggulu Ghrita for Snehapana, followed by Sarvanga abhyanga with Balaguduchyadi Taila and Virechana with Nimbamrita Eranda Taila. The total duration of the study was 7 days and follow up was done after 1 week. The assessment was carried based on subjective parameters like Sandhishoola, Sandhigraha and objective parameters like Twak Vaivarnyata, Sparshasahatwa, CRP level, and McGill's pain scale was done before and after treatment. Results were statistically analyzed using Wilcoxon signed-rank test. Results: Significant results were observed in subjective parameters such as Sandhishoola (85.6%) and Sandhigraha (75%) as well as objective parameter like twak Vaivarnyata (86.4%), Sparshasahatwa (90%), 32.8% CRP level (32.8%), Mac gills pain scale (50%). Conclusion: Virechana with Nimbamritadi eranda taila was effective in the management of Rheumatoid arthritis.

3. Case Study: Ayurvedic Management of Ankylosing Spondylitis (Trika–Kati–Prishta Graha)

A 27-year-old HLA-B27 positive male with a 10-year history of Ankylosing Spondylitis[13] presented with persistent low back and bilateral groin pain, marked morning stiffness, kyphoscoliosis, and difficulty in walking. From an Ayurvedic perspective, the condition was correlated with Trika–Kati–Prishta Graha/Samavata, where Mandagni leads to Ama formation, followed by Vata-Kapha predominance affecting the Asthi-Majja dhatu and Trika-Kati-Prishta region. The treatment concept focused on removing Ama and restoring Agni before pacifying Vata. Accordingly, Deepana-Pachana with Shaddharana Yoga was administered to digest Ama, followed by Valuka Sweda for Rukshana and relief of stiffness, Mridu Virechana with Eranda Taila Bharjita Vartaka to eliminate vitiated Doshas and establish Nirama Avastha, and finally Dwatrimshaka Guggulu as Shamana therapy to reduce inflammation, improve spinal mobility, and maintain Vata-Kapha balance. This sequential approach resulted in approximately 70% overall clinical improvement, with significant reduction in pain and early morning stiffness, improvement in lumbar mobility and chest expansion, and a decrease in CRP from 86 mg/L to 40 mg/L, demonstrating that a structured Ayurvedic protocol targeting Agni correction, Ama Pachana, Srotoshodhana, and Vata Shamana can effectively improve symptoms and functional status in Ankylosing Spondylitis.

4. Ayurvedic Approach in the Management of Amavata: A Case Study

This case study highlights the Ayurvedic management of Amavata[14], a disease caused by the accumulation of Ama due to Rasadhatvagnimandya and its association with aggravated Vata Dosha, which closely resembles Rheumatoid Arthritis. A 27-year-old female presented with Sarvanga Sandhi Shoola (severe joint pain), Shotha (swelling), Kriyakashtata (restricted joint movements), Angamarda (body ache), and Jwara (fever). The patient was treated with a combination of Panchakarma and Shamana Chikitsa. Panchakarma included Sarvanga Abhyanga with Kottamchukkadi Taila, Sarvanga Patra Piṇḍa Sveda, Nimbamrutadi Eranda Taila Bharjita Vartaka Prayoga and Dhanyamla Dhara, aimed at reducing pain, stiffness, and inflammation. Internal medications such as Kaishora Guggulu, Goksuradi Guggulu, Amṛtottara Kasaya, Indukanta Kashaya, and Ajamodadi Churṇa were administered to promote Amapacana, alleviate Vata, reduce joint inflammation, and improve mobility. Clinical assessment demonstrated marked improvement in pain, swelling, fever, body ache, and joint mobility, enabling better daily functioning. The study concludes that an Ayurvedic approach targeting the root pathology of Ama

and Vata can effectively manage Amavata, providing symptomatic relief and improving quality of life without relying solely on symptomatic treatment.

5. Case Overview: Management of Crohn's Disease through Ayurvedic Principles

Pravahika[15] is a Vata-Kapha predominant gastrointestinal disorder caused by Agnimandya leading to Ama formation with characteristic features of repeated passage of stools with straining, abdominal pain, bloating. This case study correlates Crohn's disease[16] with Pravahika based on similarities in clinical features and pathogenesis involving Grahani and Pakwashaya Dushti. An 18-year-old male with a 3-year history of frequent loose stools, abdominal distension, foul-smelling stools, bloating, occasional constipation, and weight loss was managed using Ayurvedic principles. The Samprapti involved Nidana Sevana → Agnimandya → Ama formation → Vata-Kapha Prakopa → Srotorodha in Pakwashaya → Pravahika. Treatment focused on Deepana, Pachana, Grahi, Vatanulomana, Ama Pachana, and Yoga Basti, using medicines such as Dadimashtaka Choorna, Kutajaghana Vati, Bilwadi Gutika, Mustakarishta, Shankha Vati, along with Anuvasana and Narikela jala sadhita Niruha Basti. The patient was also advised Pathya Ahara including Takra, Peya, Mudga Yusha, and to avoid Viruddhahara, Guru Ahara, and spicy or refrigerated foods. Following treatment, there was marked improvement in stool frequency, abdominal pain, distension, bloating, appetite, and overall quality of life, with no adverse effects. This case highlights that Ayurvedic management through Samprapti Vighatana effectively addresses the root pathology and can play a significant role in the management of chronic inflammatory bowel diseases such as Crohn's disease.

6. Case Study: Ayurvedic Management of Eka Kushta (Plaque Psoriasis)

Plaque psoriasis [17] is a chronic immune-mediated autoimmune inflammatory disease in which activated T cells (Th1 and Th17) and cytokines such as TNF-α, IL-17, and IL-23 cause excessive keratinocyte proliferation, resulting in well-defined erythematous plaques with silvery scales. Genetic predisposition and environmental triggers contribute to disease development.

This case study describes the successful Ayurvedic management of Eka Kushta[18], a Kshudra Kushta comparable to plaque psoriasis, in a 39-year-old male presenting with generalized erythematous scaly plaques, severe itching, dryness, and white powdery scaling for two years. The condition was associated with Vata-Kapha predominance, involving Twak, Rakta, Mamsa, and Lasika, with etiological factors including Viruddha Ahara, Dadhi, and excessive Katu-Amla Ahara. The treatment protocol included Shodhana Chikitsa (Arohana Snehapana with Aragwadha Mahatiktaka Ghrita, Virechana, Yoga Basti, and Jaloukavacharana), Bahir Parimarjana Chikitsa (Sarvanga Pariseka with Aragwadhadi Kashaya), followed by Shamana Oushadhis such as Guggulu Tiktaka Ghrita, Manjishtadi Kashayam, Gandhaka Rasayana, and external application of Eladi, Brihatdantapala, and Karanja Taila. Following treatment, the patient showed marked improvement with 60–70% reduction in itching, scaling, dryness, and other clinical signs, along with disappearance of Auspitz sign, Candle Grease sign, and Koebner phenomenon, without any adverse effects. The study concludes that a combination of Shodhana, Shamana, and Pathya Ahara-Vihara provides effective and safe management for Eka Kushta and may help reduce recurrence in this chronic relapsing condition.

7. Case Study: Ayurvedic Management of Guillain–Barré Syndrome (GBS)

A 39-year-old male presented with a 2-month history of progressive weakness in both lower limbs, followed by weakness of both upper limbs with reduced hand grip, inability to stand without support for prolonged periods, and imbalance while walking. Clinical examination revealed motor weakness (upper limb grip power 3/5 bilaterally and lower limb muscle power 4/5), with preserved muscle tone and stable vital signs. Based on clinical findings, the patient was diagnosed with Guillain–Barré Syndrome (GBS)[19]. From an Ayurvedic perspective, GBS can be correlated with Sarvanga Vata[20], as it is characterized by derangement of Vata Doṣa affecting the Snayu (ligaments), Kandara (tendons), and Mamsa Dhatu, resulting in progressive weakness, impaired motor function, and gait disturbance. Management focuses on Vata-shamana and Bṛṃhaṇa therapies, including Snehana, Swedana, Basti, Nasya, Sneha virechana and Rasayana, along with appropriate internal medications to restore neuromuscular function and improve strength and quality of life.Here the patient was Given Udwarthanawith Kolakulatthadi churna later Abhyana with Mahanarayana Taila , Dhanyamla Parisheka and Agnilepa was done with shamanoushadi such as Prasarinyadi Kashaya , Brihat Vatachintamani gold , Dhanadarasnadi Kashaya etc. Hence the above planned treatment proved beneficial in improving the patient's clinical condition and functional status, indicating the effectiveness of the Ayurvedic management approach.

8.Case Study: Clinical Correlation of Thromboangiitis Obliterans with Vatarakta.

Thromboangiitis Obliterans (TAO/Buerger's disease) is a chronic peripheral occlusive vascular disorder predominantly affecting young and middle-aged male smokers, characterized by ischemia, pain, ulceration, discoloration, and gangrenous changes in the distal extremities. In Ayurveda, the clinical manifestations and pathogenesis of TAO show a close resemblance to Vatarakta, particularly the concept of Margaavarana of Vata by vitiated Rakta, leading to impaired circulation, tissue ischemia, pain, and progressive tissue damage. A 35-year-old male presented with progressively restricted movements of bilateral hip, knee, ankle, and cervical spine joints, associated with bilateral foot swelling, discoloration, ulceration, and inability to sit or walk. He also exhibited swan-neck deformity of the fingers, mild metacarpal pain, and intermittent low-grade fever. Clinical examination revealed involvement of multiple major joints with marked restriction of movements,

hallux valgus and varus deformities, and ischemic changes in both feet. MRI findings showed bilateral avascular necrosis of the femoral heads with reduced hip joint spaces, while X-ray of the left knee demonstrated erosive bony changes. The presence of pain, discoloration (Vaivarnya), coldness and vascular insufficiency (Sheetalata), ulceration (Paka), swelling (Shopha), deformity, and progressive tissue damage closely correlate with the symptomatology and complications of Vatarakta described in Ayurvedic classics and with the ischemic manifestations of TAO. The patient was managed with Nidana Parivarjana, Shodhana therapy in the form of Guggulu Tikta Ghrita Basti, and Shamana medications including Amruta Guggulu and Orthofit. Local therapies such as Nagaradi Lepa, Dashamoola Kwatha Parisheka, Abhyanga with Murivenna and Prasarini Taila, and Vankshana Basti.

References

1. Kumar V, Abbas AK, Aster JC. Robbins & Cotran Pathologic Basis of Disease. 10th ed. Philadelphia: Elsevier; 2021. Chapter 6: Diseases of the Immune System.
2. Abbas AK, Lichtman AH, Pillai S. Cellular and Molecular Immunology. 10th ed. Philadelphia: Elsevier; 2021. Chapter: Immunologic Tolerance and Autoimmunity.
3. Jameson JL, Fauci AS, Kasper DL, Hauser SL, Longo DL, Loscalzo J, editors. Harrison's Principles of Internal Medicine. 21st ed. New York: McGraw-Hill Education; 2022. Section: Autoimmune Diseases.
4. Penman ID, Ralston SH, Strachan MWJ, Hobson RP, editors. Davidson's principles and practice of medicine. 24th ed. London: Elsevier; 2023. Chapter: Clinical immunology: autoimmune diseases.
5. Agnivesha. Charaka Samhita, revised by Charaka and redacted by Drdhabala. Edited by Vaidya Yadavji Trikamji Acharya. Varanasi: Chaukhambha Surbharati Prakashan; Reprint 2020.Sutrasthana 16th chapter Chikitsaprabhṛtiya Adhyaya.
6. Agnivesha. Charaka Samhita, revised by Charaka and redacted by Drdhabala. Edited by Vaidya Yadavji Trikamji Acharya. Varanasi: Chaukhambha Surbharati Prakashan; Reprint 2020. Sūtrasthana 28th chapter Vividhasitapitiya Adhyaya.
7. Agnivesha. Charaka Samhita, revised by Charaka and redacted by Drdhabala. Edited by Vaidya Yadavji Trikamji Acharya. Varanasi: Chaukhambha Surbharati Prakashan; Reprint 2020. Sutrasthana 17th chapter Kiyantah Shirasiyam Adhyaya.
8. Agnivesha. Charaka Samhita, revised by Charaka and redacted by Drdhabala. Edited by Vaidya Yadavji Trikamji Acharya. Varanasi: Chaukhambha Surbharati Prakashan; Reprint 2020. Sutrasthana 20th chapter Maharoga adhyaya.
9. P N Behl a Agarwal, Govind Srivastava: Practice of Dermatology, CBS Publishers and Distributers 9th edition 2002-page number: 264.
10. Agnivesha. Charaka Samhita, revised by Charaka and redacted by Drdhabala. Edited by Vaidya Yadavji Trikamji Acharya. Varanasi: Chaukhambha Surbharati Prakashan; Reprint 2020. Nidhana sthana 7th Chapter Kushtarogadhikara.
11. Agnivesha. Charaka Samhita, revised by Charaka and redacted by Drdhabala. Edited by Vaidya Yadavji Trikamji Acharya. Varanasi: Chaukhambha Surbharati Prakashan; Reprint 2020.Chikitsa sthana 29th chapter.
12. Strachan MWJ, Ralston SH, Dhaun N, Sutherland R, editors. Davidson's Principles and Practice of Medicine. 24th ed. Edinburgh: Elsevier; 2023. Chapter 25, Rheumatoid arthritis.
13. Penman ID, Ralston SH, Strachan MWJ, Hobson R, editors. Davidson's Principles and Practice of Medicine. 24th ed. Edinburgh: Elsevier; 2023. Chapter 24: Rheumatology and Bone Disease – Ankylosing Spondylitis
14. Madhavakara. Madhava Nidana with Madhukosha Commentary by Vijaya Rakshita and Shrikantha Datta; Vidyotini Hindi Commentary by Sudarshana Shastri, edited by Yadunandana Upadhyaya. Reprint ed. Varanasi: Chaukhambha Prakashan; 2009. Amavata Nidana, Chapter 25, Verses 1–5, pp. 508–509.
15. Murthy KRS, translator. Illustrated Sushruta Samhita. Vol. III, Uttara Sthana. 4th ed. Varanasi: Chaukhambha Orientalia; 2010. p. 243.
16. API Textbook of Medicine. Gastrointestinal diseases section
17. Penman ID, Ralston SH, Strachan MWJ, Hobson R, editors. Davidson's Principles and Practice of Medicine. 24th ed. Edinburgh: Elsevier; 2023. Chapter 29: Dermatology.
18. Agnivesha. Charaka Saṃhita, revised by Charaka and redacted by Drdhabala. Edited by Vaidya Yadavji Trikamji Acharya. Varanasi: Chaukhambha Surbharati Prakashan; Reprint 2020. Nidhana sthana 7th Chapter Kushtarogadhikara.
19. Jameson JL, Fauci AS, Kasper DL, Hauser SL, Longo DL, Loscalzo J, editors. Harrison's Principles of Internal Medicine. 21st ed. New York: McGraw-Hill Education; 2022. Chapter 440: Guillain–Barré Syndrome and Other Immune-Mediated Neuropathies.
20. Agnivesha. Charaka Saṃhita, revised by Charaka and redacted by Drdhabala. Edited by Vaidya Yadavji Trikamji Acharya. Varanasi: Chaukhambha Surbharati Prakashan; Reprint 2020. chikitsa sthana 28th Chapter Vatarogadhikara.

A Case Study on Dermatomyositis and its Management in Ayurveda

Dr. Anita Karilio-Arkas, Dr. Nousad Ali Thachaparamban

President, Ayurveda Russian–Indian Association (ARIA); Member, Council of Traditional Medicine, Ministry of Health, Moscow, Russia. Atreya Ayurveda, Moscow, Russia

BACKGROUND: Dermatomyositis is a rare inflammatory disease marked by progressive muscle weakness and distinctive skin rashes. It is an autoimmune disorder where the immune system attacks connective tissue,blood vessels and muscles. Diagnosis is based upon progressive muscle weakness, skin rashes, increased liver enzymes, high ASO titre. Due to similarity in the signs and symptoms, we can correlate this disease with 'Mamasavrita Vata'.

CASE PRESENTATION: A 11 year old boy came to Atreya Ayurveda clinic (Moscow, Russia) with complaints of skin lesions with itching all over the body , associated with other symptoms like lack of muscular strength and muscular atrophy all over the body, difficulty to stand erect from sitting or from supine positions. Analysis showed high ASO titre.

TREATMENT: Internal medications, diet, therapies like abhyanga, seka and vicharana snehapana at periodical intervals results in the recovery from the illness.

KEY WORDS : Dermatomyositis, Mamsavritavata , seka , vicharana snehapana.

Introduction

Dermatomyositis is a rare acquired immune-mediated muscle disease characterized by muscle weakness and skin rash. It is classified as one of the idiopathic inflammatory myopathies (IIM). Although all idiopathic inflammatory myopathies share the common presentation of muscle weakness, they differ clinically in terms of muscle groups involved and histopathological findings[1,2]. Dermatomyositis presents with characteristic skin findings and symmetric proximal skeletal muscle weakness. Also, it can affect other organ systems such as the pulmonary, cardiovascular, and gastrointestinal systems. A significant proportion of patients with dermatomyositis have an underlying malignancy, which can alter the prognosis of the condition. Although a majority of cases have muscular and cutaneous manifestations, other variants of the condition exist. Clinically amyopathic dermatomyositis (CADM) is a condition in which patients have the characteristic cutaneous findings of dermatomyositis, but do not have muscle weakness. Clinically amyopathic dermatomyositis is further classified as hypomyopathic dermatomyositis. Patients with hypomyopathic dermatomyositis lack muscle weakness clinically. However, there is evidence of myositis based on laboratory investigations, electromyography, or muscle biopsy. In contrast, patients with amyopathic dermatomyositis lack both clinical and laboratory evidence of muscle involvement[3].

Etiology

Although the cause of dermatomyositis is unknown, several genetic, immunologic, and environmental factors are implicated in this condition.

Genetic Factors

Multiple studies have indicated that patients with particular human leukocyte antigen (HLA) types are at higher risk of dermatomyositis. High-risk haplotypes include HLA-A68 in North American Whites [4], HLA-DRB1 0301 in African Americans [5], HLA-DQA1 0104 and HLA-DRB1 07 in Han Chinese [6], DQA1 05 and DQB1 02 in people from the UK. Also, DRB1 03-DQA1 05-DQB1 02 haplotype is strongly associated with the development of interstitial lung disease in dermatomyositis [7].

Immunologic Factors

Although autoantibodies are detected in patients with dermatomyositis, it is unclear whether they play a role in pathogenesis.

Environmental Factors

Infections

Viruses such as Coxsackie B virus, enterovirus, and parvovirus have been suspected of acting as triggers of dermatomyositis. There are multiple theories about the mechanisms of virus-induced autoimmunity. These include alteration of cellular proteins, breakdown of self-tolerance, an unmasking of previously hidden epitopes, autoantibody induced B cell activation, and molecular mimicry [8].

Drugs

Several drugs can trigger dermatomyositis. These include antineoplastic drugs (hydroxyurea, cyclophosphamide), anti-infectious agents (penicillin, sulfonamides, isoniazid), non-steroidal anti-inflammatory drugs (diclofenac, phenylbutazone), D-penicillamine, statins, and certain vaccines [9].

Radiation

Dermatomyositis has been observed to occur more frequently among women exposed to high-intensity ultraviolet radiation [10].

Pathogenesis

The pathogenesis of dermatomyositis is not clearly understood. It appears that children with genetic susceptibility to DM (HLA-DQA1 0501, HLA-DQA 0301, HLA-DRB1 0301) may have exposure to environmental triggers such as infection.

Complement-mediated damage of vessels is a major mechanism, with activated complement inducing further cytokine release and vessel injury via the membrane attack complex.

The importance of type 1 interferon in DM is becoming evident. An inflammatory cascade with type 1 interferon response leads to over expression of major histocompatibility complex class-I and maturation of dendritic cells. Over expression of major histocompatibility complex class- I upregulate adhesion molecules, which influence migration of lymphocytes, leading to inflammatory infiltration of muscles.

Clinical manifestations

Symmetrical proximal muscle weakness is the hallmark of DM. Weakness is often insidious and difficult to differentiate from fatigue at onset. The weakness probably affects all muscle groups but is most obvious in the shoulder girdle, hip flexors, and neck flexors. Patients may have difficulty raising arms, combing hair, climbing stairs, and getting out of bed. Findings on examination include the Gower sign and Trendelenburg sign. Each reflecting proximal lower extremity weakness and gluteal muscle weakness. The affected muscles may be tender, oedematous. Weakness of the palatal and pharyngeal muscles manifests clinically by dysphonia, dysphagia, nasal speech, and regurgitation of liquids through the nose. Respiratory muscle weakness can be a medical emergency and lead to respiratory failure. Arthralgia or arthritis are often seen in early phase of disease course. The arthritis is nonerosive and frequently involves the knees.

Pathognomonic rash include heliotrope rash, Gottron's papules, periungual erythema with capillary loop abnormalities. The heliotrope rash is a symmetrical erythematous to violaceous rash of the upper eyelids, often accompanied periorbital oedema. Facial erythema crossing the nasolabial folds is common, in contrast to the malar rash of systemic lupus erythematosus. Gottron's papules are an erythematous, shiny, thickened plaques over the dorsal surfaces of the metacarpophalangeal, proximal interphalangeal joints and occasionally on the elbows, knees, ankle malleoli. DM patients often exhibit photosensitivity to ultraviolet light exposure with erythema in sun-exposed areas. If seen over the posterior neck, upper back, shoulder, this erythema is known as the "shawl sign", and anterior neck, upper chest, this erythema is known as the "V sign".

Diagnosis

The diagnosis of DM is made through Bohan and Peter criteria published in 1975.This criteria include the findings like classic rash (heliotrope rash, Gottron's papule), proximal muscle weakness, elevation of the serum level of one of the muscle enzymes, electromyography (EMG) demonstrating denervation and myopathy, and a muscle biopsy consistent with inflammatory myositis. According to the 1975 criteria, a diagnosis is considered definite if a patient presents with 3 criteria in addition to the classic rash, or probable if a patient presents with 2 criteria plus the rash.

Evidence of small vessel vasculopathy is often visible in the nailfolds as individual capillary loops that are dilated, tortuous, or dropout. Nailfold capillary abnormalities may be observed in the clinic using a magnifier such as ophthalmoscope. Patients with active disease have a greater degree of nailfold capillary abnormalities compared with those with inactive disease. Severe vasculopathy causes ulcerative skin lesions on fingers, arms, toes.

Calcinosis is reported in up to 30% of DM patients. Calcinosis reflects a dystrophic deposition of the calcium phosphate, hydroxyapatite in the skin, soft tissue. Calcific lesions tend to be at pressure points, such as buttocks, knees, and elbows. Calcinosis is thought to be associated with a delayed diagnosis, untreated disease, a chronic course, and inadequate therapy. Pulmonary involvement in DM is rare, but serious complication include interstitial lung disease, aspiration pneumonia secondary to pharyngeal and oesophageal dysmotility, and alveolar hypoventilation secondary to respiratory muscle weakness. Vasculopathy of the gastrointestinal tract develops in severe DM, with severe abdominal pain, ulceration, haemorrhage, perforation, and infarction. Clinically important GI involvement is rare, but it is one of the causes of death in DM.

Ayurvedic understanding of dermatomyositis

According to Ayurveda, even though there is no direct correlation to this disease, pathology of auto immunity corresponds with the concept of jwara and its upadrava. According to Acharya Charaka, Santata Jwara lasts up to 12 days, during which the doshas move in the Rasadi Srotas, and reach sarva shareera, leading to various symptoms. If the disease is not treated properly in this phase, doshas move to the leena Avastha and become Aleena whenever there is a favourable environment in the shareera, leading to Punaravartaka jwara [11].When the patient exposes to the nidana, the shareerika dhatus undergo paka, leading to various symptoms like, jwara, Shotha, Pandu, Pidaka etc, which matches with auto immunity and dermatomyositis as well.

The symptoms like the skin rashes, muscle inflammation, and systemic weakness of DM can be correlated with a few combined conditions:[12].

- **Mamsavrita Vata / Mamsagatavata:** A state where the Vata dosha becomes blocked or masked by Mamsadhathu, leading to progressive muscle weakness, pain, and atrophy.
- **Mamsapeshishosh:** the wasting or degeneration of muscle fibres, aligning directly with the classic myopathy symptoms of DM.
- **Uttana Vatarakta:** A condition where vitiated Vata disrupt the superficial tissues, mirroring the

characteristic skin lesions like Heliotrope rashes and Gottron's papules.

- **Dhatu Gata Jwara (Santata Jwara):** Autoimmune activity in children is often understood as a deep-seated, chronic tissue inflammation resulting from toxins compromising Ojas.

Case presentation

A 11year old boy came in the OP of Atreya Ayurvedic Clinic in Moscow Russia on 22/02/2021 with complaints of skin lesions with itching all over the body. He also had muscular atrophy and loss of muscular strength associated with difficulty to stand erect from sitting or supine positions and also with raised ASO levels.

History

The patient history says he started to have red skin patches on the face and over the body in February 2018. Took allopathic medicines, but by march 2018 he started pain all over the body with severe muscular weakness. He was not able to even climb the steps.So he was admitted in the allopathic hospital and was treated with Prednisolone and Methotrexate till august 2018 and got symptomatic relief. In September 2018 he went on vacation on a sea side and came back to Moscow in November with aggravated symptoms. This time he adopted homeopathic treatment and stopped the intake of gluten and milk products till august 2019. In November 2019 symptoms again got aggravated and muscle strength reduced. From January 2020 onwards there was progressive worsening of skin lesions and muscular strength. Then they tried so many different treatments for next one year with no marked results and came to Atreya clinic in 2021 february with the diagnosis as dermatomyositis.

Samprapti ghatakas

Dosha	Vata pradhana tridosha
Dushya	Rasa, Rakta, Mamsa
Agni	Jataraagni, Dhatuvaagni
Agnidushti	Mandagni
Srotas	Rasavaha, Raktavaha, Mamsavaha
Srotodushti	Sanga
Udhbhavasthana	Amashaya
Sancharasthana	Sarvashareera
vyaktasthana	Sarvashareera
Rogamarga	Madhyama , Bahya
Sadhyasadhya	Yapya

Treatment protocol

A comprehensive treatment approach was implemented, integrating diet, therapies and oral medication administration[13].

The patient was given Manjishtadi kashayam , Patoladi kashayam and kaisoraguggulu Gulika for 3 weeks to take at home Kashaya seka done with neem, aragwadha and nalpamara. After 3 weeks itching and redness reduced but muscle weakness persists. The next phase given guggulutiktaka ghrta given as vicharana Sneha for a month. His muscular strength got improved and he started climbing steps by holding the sides. Also the skin lesions improved a lot. Gradually he started riding a bicycle. In July 2021 he again came with high ASO titre of 1000 iu/ml with intermittent fever. So given amruthotharam kashayam , sudarshanam Gulika and vilwadi Gulika. Symptoms got relieved and then he was given abhyanga and pizhichil which improved the muscle strength. He became active and was capable of doing all his activities.

Conclusion

Dermatomyositis (DM) is an autoimmune chronic disease characterized by distinctive skin lesions with muscular pain and inflammation. Autoimmunity is associated with a broad spectrum of diseases, that cannot be understood as a single condition according to Ayurveda. Dermatomyositis is characterized by Santata Jwara, uttana vatarakta, mamasasrta vata and Punaravartaka Jwara lakshana and samprapti, thus treatment focused on Jwarahara, Ama Pachana, Agni Deepana and Brumhana. Even though these auto immune disease demand long term treatment and repeated Panchakarma chikitsa, this case shown significant improvement with few courses of treatment with observable symptomatic relief. The case report reveals that the treatment failure of the conventional system of treatment comes to Ayurveda with a hope of recovery even from a critical disease So the present situation demands more clinical research and studies in Ayurveda to develop the standard treatment protocols for incurable disease in the conventional system of medicine.

Declaration

This states that this manuscript has not been published anywhere previously.

References

1. Dalakas MC, Hohlfeld R. Polymyositis and dermatomyositis. Lancet. 2003 Sep 20;362(9388):971-82. Pubmed
2. Briani C, Doria A, Sarzi-Puttini P, Dalakas MC. Update on idiopathic inflammatory myopathies. Autoimmunity. 2006 May;39(3):161-70. Pubmed.
3. Gerami P, Schope JM, McDonald L, Walling HW, Sontheimer RD. A systematic review of adult-onset clinically amyopathic dermatomyositis (dermatomyositis siné myositis): a missing link within the spectrum of the idiopathic inflammatory myopathies. J Am Acad Dermatol. 2006 Apr;54(4):597-613. Pubmed.

4. O'Hanlon TP, Carrick DM, Arnett FC, Reveille JD, Carrington M, Gao X, Oddis CV, Morel PA, Malley JD, Malley K, Dreyfuss J, Shamim EA, Rider LG, Chanock SJ, Foster CB, Bunch T, Plotz PH, Love LA, Miller FW. Immunogenetic risk and protective factors for the idiopathic inflammatory myopathies: distinct HLA-A, -B, -Cw, -DRB1 and -DQA1 allelic profiles and motifs define clinicopathologic groups in caucasians. Medicine (Baltimore). 2005 Nov;84(6):338-349. Pubmed

5. O'Hanlon TP, Rider LG, Mamyrova G, Targoff IN, Arnett FC, Reveille JD, Carrington M, Gao X, Oddis CV, Morel PA, Malley JD, Malley K, Shamim EA, Chanock SJ, Foster CB, Bunch T, Reed AM, Love LA, Miller FW. HLA polymorphisms in African Americans with idiopathic inflammatory myopathy: allelic profiles distinguish patients with different clinical phenotypes and myositis autoantibodies. Arthritis Rheum. 2006 Nov;54(11):3670-81. Pubmed.

6. Gao X, Han L, Yuan L, Yang Y, Gou G, Sun H, Lu L, Bao L. HLA class II alleles may influence susceptibility to adult dermatomyositis and polymyositis in a Han Chinese population. BMC Dermatol. 2014 Jun 04; 14:9. PMC free article. Pubmed.

7. Chinoy H, Salway F, Fertig N, Shephard N, Tait BD, Thomson W, Isenberg DA, Oddis CV, Silman AJ, Ollier WE, Cooper RG., UK Adult Onset Myositis Immunogenetic Collaboration (AOMIC). In adults onset myositis, the presence of interstitial lung disease and myositis specific/associated antibodies are governed by HLA class II haplotype, rather than by myositis subtype. Arthritis Res Ther. 2006;8(1): R13. PMC free article. Pubmed.

8. Adler BL, Christopher-Stine L. Triggers of inflammatory myopathy: insights into pathogenesis. Discov Med. 2018 Feb;25(136):75-83. PMC free article. Pubmed.

9. Dourmishev AL, Dourmishev LA. Dermatomyositis and drugs. Adv Exp Med Biol. 1999;455:187-91. Pubmed.

10. Love LA, Weinberg CR, McConnaughey DR, Oddis CV, Medsger TA, Reveille JD, Arnett FC, Targoff IN, Miller FW. Ultraviolet radiation intensity predicts the relative distribution of dermatomyositis and anti-Mi-2 autoantibodies in women. Arthritis Rheum. 2009 Aug;60(8):2499-504. PMC free article Pubmed.

11. Acharya YT, ed., Charaka Samhita of Agnivesha elaborated by Charaka and Drdhabala with Ayurveda Dipika commentary by Sri Chakrapanidatta, Chikitsasthana, Varanasi: Chaukhamba Surbharati Prakashan.

12. Pt. Paradakara HSS, ed., Astangahrdaya of Vagbhata with the commentaries Sarvangasundara of Arunadatta and Acharya YT, ed., Sushruta Samhita with the Nibandhasangraha Commentary of Sri Dalhanacharya and the Nyayachandrika Panjika of Sri Gayadasacharya on Nidanasthana, Sharirasthana.

13. Acharya YT, ed., Charaka Samhita of Agnivesha elaborated by Charaka and Drdhabala with Ayurveda Dipika commentary by Sri Chakrapanidatta, Siddhisthana.

Part Two　Contributions from the Faculty

A Pharmacotherapeutic Framework of Treating Autoimmune Disorders in Ayurveda WSR to Indralupta

Dr. Abishek Bharadwaj B. U., Dr. Poornima B., Dr. Divya B. S.

Department of Dravyaguna, SDM Institute of Ayurveda and Hospital, Bengaluru

Introduction

Autoimmunity refers to immune reactions against self-antigens. Autoimmune diseases may be organ specific, in which the immune responses are directed against one organ or cell type and result in localized tissue damage. Normal healthy individuals are tolerant to their own antigens and Autoimmunity results from failure of self-tolerance. Immunologic tolerance is a state of unresponsiveness to an antigen that is induced by exposure of specific lymphocytes to that antigen. Central and peripheral tolerance are two ways, how the body identifies the self-antigens and produces the state of tolerance. Central tolerance acts through immature T and B lymphocytes that recognize self-antigens in central lymphoid organs are killed by Apoptosis. Peripheral tolerance acts through mature lymphocytes that recognize self-antigens in peripheral tissues become functionally inactive (Anergic) and are suppressed by regulatory T lymphocytes or die by Apoptosis. The factors that lead to failure of self-tolerance and development of Autoimmunity include, (1) Inheritance of susceptibility genes that disrupt different tolerant pathways and (2) Infections and tissue injury that expose self-antigens and activate antigen presenting cells and lymphocytes in the tissues[1].

In the perspective of *Ayurveda*, Autoimmunity is caused by impaired *Agni* which may produce metabolic toxins called '*Ama"*. That *Ama* may consist of molecules which mimics the shape and structure of our healthy tissues, which may be attacked by the immune system. Deranged *Dhatwagnis* also play a role in destruction of *Dhatus* and their *Avayava* , in a healthy individual, there is a well - coordinated and regulated system of *Agni*. In autoimmune disease this control is lost at different domains which will lead to *Agnimandya* and formation of Ama. In secondary stage due to *Pitta* dominancy over activity of *Agni* takes place resulting in, *Dhatukshaya* and *Ojavyapat* which will result in inflammatory changes and ultimately causation of Autoimmune disease[2].

Alopecia areata vis-a-vis Indralupta

Alopecia areata (AA) is a common autoimmune disease where the immune system mistakenly attacks hair follicles, causing hair to fall out. It often starts with small, round, smooth patches on the scalp, but can lead to total hair loss on the head or body. There is no cure, but treatments can help hair grow back[3]. Under normal conditions, anagen-phase hair follicles maintain an immunosuppressive microenvironment that hides local autoantigens from immune surveillance. In AA, this protection fails, leading to an aggressive, T cell–mediated attack on the hair bulb[4]. In spite of huge technological advancements in modern medicine, there is no cure for this condition. *Ayurveda*, with its unique approach in understanding the pathogenesis and treatment of Alopecia areata has a lot to offer to the mankind.

Indralupta is the most appropriate equivalent found in *Ayurveda* for Alopecia areata. *Sushruta Samhita* categorizes it under *Kshudra Roga* and *Ashtanga Hridaya* under *Shirokapala Roga* or *Kshudra Roga*.

रोमकूपानुगं पित्तं वातेन सह मूर्च्छितम् |
प्रच्यावयति रोमाणि ततः श्लेष्मा सशोणितः ||
रुणद्धि रोमकूपांस्तु ततोऽन्येषामसम्भवः |
तदिन्द्रलुप्तं खालित्यं रुज्येति च विभाव्यते ||Su.Ni 13/३३-३४||

As explained by *Acharya Sushruta*, vitiated *Pitta* and *Vata* mix and settle in the hair roots (*Romakoopa*), causing hair to fall out. *Kapha* and *Rakta* (blood) block the hair follicle openings, stopping new hair from growing back[5].

Pharmacotherapeutic Framework with Principles of Dravyaguna

Dravyaguna being the prime branch of *Ayurveda* helps forming the treatment principles for any disease in *Ayurveda*. Deciding the *karma* that has to be done in order to treat the condition is the first step of treatment, and selecting a proper complex of *Rasapanchaka* needed to perform those karmas is the scope of *Dravyaguna*. This forms the basic framework of treatment. By assessing these, *Dravyas* with suitable *Guna -Karma* may be selected while prescribing.

Indralupta - Samprapti Ghataka

- ***Dosha:*** *Tridoshpradhana (Vata, Pitta, and Kapha)*
- *Vata (Samana* and *Vyana Vayu)*
- *Pitta (Bhrajaka Pitta* and *Pachaka Pitta)*
- *Kapha* (*Tarpaka Kapha*)[6]
- ***Dushya:*** *Rasa, Rakta,* and *Asthi dhatu*
- ***Mala:*** *Kesha (hair)* and *Sweda (sweat)*
- ***Agni:*** *Jatharagni, Rasagni,* and *Asthyagni Mandagni (*low metabolic fire*)*
- **Srotas:** Rasavaha, Raktavaha, Asthivaha, and Swedavaha
- ***Sroto Dushti:*** *Sanga (*obstruction in hair root channels*)*
- ***Adhisthana* (Site of lesion):** *Shirokapala* (Scalp / *Keshabhoomi*)
- ***Rogamarga*:** *Bahya Rogamarga* (external disease pathway involving *Twak* and *Romakupa*)
- ***Sadhyasadhyata*:** *Kricchra Sadhya* (difficult to cure if chronic)

The treatment principle of *Indralupta* in *Ayurveda* focuses on balancing vitiated Vata, *Pitta*, *Kapha*, and *Rakta*, clearing local blockages in the hair root channels (*Romakoopa avrodha*), and stimulating hair follicle rejuvenation (*Keshya* and *Rasayana* action).

Karmas needed7

Deepana-It corrects the *jataragni* and prepares the body to clear deep-seated *doshic* imbalances.

Pachana- Digests *Ama* (unabsorbed toxins) and correct *Agni.*

Samshodhana- *Pracchanna Karma* (Scratched Bloodletting) and *Jalaukavacarana* (Leech Therapy): to extract *Pitta*-vitiated blood and improve local blood flow.

***Samshamana*:** Internal herbal medicines and decoctions given to balance internal *doshas* and improve tissue metabolism (Dhatvagni).

Lekhana-Helps by scraping away or reduces this localized morbid *Kapha* and *Rakta* accumulation. It opens the blocked *srotases*, enhances local blood circulation (*perifollicular vascularization*), and prepares the scalp tissue to absorb medicinal pastes (*Lepa*) for healthy hair regrowth.

Pramathi- Deeply churns and sweeps away *sanga* (sticky or lodged blockages) from *srotases*. This may be applied primarily during the early accumulation stage (sanchaya) of a disease process to clear paths before imbalances worsen.

Rasayana- Aims to nourish and replenish *Dhatus*, balance aggravated *doshas* and restore local hair root vitality. It is usually followed after *Raktamokshana* or *Prachchhana*) to rebuild healthy *Rasa* and *Rakta dhatu*.

Rasa

Katu, ***Amla*** and ***Lavana*** *Rasa Dravyas* may be used for short period of time in the initial stages of *Chikitsa* for the sake of *Deepana*, *Pachana* and *Srotoshodhana* but should be avoided later as it is considered to be *Nidana* for *Khalitya*[8].

Madhura rasa helps in nourishing the *Rasadi Dhatus* and replenishing the *Romakupa* as it is said to be *Keshya*. *Tikta* rasa helps in *Ama Pachana* and *Lekhana Karma* whereas *Kashaya Rasa* does *Kledachushana* (absorbs excessive moisture) and brings about *Vishadhatva* (Clarity) at the site of *Romakupa*[9] (Hair follicle)

Guna

***Tikshna Guna* (Sharp/Penetrating):** Pierces deep into *srotas* (blocked micro-channels) and hair follicle openings to clear hardened *Kapha* and toxin deposits.

***Ushna Guna* (Hot):** Dilates local blood vessels, enhances blood flow (*perifollicular vascularisation*), and digests the localized obstruction (*samata*)

***Laghu Guna* (Light):** Promotes rapid absorption and easy movement of the medicinal paste or oil into the deeper skin layers of the scalp.

***Ruksha Guna* (Dry):** Counters excessive *Snighdhatva* (unctuousness or moisture) from pathological *Kapha* that seals the hair root pores.

Virya10

Ushna Virya (hot potency) works by pacifying Vata and *Kapha Dosha*, stimulates blood flow by vasodilation of local micro-channels, enhances blood circulation to dormant roots, and provokes local tissue metabolism.

Vipaka 11

Katu (pungent), which acts as a *Kapha-Shamaka* and helps clear deep-seated channel blockages.

Madhura – helps in later stages of treatment in nourishing and replenishing the *Rasadi dhatus* and hair follicles

Few drugs helpful in Indralupta Chikitsa

***Amalaki* (*Emblica officinalis*):** Acts as a potent *Rasayana* and *Keshya* (hair tonic) that nourishes hair roots and boosts tensile strength.

***Bhringaraja* (*Eclipta alba*):** Renowned as the best natural herb for hair growth, pigmentation, and reversing hair fall.

***Bibhitaki* (*Terminalia bellirica*):** Clears micro-channels (*Srotas*) on the scalp and exhibits strong *Keshya* properties.

***Vidanga* (*Embelia ribes*):** Used widely (often as *Vidangarishta*) to address deep-seated toxins and root causes related to *Krimi* (microbial/follicular involvement).

***Maricha* (*Piper nigrum*)** -*Churna Kalka* mixed with *Tila Taila* applied to irritate and stimulate dormant hair follicles.

***Daruharidra* (*Berberis aristata*)**- *Lepa* stimulates dormant hair follicles by its *Ushna Veerya*

***Gunja* (*Abrus precatorius*):** Seed paste is applied locally to stimulate blood flow to dormant hair roots (used with care under supervision as it is toxic in high amounts).

Discussion

Ayurveda understands the concept of Autoimmunity in terms of *Mandagni*, Ama and *Ojovyapat*. Where in the primary objective of treatment becomes correction of *Jataragni* and *Dhatvagni* by Deepana and *Amapachana*, this helps in bringing back the normalcy in metabolism and takes care in non-formation of metabolic toxins (*Ama*). *Dushita Rakta Shodhana* is done through *Prachanna* and *Jalaukavachrana* which clears off the obstruction in the site of hair follicle. *Shamana dravyas* as and when required to be selected by the *Yukti* of the *Vaidya* in balancing the *Tridoshas*. *Lekhana* at the site of hair loss can be done using *Parijata Patra* after which *Lepas* of *Dravyas* with *Ushna*, *Teekshna Guna* may be used which stimulates hair follicles and improves blood circulation at the site. Vitiated *Ojas* will be treated by *Rasayana Dravyas* which acts as immunomodulatory agents.

The utilisation of Rasa is decided based on the stage of Chikitsa and excessive usage of *Katu*, Amla and Lavana rasas to be taken care of, as it may worsen the condition. *Tikta* and

Kashaya Rasa help by bringing about clarity and suck-out excessive *Kleda* from the *Romakoopa*. Madhura Rasa helps at the later stages of treatment as a *Rasayana,* taking care of nourishment of Dhatu and their *Avayava* which helps in stabilizing the hair root and improving the hair quality. All the above mentioned R*asapanchakas* may be considered while designing the treatment protocol in terms of both *Abhyantara* (internally e.g.; *Deepana, Pachana*) and *Baahya Chiktsa* (e.g.; *Lekhana by Parijata patra)*. Apart from the above-mentioned drugs, a Vaidya may select number of drugs, using Yukti which is suitable in treating the condition based on the parameters like *Karma, Rasa, Guna,* etc.

Conclusion

Inspite of technological advancements, modern medicine system still faces difficulty in complete treatment of Alopecia areata. *Ayurvedic* system has a unique approach in treating the Autoimmune conditions like *Indralupta*. Principles of *Dravyaguna* helps to design the treatment framework for the condition by selecting drugs and procedures based on concepts of *Karma*, *Rasa*, *Guna*, *Veerya* and *Vipaka*. *Ayurveda* treatment as a standalone treatment for *Indralupta* has been proven to be significantly effective. An inter-disciplinary treatment approach may be much successful rather than completely depending upon corticosteroids and anti-inflammatory drugs.

References

1. Kumar V, Abbas A, Aster Editors. Robbins basic Pathology. 1st South Asian ed. New Delhi: Elsevier publisher;2013. p. 145,149-150.
2. Rawat N, Sharma S. Role of Ayurvedic Medicinal Plants in Auto-immune disorders and their management. JAIMS. 2023; Vol 8: p.2.
3. Cleveland clinic. Alopecia Areata [Internet]. Cleveland: Cleaveland clinic; cited on 30/08/2023. Available from: Alopecia Areata: Symptoms, Causes, Treatment & Regrowth.
4. Tianyou Ma, Tingruy Zhang, Fengze Miao et.al. Alopecia Areata: Pathogenesis, Diagnosis and Therapies. MedComm. 2020; Vol 6(5): p.2.
5. Sushrutha. Sushrutha Samhita. Nidhana Sthana, Kshudra Roga Nidanam, 13/33-34. *In* Murthy *K R,* editor. Reprinted.Varnasi:Chowkamba Orientalia; 2014.p. 549.
6. Hebbar C S, Lalitha B R, Murthy D K, Bhandari S. Accereditation of concepts of Rasa(nutrition) and Veerya(potency) as food and medicine determinents: A Review. IJRAP. 2016.Vol 7(6).p.224.
7. Sharangadhara. Sharangadhara Samhita. Prathama Khanda, Deepana pachanadi kathanam,4/1-13. In: Murthy K R editor. reprinted. Varanasi: Chowkamba Orientalia;2017. p.17-20
8. Agnivesha. Charaka Samhita. Vimana sthana, Rasavimana Adhyaya, 1/6, 15-18. In: Tripati V editor. Reprinted. Varanasi:Chowkamba Surabharati Prakashan; 2016.p.656-661.
9. Agnivesha. Charaka Samhita. Sutra sthana, Atreyabhadrakapya adhyaya, 26/43. In:Tripati V editor. Reprinted. Varanasi:Chowkamba Surabharati Prakashan; 2016. p. 481-485.
10. Hegde P L, Harini A, A Textbook of Dravyaguna vijnana. Vol 1. Reprinted. New Delhi: Chowkamba publication;2020. p.308
11. Agnivesha. Charaka Samhita. Sutra sthana, Atreyabhadrakapya adhyaya, 26/59-60. In:Tripati V editor. Reprinted. Varanasi:Chowkamba Surabharati Prakashan;2016. p.487.

Immunodysregulation and Dermatological Manifestations: Bridging Classical Concepts and Immunology

Dr. Chaithra, Dr. Shrinidhi R., Dr. Ravikrishna S., Dr. Shubha P. U., Dr. Ranjana K.

SDM College of Ayurveda, Hospital and Research Centre, Kuthpady, Udupi

Introduction

Autoimmune disorders represent a diverse group of chronic conditions in which dysregulation of the immune system results in an inappropriate response against the body's own cells and tissues. Although their clinical manifestations vary considerably, disorders such as systemic lupus erythematosus, alopecia areata, vitiligo, and psoriasis share important features including genetic susceptibility, environmental triggers, chronic inflammation, immune dysregulation, and variable disease progression. Advances in modern immunology have identified several cellular and molecular pathways involved in these disorders, providing new opportunities for targeted diagnosis and therapy.

Ayurveda approaches disease through an integrated understanding of *Doṣa, Dhātu, Agni, Āma, Ojas,* and *Vyādhikṣamatva*. Rather than directly equating individual Ayurvedic concepts with modern immunological mechanisms, these principles may provide complementary frameworks for understanding susceptibility, systemic imbalance, chronicity, and resilience. The concept of *Vyādhikṣamatva*, particularly, offers an important perspective on the body's capacity to resist and overcome disease, while *Ojas* is traditionally associated with physiological strength and resistance.

Agadatantra further expands this perspective by considering the possible influence of persistent or cumulative exposure to harmful substances through concepts such as *Dūṣī Viṣa* and *Gara Viṣa*. Dietary incompatibility, impaired *Agni*, environmental exposures, and psychological stress may be considered as potential contributing factors requiring scientific investigation.

This chapter explores selected autoimmune and immune-mediated disorders through the combined perspectives of Ayurveda and contemporary immunology. It examines conceptual correlations, potential mechanisms, therapeutic approaches, and opportunities for translational research, while recognizing that Ayurvedic concepts and modern disease entities are not necessarily direct equivalents.

Lupus: Understanding a Complex Autoimmune Disease

Systemic Lupus Erythematosus (SLE) is a chronic systemic autoimmune disorder in which immune dysregulation causes the body to attack its own tissues. It predominantly affects women of reproductive age and may involve multiple organs, including the skin, joints, kidneys, heart, lungs, nervous system, and blood. Common manifestations include fatigue, fever, arthralgia, skin rashes, and photosensitivity. Genetic, hormonal, and environmental factors are believed to contribute to its development. Diagnosis is based on clinical features and immunological investigations, particularly antinuclear antibody (ANA) and anti-double-stranded DNA (anti-dsDNA) testing. Early diagnosis, appropriate immunomodulatory treatment, and lifestyle modification help control disease activity and prevent organ damage.

Lupus has no direct description in classical Ayurvedic texts; however, its manifestations may be interpreted through concepts such as **Tridoṣa Prakopa, Āma, Rakta Duṣṭi, Dhātu Kṣaya, and Ojakṣaya**, with certain similarities to *Vātarakta, Kuṣṭha, Visarpa,* and *Raktapradoṣaja Vikāra*. Ayurvedic management emphasizes *Āma Pācana, Dīpana-Pācana, Śodhana, Śamana,* and *Rasāyana*, along with *Pathya-Āhāra*, stress management, and lifestyle modification. Herbs such as **Gudūcī, Aśvagandhā, Āmalakī,** and **Haridrā** have demonstrated potential immunomodulatory, antioxidant, and anti-inflammatory properties. Evidence-based integrative care may support long-term disease management and quality of life.

Alopecia: Classification and Immunological Basis

Alopecia refers to abnormal hair loss and is broadly classified into **non-scarring and scarring alopecia**. In non-scarring alopecia, hair follicles remain structurally intact, allowing potential regrowth. Major types include **alopecia areata**, an immune-mediated disorder; **androgenetic alopecia**, associated with genetic and androgenic factors; **telogen effluvium**, commonly following illness, stress, nutritional deficiency, or medications; **anagen effluvium**, often associated with chemotherapy or toxins; and hair loss caused by traction or repetitive hair pulling.

In **scarring alopecia**, inflammation permanently destroys hair follicles and replaces them with scar tissue, resulting in irreversible hair loss. Early diagnosis is therefore important.

Alopecia areata (AA) is a common, non-scarring autoimmune disorder characterized by sudden, well-defined patches of hair loss. Clinical variants include **patchy alopecia areata, alopecia totalis, alopecia universalis, ophiasis, and diffuse alopecia areata**. Nail abnormalities may also occur.

The pathogenesis involves breakdown of the hair follicle's **immune privilege**, followed by infiltration of cytotoxic $CD8^+$ T lymphocytes and other immune cells. Cytokines such as **IFN-γ and IL-15**, together with the **JAK–STAT pathway**,

contribute to inflammation and disruption of the hair-growth cycle. Diagnosis is primarily clinical, supported by trichoscopy, hair examination, blood investigations, or biopsy when required. As follicular stem cells are usually preserved, hair regrowth may occur when inflammation subsides.

Vyadhikshamatva and Vitiligo

Vyādhikṣamatva denotes the body's capacity to resist and overcome disease and is closely related to *Bala*. Charaka describes two aspects: **Vyādhyutpādaka Pratibandhakatva**, which prevents disease manifestation, and **Vyādhibala Virodhitva**, which limits disease severity after manifestation. Impairment of *Vyādhikṣamatva* may predispose an individual to disease following external or internal causative factors.

Vitiligo, described in Ayurveda as *Śvitra* or *Kilāsa*, is characterized by depigmented patches resulting from melanocyte destruction. Modern medicine recognizes it as an autoimmune disorder involving genetic susceptibility, oxidative stress, and cellular and humoral immune responses, particularly $CD8^+$ T-cell-mediated melanocyte destruction. Non-segmental vitiligo is the predominant form, while associated autoimmune disorders may occur.

Ayurveda correlates vitiligo with **Tridoṣa** involvement and *Rakta, Māṃsa, Meda,* and *Tvak Duṣṭi*, influenced by dietary, lifestyle, and psychological factors. These may contribute to *Ojakṣaya* and impaired *Vyādhikṣamatva*, facilitating tissue-specific pathology.

Management emphasizes correction of underlying imbalance through **Śodhana, Śamana, Rasāyana, Pathya-Āhāra**, stress management, and selected herbs such as *Bakucī, Khadira, Mañjiṣṭhā, Nimba, Āmalakī,* and *Gudūcī*. Modern treatment includes topical immunomodulators, JAK inhibitors, corticosteroids, and phototherapy. An evidence-based integrative approach may help control disease progression and support repigmentation and quality of life.

Translational Ayurveda in Psoriasis Exploring Dusi Visha and Vyadhikshamatva from an Agadatantra Perspective

Psoriasis is a chronic inflammatory skin disorder affecting approximately 2–3% of the global population. It is characterized by abnormal immune activation and excessive keratinocyte proliferation. The **IL-23/Th17 axis**, involving cytokines such as IL-17 and TNF-α, plays a central role in sustaining epidermal hyperproliferation and inflammation. In Ayurveda, psoriasis may be correlated with *Kuṣṭha*, particularly involving **Vāta and Kapha Doṣa**.

From an **Agadatantra** perspective, chronic skin inflammation may be conceptually explored through **Dūṣī Viṣa** and **Gara Viṣa**, representing persistent or cumulative exposure to harmful substances. Repeated exposure to environmental xenobiotics, incompatible dietary practices (*Viruddha Āhāra*), and impaired *Agni* may contribute to *Āma* formation, tissue involvement, and chronic inflammation affecting *Tvak, Rakta,* and *Māṃsa*.

Modern research implicates inflammasome activation, including NLRP3, NLRP1, and AIM2, in inflammatory amplification. The gut–skin axis and microbiome alterations may further influence disease severity, providing an area for translational exploration of *Viruddha Āhāra* and impaired digestion.

Vyādhikṣamatva emphasizes resistance and immune balance, while *Ojas* represents physiological resilience. An integrated framework may therefore focus on toxin burden, inflammation modulation, immune balance, and recurrence prevention through appropriate *Śodhana, Śamana, Rasāyana, Pathya,* and lifestyle measures. However, these proposed correlations require well-designed clinical and mechanistic studies for scientific validation.

Management of Paediatric Psoriasis through Sequential Shodhana Chikitsa: A Case Report

Dr. Chithralekha

Assistant Professor, Department of PG Studies in Kaumarabhritya, SDM College of Ayurveda, Hospital and Research Centre, Kuthpady, Udupi

Background & Objective: Psoriasis is a chronic, immune-mediated inflammatory dermatosis characterized by erythematous, well-demarcated plaques with variable scaling and a relapsing-remitting course. Paediatric psoriasis presents particular therapeutic challenges owing to the chronicity of the disease and the considerations associated with systemic treatment. In Ayurveda, the clinical features of psoriasis may be correlated with *Eka Kushta*, with emphasis on the involvement of *Dosha*, *Dushya*, and impaired metabolic processes. *Shodhana Chikitsa* is described as an important therapeutic modality in the management of *Kushta*, particularly in chronic and recurrent presentations.

Materials & Methods: A male child of age 15 years brought by his mother with complaints of recurrent erythematous, scaly lesions all over the body, associated with itching & discolouration since 7 months. The case was managed through a sequential *Shodhana* protocol consisting of *Virechana* followed by *Kusthahara Basti Prayoga*. The patient was assessed clinically using PASI Score before and after treatment.

Results: Following sequential administration of *Virechana* and *Kusthahara Basti*, a progressive reduction in the severity of psoriatic lesions, scaling, erythema, and associated symptoms was observed. Improvement was also noted in the overall extent and clinical appearance of the lesions.

Conclusion: This case highlights the clinical application of sequential *Shodhana*, comprising *Virechana* followed by *Kusthahara Basti*, in a pediatric patient with psoriasis. The observed clinical improvement suggests that this individualized Ayurvedic therapeutic approach may have potential utility in the management of pediatric psoriasis.

Keywords: Psoriasis, *Virechana*, *Kusthahara Basti*.

Introduction

Psoriasis is a chronic, immune-mediated inflammatory skin disorder characterized by erythematous plaques with silvery scales and a relapsing course. In Ayurveda, psoriasis closely resembles **Eka Kuṣṭha**, a type of *Kṣudra Kuṣṭha* described in classical texts. Acharyas have emphasized Kuṣṭha as a *Mahāroga* owing to its chronicity, deep-seated pathogenesis, frequent recurrences, and considerable impact on quality of life, all of which are consistent with the clinical behavior of psoriasis.

Ayurvedic texts describe **Eka Kuṣṭha** as a *Tridoṣaja* condition with **Kapha and Vāta predominance**, and associated *Pitta* involvement in inflammatory phases. Classical lakṣaṇas such as *Asvedanam* (absence of sweating), *Mahāvastu* (large lesions), *Matsyaśakalopama* (fish-scale–like scaling), *Rūkṣatā* (dryness), and *Kṛṣṇāruṇa Varṇa* (discoloration) closely parallel the cardinal features of plaque psoriasis. The presence of thick scaling, dryness, well-demarcated plaques, and chronic relapsing nature strengthens this correlation.

Case History

A 15-year-old male patient was brought by his mother to the outpatient department with primary complaints of widespread erythematous plaques, thick silvery-white scaling, moderate to severe pruritus, and localized skin discoloration persisting for the past seven months. The lesions initially appeared on the extensor surfaces of the limbs and progressively spread to the trunk. The patient reported a history of exacerbations triggered by seasonal changes and psychological stress. Previous conventional treatments provided only transient relief with subsequent relapses upon tapering.

According to the mother, the child was apparently normal 7 months ago, after which he insidiously developed dry, scaly patches over the bilateral lower limbs with severe itching. Initially localized, these lesions progressively spread. The parents initially consulted a nearby local clinic where the child received medications. This provided temporary, partial relief with a mild reduction in itching. However, within one week of stopping or during the course, new lesions began erupting rapidly over other anatomical sites, including the abdomen, buttocks, trunk, inguinal region, and scalp. Concerned by the widespread dissemination, the parents consulted a dermatologist and pursued conventional treatment for one month. Despite this intervention, no noticeable clinical betterment or arrest in disease progression was observed. The parents brought the child to the out-patient department of Balaroga of our hospital. Initial OPD medications yielded positive clinical improvement, encouraging the parents to admit the child to the inpatient ward for comprehensive, structured further management such as classical *Shodhana Chikitsa*.

HISTORY OF PAST ILLNESS- No Significant previous history noted

KULA VRITTANTA- 1ST Child of non consanguineous marriage. Father k/c/o psoriasis.

ON EXAMINATION-

General Examination

Appearance- Normal

Gait- Normal

- Posture- Normal

Built- Overnourished

- Pallor -Absent

Icterus- Absent
Cyanosis- Absent
Clubbing -Absent
Lymphadenopathy- Present
Edema- Absent

Vitals

- Temperature- 98.6°F

B.P. -110/70 mm Hg
Pulse- 80/Min
Respiratory rate- 28/Min

Anthropometry

- Height- 170 CM

Weight-94 KG (expected weight- 42kg)
Head Circumference-56 CM
Mid Arm Circumference-45CM
BMI-32.5 Kg/M (OVERWEIGHT)

Systemic Examination

- CVS-S1, S2 Heard, no added sounds. HR-75/min
- CNS- Conscious, Oriented to time, place and person. HMF-intact
- Cranial Nerve Examination - Intact.
- RS- Normal Vesicular Breathing Sound Heard. RR-20/min

Integumentry Examination

- Site-bilateral lower limbs, upper limbs, upper and lower back, abdomen, gluteal region and scalp.
- Shape-irregular not well defined and asymmetrical
- Size-no specific size (ranging from 5cm to 10cm)
- Colour- Pinkish white
- Uniformity – Generalized plaques
- Boundary- Not well demarcated
- Lesions- Plaques
- Onset -Gradual
- Duration-7 Months
- Course- Progressive
- Aggravating Factors-during Night
- Relieving Factor – Application OF Oushadha

Special Tests in Plaque Psoriasis

- Candle Grease Sign- Positive (presence of dry white scaly lesions)
- Auspitz Sign- Positive (presence of pinpoint like bleeding foci that appear when plaques are scraped deeper)
- Koebner Phenomenon- Positive (new skin lesions forming on an area of injured skin)

Body Region	Area Score (% Skin Involvement)	Induration / Plaque Severity	PASI Contribution
Hands	75–90%	Indurated, thick plaques (Grade 3)	6
Trunk	90%	Induration with erythema	6
Limbs	75–90%	Erythematous lesions, with induration	6
Score	-	-	**18**

Pic 1: Before Treatment

DIAGNOSIS : EKA KUSHTA /PLAQUE PSORIASIS

Treatment Given

VIRECHANA (1st Sitting -30/01/2025 – 04/02/2025)

Poorva Karma

- Deepana Pachana with Chitrakadi Vati : 1 BD B/F for 3 days
- Snehapana : Mahatiktaka Ghrita

- 30/01/2025 - 1ST DAY -50 ML
  31/01/2025 - 2ND DAY- 100 ML
  01/02/2025 - 3RD DAY- 150 ML

- Sarvanga Abhyanga with Nalpamaradi Taila followed by Karanja Nimba Patra Pariseka Sweda for 3 days (02/02/2025-04/02/2025)

Pradhana Karma

- Virechana with Trivrit lehya 30 grams + Draksha kashaya 15 ml given on 4/2/25 at 8:00 AM
- Total number of Vegas -16 (From Morning 8 to Evening 8)

- After Virechana Weight Reduced to 89 kg

Paschath Karma

- Samsarjana Karma adviced for 5 days (05/02/2025-09/02/2025)

Discharge Medicine

- Gandaka Rasayanam 21 1 Tid
- Arogyavardini Rasa 1 Tid
- Guggulu Tiktaka Kashaya 20 ml with 20 ml of water Tid
- Madhu snuhi Rasayana 1 tsp with Warm water bd B/F
- Nalpamaradi taila for external application
- Jaffman soap external application
- These medications were advised for 1 Month.

Kustahara Basti Prayoga

Yoga Basti (10/03/2025-17/03/2025)

- **Kushtahara Basti** (200ml)

- Madhu-80 ml
- Saindava- 5 g
- Kalka – 40 g (Manjista, Indrayava – fine powder)
- Kwatha – 250 ml (Daruharidra, Ushira, Brahati, Patola, Nimba Twak, Madanapala, Aragwadha, Bala Moola- Coarse Powder)

- **Anuvasana** with Panchatikta ghrita 40ml

Results & Assessments

After Virechana Karma: PASI Score

Body Region	Area Score (% Skin Involvement)	Induration / Plaque Severity	PASI Contribution
Hands	50%	Mild–Moderate induration (Grade 2)	2.0
Trunk	40%	Mild induration, few erythema	1.5
Limbs	30–40%	Mild erythema, minimal induration	3
Total			**6.5**

After Kustahara Basti Prayoga: PASI Score

Body Region	Area Score (% Skin Involvement)	Induration / Plaque Severity	PASI Contribution
Hands	0	0	0
Trunk	0	0	0
Limbs	0	0	0
Total			**0**

Pic 2: After Virechana Karma

Pic 3 : After Kustahara Basti Prayoga

Discussion

In the present case, management was planned according to the principles of Shodhana followed by Shamana, with supportive external therapy. Deepana-Pachana was administered initially to improve Agni and reduce Ama, thereby preparing the patient for Snehapana and subsequent Shodhana. Mahatiktaka Ghrita was then administered as Snehapana. Its Tikta-dominant properties are traditionally considered beneficial in skin and Rakta disorders, while Ghrita provides internal oleation and facilitates proper preparation for Virechana.

Abhyanga and Swedana were performed as Poorva Karma to facilitate Dosha mobilization before Shodhana. Nalpamaradi Taila and Karanja-Nimba Patra Parisheka were selected for their traditionally described Kandughna, Twak-prasadaka and Rakta

-prasadaka properties. Virechana was subsequently performed as the principal Shodhana procedure, particularly appropriate in the Ayurvedic management of conditions involving Pitta and Rakta. Samsarjana Karma was advised thereafter to restore Agni and gradually reintroduce the normal diet.

Following Shodhana, Shamana therapy was administered with the objective of reducing the extent and activity of the lesions and maintaining therapeutic stability. Kushtahara Basti, including Panchatikta Ghrita Matra Basti, was incorporated as a complementary measure. Its Tikta-Kashaya-dominant properties are traditionally considered Kledaghna, Lekhana and Kushtaghna, while Basti provides Vata-regulating and Vata-anulomana effects. Thus, the treatment sequence can be understood as addressing the presumed Samprapti through Agni correction, Dosha mobilization and elimination, reduction of Kleda, regulation of Vata, and subsequent maintenance with Shamana therapy.

Overall, the sequential protocol of Deepana-Pachana, Snehapana, Abhyanga-Swedana, Virechana, Samsarjana Karma, Shamana and Basti was designed to achieve progressive Samprapti-vighatana and provide sustained control of Eka-Kushtha corresponding clinically to plaque psoriasis.

Conclusion

Overall, the present case demonstrates an Ayurvedic multimodal management strategy involving Shodhana, Shamana and Basti therapy in a paediatric patient with psoriasis, with complete clinical clearance reported at the end of treatment. The outcome is encouraging, but larger controlled studies and longer follow-up are necessary before definitive conclusions.

Reference

1.Johnson MI,VKG, Engel A; Prevelance, morbidity & cost of dermatologic diseases.J.Am.Acad Dermatol,1984;11:930-36.

2.Mc HenryPH, Williams HC, Bingham EA. Management of atopic eczema. BMJ1995;310:843-47.

3.Kashyapa, Kashyapa Samhitha, English translation by Tewari P V, Varanasi:Choukhambha Viswabharathi.

4. Charaka Samhita Chikitsa Sthana 07/46, C Vaidya Yadavaji Trikamji Acharya; Chaukamba Sanskrit Sansthan, Varanasi.

5. Susruta Samhita, Sharira Sthana4/3 Chaukamba Sanskrit Sansthan, Varanasi.

6. Astanga Hrudaya of Vagbhata, Sharira Sthana 3/8 Chaukamba Sanskrit Sansthan, Varanasi.

7.Ghai Om Prakash, Essential Pediatrics, New Delhi: CBS Publishers, 8th edition.

A Scoping Review of Translational Research Bridging the Concept of Ama and Autoimmunity

Dr. Deekshitha Hebbar A., Dr. Vidyalakshmi K.

Department of Samhita Siddhanta and Sanskrit, SDM College of Ayurveda, Hospital and Research Centre, Kuthpady, Udupi

Abstract

Background: The concept of *Sa-Ama dosha* is central in Ayurveda for elucidating varied disease pathogenesis. This concept describes the pathological association of *Ama* with *Dosha*, accompanied by dysfunction in *Srotas* thereby disturbance in *Dhatu*. While these concepts have potential relevance to contemporary mechanistic understanding of autoimmune conditions, yet biomedical interpretation of *Ama* remains inadequately explored. **Objectives:** a) To identify published literature exploring relationship between *Ama*-autoimmunity, with translational approaches used and proposed biomedical correlates of *Ama* in autoimmune diseases, b) to identify existing knowledge gaps and future directions for translational research. **Methods:** A scoping review was conducted to map the available literature on *Ama* - autoimmunity. Data were charted under the domains of author, year, country, study design, autoimmune disease studied, Ayurvedic concept evaluated, translational approach, proposed biomedical correlates of *Ama*, major findings, and research gaps. The concept of *Ama* in *Brhatrayi* was subsequently used to thematically interpret the translational findings identified in the contemporary literature. **Results:** 11 articles published between 2020-2026 were included. The literature demonstrated substantial methodological diversity, comprising clinical metabolomics, genomics, systems-biology, microbiome-based and conceptual review approaches. Rheumatoid arthritis (corelated as *Amavata)*, is predominantly investigated, with limited evidence concerning other autoimmune diseases. Four major translational themes emerged: (1) impaired *Agni*/metabolic dysregulation, (2) *Annavisha*/gut dysbiosis, (3) *Srotorodha*/systemic inflammation, and (4) *Balabhramsha*/immune dysregulation. The most direct empirical evidence was provided by a metabolomics study in patients with rheumatoid arthritis demonstrating altered circulating metabolites and metabolic profiles following Ayurvedic intervention. The findings supported *Ama* as a potentially multidimensional pathological construct involving interconnected gastrointestinal, metabolic, inflammatory and immune processes. Major knowledge gaps included the lack of standardized integrated framework for biomedical characterization of *Ama*. **Conclusion:** The available literature suggests that *Ama* provides a potentially useful Ayurvedic framework for understanding complex pathogenesis of autoimmune diseases. However, current evidence is preliminary and is predominantly conceptual, with limited direct biological validation. Future research should prioritise progression from conceptual corelation towards reproducible biological characterization while preserving the integrity of the Ayurvedic construct.

KEYWORDS: *Ama*, *Sa-Ama Dosha*, autoimmunity, translational research.

Introduction

Autoimmune diseases comprise a heterogenous group of chronic disorders characterized by loss of immunological self-tolerance wherein immune system loses the ability to differentiate self-cells with harmful foreign invaders. The autoimmune conditions have significant impact on the quality of life of the patient due to chronic inflammation, tissue destruction and organ dysfunction[1].Globally, the annual incidence rate of autoimmune conditions has risen by 19.1% and annual prevalence rate by 12.5%.[2]. Current biomedical research recognizes the multifactorial nature of autoimmunity involving genetic predisposition (specifically HLA genes), environmental exposures, diet-shift reactions, hormonal influences, immune cell dysfunction, molecular mimicry[3], microbiome alterations and metabolic shifts[4].Among several types of autoimmune diseases, the commonly found are- Rheumatoid arthritis, Psoriasis, Inflammatory bowel diseases, Systemic lupus erythematosus, Sjogren's syndrome, Vitiligo, Multiple sclerosis, Type 1 diabetes and thyroiditis. Although substantial progress has been made in understanding the immunological basis of autoimmune diseases, their complex and multifaceted nature suggests that, an unifying and fundamental mechanism explaining disease initiation and progression is required.

In contrast, *Ayurveda* conceptualizes health and disease through the dynamic equilibrium and disequilibrium of *Tridosha*, making it foundational for diagnosis and management. Beyond this, the distinction between *Sa-Ama* (association with *Ama*) and *Nir-Ama* (no association with *Ama*) states provide an important mechanistic dimension in understanding varied pathological conditions. Although diseases arise from varied *Aharaja*(dietary), *Viharaja*(practices) and *Manasika*(psychological) causes, *Ayurveda* identifies *Mandagni-Janya Ama* as the fundamental pathological entity unifying varied disease-origination. Once *Ama* is formed, it can initiate further cascade of mechanisms like *Srotorodha* (dysfunction in bodily functions), *Balabhramsha* (loss of strength and immune regulation) and *Anila-mudhata* (dysfunctionality of *Vata*). This systems-oriented framework places *Ama* as the core of disease pathogenesis rather than as a disease-specific phenomenon. In this context, concept of *Ama* offers a complementary conceptual framework for

understanding the convergence of multi-faceted pathogenic mechanisms of auto-immune diseases.

Despite the comprehensive conceptual framework, the clinical application of these principles is constrained by lack of standardized operational definitions and measurable translational constructs. Conversely, contemporary immunology, identifies diverse etiological factors pointing the need for a single coherent pathological framework. Therefore, integrating *Ayurvedic* and biomedical perspectives through translational research gives apt interpretation of auto-immune conditions.

The available literature exploring the *Ayurvedic* concept of *Ama* in relation to autoimmunity is diverse, comprising conceptual papers, narrative reviews, experimental studies, and clinical investigations. Furthermore, the proposed biomedical correlates of *Ama* vary considerably across studies resulting in conceptual inconsistency. There has been minimal efforts done in mapping the extent, nature and characteristics of the available translational evidence or identifying gaps to guide future research. Thus, a scoping review is planned out for exploring the literature on translational research on concept of *Ama* and autoimmunity.

Objectives

1) To identify and map published literature exploring the relationship between the concept of *Ama* and auto-immunity.
2) To describe translational approaches used to interpret *Ama*-autoimmunity interface in context of modern biomedical sciences.
3) To analyze the proposed biomedical correlates of *Ama* in autoimmune diseases.
4) To identify existing knowledge gaps and future directions for translational research on *Ama* and autoimmunity.

Methods

Study design- This scoping review was conducted to systematically map the existing translational research exploring the relationship between the *Ayurvedic* concept of *Ama* and autoimmunity. The review was conducted in accordance with the Joanna Brigg's methodology for scoping reviews and PRISMA guidelines for reporting the review.

Eligibility criteria

Inclusion criteria- Studies were included if they:
1) Discussed the *Ayurvedic* concept of *Ama* in relation to autoimmune mechanisms or autoimmune diseases.
2) Explored translational aspects linking *Ayurvedic* concepts with contemporary biomedical sciences.
3) Conceptual, experimental, observational, interventional, or review articles.
4) Published in peer-reviewed journals.
5) Available in English.

Exclusion criteria- Studies were excluded if they:
1) Discussed *Ama* without any relevance to autoimmunity or immune mechanisms.
2) Focused exclusively on *Ayurvedic* treatment without discussing the concept of *Ama*.
3) Conference abstracts, editorials, dissertations, book chapters or unpublished literature.
4) Duplicates.
5) Inaccessible full texts.

Information sources- As an exploratory review is planned, evidence from multiple study designs, including conceptual papers,
reviews, experimental studies, observational studies, and clinical studies were considered eligible. This approach was adopted to comprehensively map the extent of diverse translational evidence on *Ama*-autoimmune mechanisms and diseases. Electronic databases searched included, PubMed, Scopus, Web of science and Google scholar without any date-specifications.

Search strategy- A comprehensive search strategy was developed using the keywords: Ama, Ayurveda, autoimmunity and biological correlates and literature was searched using Boolean operators (AND, OR).

Selection of sources of evidence-Two-stage screening was performed:

1) Title and abstract screening

2) Full-text screening

Following screening, articles were included and excluded as per the eligibility criteria.

Data charting process- Following data items were considered-Author, Year, Country, Study design, Autoimmune disease studied, *Ayurvedic* concept evaluated, Translational approach, Biomedical correlates of *Ama*, Findings, Research gaps

Synthesis of results- Extracted data were synthesized descriptively. Findings were further organized thematically to identify prevailing translational framework with research gaps.

Results

The identified literature demonstrates progressive yet limited translational success for the concept of *Ama*. The conceptual literature proposed broad parallels between *Ama*-autoimmunity like impaired *Agni* with constructs such as gut dysbiosis, intestinal permeability, endotoxin-mediated inflammation, oxidative stress and chronic inflammation. Later studies attempted clinical operationalization of Ama, particularly in rheumatoid arthritis (RA)/Amavata, Recent investigations have extended the translational framework towards genomics and metabolomics. Thus, the literature appears to have moved from

Conceptual correlation Clinical operationalization Preliminary biological validation.

Characteristics of the included literature

Author, year, country	Study design	Autoimmune disease studied	*Ayurvedic* concept evaluated	Translational approach	Biomedical correlates of Ama	Principal findings	Research gaps
Wallace, 2020, USA[5]	Review	General autoimmune diseases and celiac disease discussed	*Ama, Agni, Ojas, Prakriti*	Gut–microbiome translation	Dysbiosis, intestinal permeability, ROS, zonulin, inflammatory pathways	Proposed *Ama* as incompletely digested/metabolized material associated with gut barrier dysfunction and inflammation, celiac disease used to provide possible model.	Hypothesised *Ama* biomarker, further validation necessary.
Meher et al., 2022, India[6]	Review	Hyperinflammatory states	*Agni, Ama, Prakriti, Ojas, Vyadhikshamatva*	Immunological correlation	Cytokines, IL-6, immune dysregulation, oxidative stress, BMI/metabolic status	Linked impaired *Agni/Ama* formation with intestinal dysfunction, immune dysregulation and inflammatory disease.	Hypothesised *Ama* biomarker,further validation necessary
Aswathy & Anandaraman, 2020, India[7]	Review	Rheumatoid arthritis/*Amavata*	*Ama, Agni.*	Diet–microbiome–inflammatory markers	Gut microbiota, SCFAs, IL-6, IL-17, leukotrienes	Food articles proposed to influence dysbiosis and inflammatory pathways, gut-mediated interpretation of *Amavata*.	Evidence largely derived from individual food/phytochemical studies lacking validated *Ama*-markers
Nair et al., 2024, India[8]	Review	Autoimmune and chronic inflammatory disorders	*Ama/Ama-visha, Mandagni, Khavaigunya, Sa-Ama Dosha*	Systems biology/personalized medicine	Cytokines, CRP, oxidative stress, AGEs, microbiome, SASP	Proposed chronic inflammation as a translational model linking *Ayurvedic* disease stages with molecular and inflammatory pathways.	Correlations require clinical and systems-biology validation
Kolatkar & Nakanekar, 2026, India[9]	Perspective	Metabolic and immune disorders including autoimmune diseases	*Ama, Agni, Aamajanya Vyadhi*	Systems biology and computational modelling	LPS, zonulin, dysbiosis, AGEs, DAMPs, ROS, homocysteine, lactate, metabolites	Proposed *Ama* as a gut-derived antigen-response/gut-associated molecular complex or circulating	Entirely a proposed framework,no validated *Ama*-markers

Author, year, country	Study design	Autoimmune disease studied	*Ayurvedic* concept evaluated	Translational approach	Biomedical correlates of Ama	Principal findings	Research gaps
						dysmetabolic aggregate and suggested metabolomics, proteomics and transcriptomics for validation.	
Juyal et al., 2022, India[10]	Experimental GWAS	Rheumatoid arthritis	*Prakriti* in relation to disease heterogeneity	Ayur-genomics	SNPs, inflammatory/oxidative-stress genes	*Prakriti* stratification identified novel susceptibility genes and heterogeneous disease pathways particularly in *Vata* subgroup.	Primarily validates *Prakriti* rather than *Ama*.
Singha & Sharma, 2025, India[11]	Scientific review	Ankylosing spondylitis	*Ama, Mandagni.*	Gut–immune–epigenetic translation	Dysbiosis, intestinal barrier dysfunction, antigenic mimicry, epigenetic mechanisms	Proposed *Mandagni* as a link between dysbiosis, systemic inflammation and immune dysfunction in AS.	Purely conceptual markers,require validation
Pandey et al., 2023, India[12]	Clinical validation study	Rheumatoid arthritis/*Amavata*	*Ama*	Clinical instrument validation	ESR, DAS-28	A 10-item Ama Assessment Instrument showed significant change with slight correlations with DAS-28 and ESR	Larger sample for validation and correlation required
Kumar et al., 2025/2026, India[13]	Retrospective case report	Ankylosing spondylitis	*Ama Pachana, Agni, Vatarakta*-related interpretation	Clinical translation	CRP, radiological progression, gut dysbiosis	*Ayurvedic* management was associated with absence of reported radiological progression and improvement in disease-related outcomes	Single case, retrospective design and absence of assessment of other systematic marker
Juyal et al., 2012, India[14]	Case-control genetic pilot study	Rheumatoid arthritis	*Prakriti*, personalized *Ayurveda*	Ayur-genomics	IL1B, CD40, SOD3, PON1, TNF-α; ESR, anti-CCP	Genetic associations differed across Prakriti groups, with greater disease severity	Does not directly validate *Ama* markers.

Author, year, country	Study design	Autoimmune disease studied	*Ayurvedic* concept evaluated	Translational approach	Biomedical correlates of Ama	Principal findings	Research gaps
						and inflammatory markers in *Vata* group	
Rastogi et al., 2024, India[15]	Clinical intervention + NMR metabolomics	Rheumatoid arthritis/*Amavata*	*Ama* score, whole-system Ayurveda	Clinical–metabolomic translation	Succinate, lysine, mannose, creatine, 3-HB, alanine and metabolic ratios	Clinical improvement and reduction in *Ama* score were accompanied by altered metabolic profiles towards healthy controls, providing the strongest biological translation.	Small sample, inability to establish which metabolite specifically represents *Ama Lakshana*.

The translational evidences varied considerably in study design and biological correlates. Several papers remained hypothesis-generating, proposing that *Ama* may represent incompletely metabolized products, microbiome, inflammatory mediators and altered metabolic factors. Among the available literature, the majority were review articles which points toward minimal integrative research linking *Ama* to measurable clinical and biochemical markers.

The important step towards validation was the development of the *Ama*-Assessment Instrument in RA/*Amavata*. More advanced translational evidence was provided by the metabolomics study of 37 RA/*Amavata* patients. *Ayurveda* whole-system intervention produced significant reductions in DAS-28 and ESR, *Ama* score, swollen and tender joints and various serum metabolites. Association between *Ayurvedic* phenotype with metabolic changes proves to be valuable evidence but without direct relation with *Ama* pathology.

Discussion

1. *Ayurvedic* concept of *Ama* as a central theme for understanding causation of the autoimmune spectrum of diseases.

The explored literature presents *Ama* not merely as a gastrointestinal phenomenon but as a proposed intermediary between impaired digestion/metabolism, systemic inflammation and disease expression. Across the literature, the following conceptual pathway of *Ama*-autoimmune disease manifestion is repetitive.

Mandagni/reduction in digestive capacity *Ama* formation/altered gut environment *Srotorodha*/systemic accumulation *Balabhramsha*/immune dysregulation → *Sa-Ama Dosha Janya Vyadhi*/chronic inflammation and system-specific diseases.

The gut appears to be the most frequently proposed theme for translation. Dysbiosis, impaired intestinal barrier function and microbial metabolites have been repeatedly quoted parallel to *Ayurvedic* descriptions of impaired *Agni* and *Ama*. Alterations in gut microbiota are proposed to influence inflammatory pathways, while *Pathya* dietary measures are said to restore microbial and immune homeostasis. Similarly, in ankylosing spondylitis, the gut–synovial axis, antigenic mimicry and barrier dysfunction have been conceptually aligned with *Agnimandya* (*Jatharagni* and *Dhatvagni*) and *Annavisha*.

The concept therefore, provides integrated *Ama*-autoimmune model for spectrum of auto-immune disorders rather than mechanistic descriptions of specific disease. But these represent conceptual models rather than an established biomedical mechanism.

2. Extent of translation with modern correlates and clinical implications

The extent of translation ranged from correlation to preliminary validation. At the conceptual level, *Ama* has been compared with dysbiosis, endotoxemia, DAMPs, AGEs, oxidative stress, altered metabolites and gut-derived antigenic complexes. The proposed systems-biology framework further classifies *Ama* into gut-associated and non-gut-derived molecular aggregates and identifies LPS, zonulin, AGEs, DAMPs, ROS and metabolic intermediates as potential correlates.

At the clinical level, the *Ama* Assessment Instrument represents an important advance because it converts a qualitative *Ayurvedic Lakshana* into measurable characteristics. But weak

correlation with DAS-28 and ESR indicates that validation is still preliminary.

At the molecular level, Ayur-genomics studies demonstrate translation between *Ayurvedic* phenotyping into genetic stratification, although these studies principally validate *Prakriti* and personalized medicine, rather than *Ama* itself. The advanced metabolomics investigation represents simultaneous measurement of *Ayurvedic* clinical parameters along with biomedical metabolic profiling. Clinically, this translational approach could potentially allow *Ama* assessment by identifying metabolic or gastrointestinal dimensions of disease and in assessing response to individualized interventions. These evidences, yet, can be treated as hypothesis-generating rather than standardized biomarkers for an *Ama*-based assessment of auto-immune diseases.

3. Significance of integration, knowledge gaps and further scope

Integration is significant because *Ayurveda* conceptualizes any disease as disruption in co-ordinated functions between *Agni*, *Dosha*, *Srotas* and *Dushya*, whereas modern autoimmune research increasingly recognizes interactions among genetics, microbiota, metabolism, immunity and environmental exposures. Systems biology therefore provides the most suitable bridge between them at the core level understanding of human pathology.

The major knowledge gap is the absence of a validated operational definition of *Ama*. Multiple modern entities have been proposed as correlates, but they represent different biological phenomena with further need of connecting the dots. The literature also lacks standardized *Ama* assessment across diseases, larger clinical trials and clinical validation, and intervention studies specifically designed around an *Ama*-autoimmune assessment criteria.

Future studies should therefore adopt a systematically designed validation strategy, combining assessment of standardized *Ama* features, *Agni*-related clinical parameters, gut microbiome, intestinal permeability, metabolomics, inflammatory cytokines, oxidative stress and relevant genetic/epigenetic markers. The use of metabolomics, proteomics, transcriptomics and computational systems biology offers a logical next step followed by clinical replication.

Limitations

- Search strategy with specific keywords may have missed indirectly relevant literature.
- More databases, publications as well as unpublished works need to be covered for a complete review

Conclusion

The scoping review reveals that translational research on *Ama* and autoimmunity is at an emerging rather than established stage. Initial research predominantly shows conceptual parallels between *Ama* and gut dysbiosis, intestinal permeability, oxidative stress, inflammatory mediators and altered metabolism. Later works progressed towards clinical operationalization through the *Ama* Assessment Instrument, followed by genetic and metabolomic investigations that provide preliminary biological evidences for *Ayurveda*-backed evaluation of auto-immune diseases.The available evidence is insufficient to establish specific biological mechanism that can independently represent *Ama*. The contribution of the existing literature is therefore not definitive validation but the development of a testable translational hypothesis i.e.: impaired *Agni*,accumulation of *Ama* and formation of *Sa-Ama Janya Vyadhi* representing a framework for understanding the interaction between gut disturbance, metabolic dysfunction, immune dysregulation and chronic inflammatory/autoimmune disease. Future researches essentially need to progress from concept equivalence to integrated multi-omics studies followed by standardized clinical validation.

REFERENCES-

1. Song X, Liang H, Nan F, et al. Autoimmune Diseases: Molecular Pathogenesis and Therapeutic Targets. MedComm. 2025;6(7). doi:10.1002/mco2.70262
2. Miller FW. The increasing prevalence of autoimmunity and autoimmune diseases: an urgent call to action for improved understanding, diagnosis, treatment, and prevention. Current Opinion in Immunology. 2023;80(102266):102266. doi:10.1016/j.coi.2022.102266
3. Yasmeen F, Pirzada RH, Ahmad B, Choi B, Choi S. Understanding Autoimmunity: Mechanisms, Predisposing Factors, and Cytokine Therapies. International Journal of Molecular Sciences. 2024;25(14):7666-7666. doi:10.3390/ijms25147666
4. De Luca F, Shoenfeld Y. The microbiome in autoimmune diseases. Clinical & Experimental Immunology. 2018;195(1):74-85. doi:10.1111/cei.13158
5. Wallace RK. The Microbiome in Health and Disease from the Perspective of Modern Medicine and Ayurveda. Medicina. 2020;56(9):462. doi:10.3390/medicina56090462
6. Tanwar AK, Meher L, Vyas M. Scientific Understanding of Cytokine Storm in Perspective of Ayurveda: A Review. Journal of Natural & Ayurvedic Medicine. 2022;6(3):1-4. doi:10.23880/jonam-16000360
7. Anandaraman P, Aswathy Y. Therapeutic influence of some dietary articles on gut microbiota in the pathogenesis of rheumatoid arthritis (Amavata) – A review. AYU (An international quarterly journal of research in Ayurveda). 2019;40(3):147. doi:10.4103/ayu.ayu_192_19
8. Nair PP, Krishnakumar V, Nair PG. Chronic inflammation: Cross linking insights from Ayurvedic Sciences, a silver lining to systems biology and personalized medicine. Journal of Ayurveda and Integrative Medicine. 2024;15(4):101016. doi:10.1016/j.jaim.2024.101016
9. Kolatkar AS, Nakanekar AV. Expanding the Scope of Ama: A Systems Biology Framework for Metabolic and Immune Disorders. Journal of Research in Ayurvedic Sciences. 2026;10(Suppl 1):S79-S90. doi:10.4103/jras.jras_80_25

10. Juyal G, Pandey A, Garcia SL, et al. Stratification of rheumatoid arthritis cohort using Ayurveda based deep phenotyping approach identifies novel genes in a GWAS. Journal of Ayurveda and Integrative Medicine. 2022;13(3):100578. doi:10.1016/j.jaim.2022.100578
11. Singha A, Sharma R. The interplay of Epigenetics, Gut Dysbiosis, Ama and Mandagni in Autoinflammatory pathogenesis of Ankylosing Spondylitis - a Scientific Review. AYUSHDHARA. Published online 20 March 2025:364-371. doi:10.47070/ayushdhara.v12i1.1873
12. Pandey P, Rastogi S, Lawrence A, Agrawal GG. Development and validation of an ama instrument for assessing the disease activity on the basis of constitutional features in Amavata (Rheumatoid Arthritis). Journal of Ayurveda and Integrative Medicine. 2023;14(2):100689. doi:10.1016/j.jaim.2023.100689
13. Kumar S, Singh K, Krishna A S S. Efficacy of standalone personalized Ayurveda management in moderating functional index, inflammatory markers & radiological progression in Ankylosing Spondylitis with 12 years follow up – A case report. Journal of Ayurveda and Integrative Medicine. 2026;17(1):101181. doi:10.1016/j.jaim.2025.101181
14. Juyal RC, Negi S, Wakhode P, Bhat S, Bhat B, Thelma BK. Potential of Ayurgenomics Approach in Complex Trait Research: Leads from a Pilot Study on Rheumatoid Arthritis. PLoS ONE. 2012;7(9):e45752. doi:10.1371/journal.pone.0045752
15. Rastogi S, Verma A, Trivedi R, Shukla A, Kumar D. Clinical metabolomics investigation of rheumatoid arthritis patients receiving ayurvedic whole system intervention. Journal of Ayurveda and Integrative Medicine. 2024;15(4):101009-101009. doi:10.1016/j.jaim.2024.101009

Psychoimmunology and Autoimmune Disorders: An Integrative Perspective through Ay-urveda

Dr. Dhaneshwari H. A.

Associate Professor, Department of PG Studies in Manasaroga evam Manovijnana, SDM College of Ayurveda, Hospital and Research Centre, Udupi

Introduction

Mental health and physical health are interconnected. Psychological experiences can influence physiological processes through complex interactions between the nervous, endocrine and immune systems. The field of psychoneuroimmunology explains these interactions and provides a framework for understanding how psychological stress can influence immune function and disease susceptibility. The immune system is not an isolated physiological system; it continuously communicates with the brain and endocrine system through neural, hormonal and immune mediators.

Psychological stress represents an important modulator of immune function and acute stress may produce adaptive changes that prepare the organism to respond to an immediate challenge. However, when stress becomes chronic, prolonged activation of the hypothalamic–pituitary–adrenal (HPA) axis and sympathetic nervous system may alter cortisol and catecholamine signalling, immune-cell trafficking and cytokine production. A meta-analysis of more than 300 studies demonstrated that chronic stress was associated with suppression of several measures of cellular and humoral immunity, highlighting the important relationship between prolonged psychological stress and immune regulation.[1] More recent reviews emphasize that the effects of stress on immunity are complex and may involve both suppression and enhancement of different immune pathways depending on the nature and duration of stress and individual susceptibility.[2]

The relationship between stress and immunity play a major role in autoimmune disorders. Autoimmune diseases are multifactorial conditions arising from interactions among genetic susceptibility, environmental factors, infections, hormonal factors, lifestyle and immune dysregulation. Psychological stress may not be regarded as an independent or sole cause of autoimmunity. Chronic stress may act as a modifying factor that influences inflammatory processes, immune tolerance and disease activity in susceptible individuals.[2]

An additional dimension of this relationship is further understood by the gut–brain and gut–immune axes. The gastrointestinal tract is involved not only in digestion and nutrient absorption but also in extensive neural, endocrine and immune status. The gut microbiota initiates the communication through microbial metabolites, immune signalling and interactions with intestinal and neural cells. Current studies describes the microbiota–gut–brain axis as a bidirectional communication network in which signals can travel from the brain to the gut and from the gut to the brain.[3,4] Chronic psychological stress may influence gastrointestinal motility, intestinal barrier function and microbial composition, while alterations in the gut microbiota and immune signalling may influence brain function and behaviour.

Ayurveda provides a broader systemic framework for analyzing the relationship between mental state, digestion, tissue nourishment, vitality and resistance to disease. Concepts such as *Manas*, *Agni*, *Āma*, *Doṣha*, *Dhātu*, *Ojas*, *Bala* and *Vyādhikṣamatva* help in understanding health as a state of physiological and psychological equilibrium. Ojas is particularly relevant because it is associated with strength, stability, vitality along with resistance to disease.[5]

The present review therefore attempts to integrate contemporary understanding of psychoneuroimmunology with Ayurveda concepts, particularly *Ojas* and *Agni*, to develop a conceptual framework linking psychological stress, digestion, gut–brain communication, immune regulation and autoimmune disease.

Methodology

A narrative review approach was adopted to explore the relationship between psychological stress, neuroendocrine regulation, gastrointestinal function, gut microbiota, immune regulation and autoimmune disorders, with particular emphasis on their interpretation through Ayurveda principles. Relevant classical Ayurveda concepts concerning *Manas*, *Agni*, *Ojas*, *Bala* and *Vyādhikṣamatva* were considered alongside contemporary scientific literature on psychoneuroimmunology, chronic stress, immune regulation and the microbiota–gut–brain axis.

The literature was examined and major themes were identified, (1) Psychological stress and neuroendocrine regulation; (2) Chronic stress and immune dysregulation; (3) Relationship between digestion, gut microbiota and immunity; (4) Bidirectional communication along the microbiota–gut–brain axis; (5) *Ojas*, *Bala* and *Vyādhikṣamatva* in Ayurveda (6) Possible relationship between these processes and autoimmune disease.

Contemporary biomedical evidence was interpreted alongside Ayurveda concepts while avoiding direct equivalence between traditional constructs and individual biological entities. In particular, *Ojas* was considered as a broader Ayurveda concept of vitality and disease resistance rather than being equated directly with immune cells, antibodies or cytokines. Similarly, *Agni* was considered within its Ayurveda context while its possible conceptual relationship with digestion and metabolic homeostasis was explored without equating it directly with the gut microbiome or a specific biochemical pathway.

Results

Psychological stress and immune regulation

The reviewed literature demonstrates that the psychological stress has significant effects on immune function. Stress activates the HPA axis and sympathetic nervous system, leading to the release of glucocorticoids and catecholamines. These entities influence immune-cell distribution, cellular activity and cytokine production. The immune responses depend on the intensity, duration and type of stressor as well as individual characteristics.

Acute stress may produce adaptive immune changes that assist the body to respond to an immediate challenge. In contrast, chronic stress is associated with more persistent alterations in immune regulation. The meta-analysis by Segerstrom and Miller, which examined more than 300 empirical studies, found that chronic stress was associated with suppression of both cellular and humoral immune measures. [1] These suggest that prolonged psychological stress does not merely produce a transient emotional response but can influence systemic physiological regulation.

Chronic stress may also produce a state in which certain protective immune functions get impaired while inflammatory signalling remains persistently activated. Thus, the effect of chronic stress should not be described simply as "immunosuppression." Instead, it may be understood as immune dysregulation, involving an imbalance between protective, regulatory and inflammatory immune mechanisms.[2]

Stress, Digestion and The Gut

The effects of psychological stress extend to the gastrointestinal system too. Brain communicates with the gastrointestinal tract through autonomic pathways, the enteric nervous system and neuroendocrine system. Stress can influence gastrointestinal motility, secretion, visceral sensitivity and intestinal barrier function.

The gut microbiota becomes an important component of this communication. The intestinal microbiome interacts with epithelial cells, immune cells and the nervous system. This produces or modifies biologically active metabolites. These microbial signals may influence host physiology through neural, endocrine, metabolic and immune mechanisms.[3,4]

The intestinal epithelial barrier is another important component of the gut–brain axis. It regulates the movement of substances between the intestinal lumen and the internal environment. The current understanding emphasizes that this barrier is dynamic and interacts continuously with the microbiota and host immune system. Alterations in microbial composition may influence barrier function and thereby modify communication between the gastrointestinal tract, immune system and brain.[3]

Thus, chronic psychological stress may initiate a chain of changes involving neuroendocrine signalling, gastrointestinal function, microbial composition and intestinal barrier regulation. These changes may subsequently influence systemic immune responses.

Microbiota–Gut–Brain–Immune axis

The gut–brain axis is fundamentally bidirectional. Signals originating in the brain can affect gastrointestinal function, while signals originating in the gut can influence brain activity and behaviour. The communication involves neural, endocrine, immune and metabolic pathways.

The vagus nerve provides an important neural pathway between the gastrointestinal tract and the brain. Enteroendocrine cells respond to nutrients and microbial signals and release hormones and other mediators that can influence metabolism, appetite and neuroendocrine function. The gut immune system also interacts continuously with the microbiota, and inflammatory signals generated within the gut can influence the nervous system.[4]

Microbial metabolites provide another important pathway. Gut microorganisms generate or modify metabolites, including short-chain fatty acids, which can influence epithelial integrity, immune responses and host metabolic processes. Recent research also emphasizes the role of neuroepithelial communication in allowing intestinal microbial signals to influence neural activity.[4] Consequently, the relationship can be conceptualized as a microbiota–gut–brain–immune network, rather than as a simple one-way gut–brain pathway. Psychological stress may affect the gut, while changes in the gut microbiota and immune environment may influence brain function and stress responsiveness. This creates the possibility of a self-reinforcing cycle in chronic stress.

Relationship between Ojas and Immunity

In Ayurveda, *Ojas* occupies an important position in maintaining vitality, strength and physiological stability. Adequate *Ojas* is associated with strength and resistance to disease, whereas impairment or depletion of *Ojas* is associated with weakness and reduced resilience. The concept therefore extends beyond the narrow biomedical definition of immunity.

Modern immunity refers to the complex capacity of the body to recognize and respond to pathogens and harmful stimuli through innate and adaptive mechanisms. *Ojas* cannot therefore be directly equated with immune cells, antibodies or a specific immune marker. Instead, *Ojas* may be conceptually correlated with broader systemic resilience and resistance to disease.

The Ayurveda concepts of *Bala and Vyādhikṣamatva* further strengthen this conceptual relationship. *Vyādhikṣamatva* represents the capacity to resist disease and withstand disease-producing factors. Contemporary Ayurveda literature has discussed these concepts in relation to immune function and disease resistance.[5]

Agni, Tissue nourishment and Ojas

Agni is central to Ayurveda understanding of digestion and transformation. Proper *Agni* is considered essential for

appropriate digestion and nourishment of all *Dhātu*. From Ayurveda perspective, proper digestion and tissue nourishment contribute to the maintenance of Ojas and strength.

Conversely, disturbance of *Agni* may lead to impaired transformation and the formation of *Āma*. Persistent disturbance of digestion and metabolism may consequently be interpreted as affecting tissue nourishment.

Researches provide an area for conceptual comparison because gastrointestinal function, metabolism, gut microbiota and immune regulation are closely interconnected. However, it would be inappropriate to state that *Agni* is identical to metabolism or that *Āma* is identical to dysbiosis.

Chronic stress, Gut dysfunction and Autoimmune disease

The reviewed literature suggests a connection between chronic psychological stress, gut dysfunction and immune dysregulation. Chronic stress may influence the HPA axis and sympathetic nervous system, alter gastrointestinal function and affect gut microbial ecology. Changes in microbial composition and intestinal barrier function may subsequently modify immune signalling and inflammatory responses.

The gut is also a major site of interaction between microbial organisms and the immune system. Altered microbial signalling can influence immune-cell activity and inflammatory pathways. In susceptible individuals, persistent alterations in immune regulation may contribute to loss of appropriate immune tolerance and thereby influence autoimmune processes.

Discussion

The findings of this narrative review support the concept that psychological stress, digestion, the gut microbiota, immune regulation and autoimmune disease are interconnected through multiple biological pathways. Psychoneuroimmunology provides a scientific framework for understanding these interactions by demonstrating communication between the nervous, endocrine and immune systems.

Persistent activation of the HPA axis and sympathetic nervous system can influence immune-cell behaviour and cytokine signalling. The meta-analytic evidence provided by Segerstrom and Miller demonstrates that chronic stress is associated with measurable alterations in immune parameters.[1] The recent review by Ozaniak Strizova further emphasizes that stress can influence immune-cell trafficking, cytokine production and immune regulation and may contribute to susceptibility to infections, allergies and autoimmune disorders.[2]

The gut provides an important intermediary between psychological stress and systemic immunity. Stress-related neuroendocrine changes can influence gastrointestinal function, while the microbiota and intestinal barrier participate in immune and neural communication. The concept of the microbiota–gut–brain axis therefore provides a mechanistic framework for understanding how psychological experiences and gastrointestinal processes may influence one another.[3,4]

An important implication is that the gut–brain axis should not be considered as a simple pathway in which the brain affects the gut or the gut affects the brain. Instead, it represents a continuous bidirectional network involving neural, endocrine, immune and metabolic signalling. The vagus nerve, enteroendocrine cells, immune mediators, microbial metabolites and intestinal barriers all participate in this network. This complex interaction may help explain why psychological stress can be accompanied by gastrointestinal symptoms and why gastrointestinal disturbances may coexist with alterations in mood and behaviour.

The relationship with autoimmune disease requires careful interpretation. Chronic stress may contribute to inflammatory and immune dysregulation, but autoimmune disease cannot be reduced to a single pathway. Genetic predisposition and multiple environmental factors are important determinants. Therefore, psychological stress should be regarded as a potential modifier or exacerbating factor rather than a sole causative agent.

Ayurveda interpretation

Ayurveda offers a holistic framework in which mental state, digestion, tissue nourishment, strength and disease resistance are interconnected. The concepts of *Manas*, *Agni*, *Āma*, *Dhātu*, *Ojas*, *Bala* and *Vyādhikṣamatva* can therefore provide a useful conceptual language for examining the relationship between psychological stress and systemic resilience.

Chronic psychological stress may be interpreted within Ayurveda as a disturbance affecting the equilibrium of *Manas* and *Doṣha*, with possible consequences for *Agni* and tissue nourishment. Disturbed *Agni* may affect the appropriate processing and nourishment of the *Dhātu*, while impairment of *Ojas* may be interpreted as an outcome of the same. The concept of *Vyādhikṣamatva* provides an additional framework for understanding the body's capacity to resist or withstand disease.

Ojas encompasses more than immunity and is associated with vitality, strength and stability. Its conceptual relationship with Bala and *Vyādhikṣamatva* allows it to be discussed alongside modern ideas of immune competence. A systematic review of Ayurveda interventions has also examined both conventional immune parameters and *Ojas*-related outcomes, demonstrating the emerging attempt to operationalize Ayurveda concepts within contemporary research.[5]

Similarly, *Agni* may provide an Ayurveda framework for discussing digestion and metabolic transformation, while modern science describes the complex relationship among nutrition, gastrointestinal physiology, microbial metabolism and immune regulation. The two frameworks may therefore be studied together without forcing one-to-one equivalence.

Conclusion

Psychological stress, gastrointestinal function and immune regulation are interconnected through complex neuroendocrine, autonomic, microbial and inflammatory pathways. Chronic stress can alter HPA-axis and sympathetic activity, influence gastrointestinal function and gut microbial ecology, and

contribute to immune dysregulation. The microbiota–gut–brain axis provides an important biological framework for understanding these bidirectional interactions. In susceptible individuals, persistent disturbances in these pathways may contribute to inflammatory processes and influence the development or exacerbation of autoimmune disease.

From an Ayurveda perspective, the interconnected concepts of *Manas*, *Agni*, *Dhātu*, *Ojas* and *Vyādhikṣamatva* provide a complementary framework for understanding psychological wellbeing, digestion, systemic wellness and disease resistance. *Ojas* may be considered conceptually related to overall physiological resilience and resistance to disease rather than being equated directly with modern immunity. Similarly, *Agni* and *Āma* may provide useful conceptual frameworks for exploring digestion, metabolism and gut health, but should not be regarded as direct equivalents of specific biomedical entities.

Thus, integrating psychoneuroimmunology with Ayurveda concepts may provide a promising framework for understanding the complex relationship between mind, digestion, gut, immunity and autoimmune disease.

References

1. Segerstrom SC, Miller GE. Psychological stress and the human immune system: a meta-analytic study of 30 years of inquiry. *Psychol Bull.* 2004;130(4):601–630. doi:10.1037/0033-2909.130.4.601.
2. Ozaniak Strizova Z. Stress and the immune system: insights from psychoneuroimmunology. *Physiol Res.* 2026;75(3):399–427. doi:10.33549/physiolres.935804
3. Aburto MR, Cryan JF. Gastrointestinal and brain barriers: unlocking gates of communication across the microbiota–gut–brain axis. *Nat Rev Gastroenterol Hepatol.* 2024;21:222–247. doi:10.1038/s41575-023-00890-0.
4. Ohara TE, Hsiao EY. Microbiota–neuroepithelial signalling across the gut–brain axis. *Nat Rev Microbiol.* 2025;23:371–384. doi:10.1038/s41579-024-01136-9.
5. Vallish BN, Dang D, Dang A. Nature and mechanism of immune boosting by Ayurvedic medicine: a systematic review of randomized controlled trials. *World J Methodol.* 2022;12(3):132–147. doi:10.5662/wjm.v12.i3.132.
6. Cohen S, Janicki-Deverts D, Miller GE. Psychological stress and disease. *JAMA.* 2007;298(14):1685–1687. doi:10.1001/jama.298.14.1685.

Environmental Toxicants and Autoimmune Diseases: An Integrative Perspective from Agada Tantra and Contemporary Immunotoxicology

Dr. Divya K., Dr. Anitha M. G., Dr. Abhiram P.

Department of Agada Tantra, SDM Institute of Ayurveda and Hospital, Bengaluru

Abstract: Autoimmune diseases are multifactorial disorders characterized by the loss of immune tolerance resulting from varied aetiological factors. Increasing evidence implicates chronic exposure to environmental toxicants in the pathogenesis of autoimmune diseases. The mechanisms involved are oxidative stress, epigenetic alterations, aryl hydrocarbon receptor activation, gut dysbiosis, mitochondrial dysfunction, and persistent immune activation. This narrative review examines these immune-toxicological mechanisms and correlates them with the Ayurvedic concepts of Gara Visha**,** Dushi Visha**,** Ama Visha**,** and Viruddha Ahara described in Agada Tantra. The gradual accumulation of toxic substances, disruption of metabolic homeostasis, and chronic inflammatory changes described in these classical concepts closely parallel the modern understanding of long-term environmental toxicant exposure and immune dysregulation. An integrative therapeutic approach combining conventional immunomodulatory therapies with Agada Tantra principles may provide a holistic strategy for restoring immune homeostasis and preventing disease progression.

Key words: Autoimmune diseases, Oxidative stress, Environmental toxicants, Garavisha, Dushi visha, Viruddhaahra, Ama visha

1. Introduction

Autoimmune diseases (ADs) comprise of heterogenous group of disorders in which the immune system attacks one's own tissues, leading to chronic inflammation, tissue damage, and systemic dysfunction. More than 100 distinct autoimmune diseases have been identified with Rheumatoid arthritis (RA), Systemic Lupus Erythematosus (SLE), Sjögren's syndrome (SS), and Systemic sclerosis (SSc) being the most prevalent[1] It has been estimated that ADs affect approximately 8% to 10% of the population worldwide[2]

The pathogenesis of autoimmune diseases is complex. Common mechanisms primarily involve the breakdown of immune tolerance in T cells and B cells, along with abnormal cytokine production and pathway activation[3]. Autoimmune diseases arise from a multifactorial interplay among genetic susceptibility, immune dysregulation, hormonal influences, and environmental exposures. Several mechanisms have been implicated, including defects in immune tolerance, impaired immunoregulation, molecular mimicry following infections, defective clearance of apoptotic cells, exposure of cryptic self-antigens, and adjuvant-mediated immune activation[4].

Environmental triggers such as infections, ionizing radiation, pharmaceuticals, dietary components, and chemical toxicants may initiate or amplify these pathogenic mechanisms in genetically predisposed individuals. These exposures can alter immune tolerance, induce mutations affecting immunoregulatory pathways, and promote persistent inflammatory responses[5].

Continuous exposure to environmental toxicants—including persistent organic pollutants (POPs), heavy metals, pesticides, industrial solvents, endocrine-disrupting chemicals, asbestos, and airborne pollutants—has emerged as an important contributor to immune dysfunction. Toxicants such as mercury, aluminum, dioxins, trichloroethylene, silica, and pesticides have been associated with the development or progression of autoimmune diseases in both experimental and epidemiological studies[6]

From an Ayurvedic perspective, particularly within **Agada Tantra**, chronic exposure to environmental toxicants may be interpreted through the concepts of *Garavisha* (artificial or synthetic poisons), *Dushivisha* (latent or cumulative poisons), *Ama Visha* (toxic metabolites formed due to impaired digestion and metabolism), and *Viruddha Ahara* (incompatible dietary combinations). These concepts describe the gradual accumulation of toxic substances and metabolic impurities that persist within the body, disturb physiological homeostasis, and give rise to chronic systemic disorders. The pathological attributes of these Ayurvedic concepts closely parallel the contemporary understanding of long-term, low-dose environmental toxicant exposure and its role in immune dysregulation and autoimmune disease. Integrating the principles of Agada Tantra with contemporary immunotoxicology may therefore provide a comprehensive framework for understanding the environmental determinants of autoimmune diseases and offer novel perspectives for their prevention and management.

2. Materials and Methods

Study design

This article is a narrative review and aims to synthesize current evidence on the role of environmental toxicants in autoimmune diseases and to correlate these findings with concepts described in Agada Tantra.

1. Literature search strategy

A comprehensive literature search was conducted across multiple databases, including PubMed, Scopus, Google Scholar, AYUSH Research Portal, and classical Ayurvedic texts (Charaka Samhita, Sushruta Samhita, Ashtanga Hridaya). Search terms included combinations of keywords such **as** "autoimmune diseases," "autoimmunity," "environmental toxicants," "immunotoxicology," "heavy metals," "persistent organic pollutants," "pesticides," "Agada Tantra," "Garavisha,"

"Dushivisha," "Ama Visha," **and** "Viruddha Ahara," using Boolean operators (AND/OR) where appropriate

2. Inclusion and Exclusion criteria for Literature search

Table 1: Inclusion and exclusion criteria for the literature search

Inclusion criteria	Exclusion criteria
Classical Ayurvedic descriptions of Garavisha, Dushivisha, Viruddha ahara, Ama visha	Studies not published in English or Sanskrit (for classical texts)
Peer-reviewed original research articles, systematic reviews, narrative reviews, and meta-analyses related to environmental toxicants, immunotoxicology, and autoimmune diseases	Duplicate publications or studies with insufficient methodological details
Integrative studies correlating agada concepts and autoimmune diseases	Articles lacking relevance to the objectives of the review or providing insufficient data for thematic synthesis

Study Selection

Titles and abstracts were initially screened for relevance. Full-text articles meeting the inclusion criteria were subsequently reviewed. Publications addressing mechanisms of environmental toxicants, immunotoxicity, autoimmune diseases, and Ayurvedic concepts related to chronic toxicity were selected for narrative synthesis.

3. Data extraction and analysis

The data extraction process was designed to capture conceptual and empirical information from both Ayurvedic and biomedical sources in a manner that allows structured comparison. All included texts and studies were carefully reviewed to identify recurring constructs relevant to the pathophysiology, diagnosis, and treatment of anxiety disorders.

For Ayurvedic literature, data were extracted on key constructs such as Garavisha, Dushivisha, Viruddha ahara, Ama visha with emphasis on their etiopathogenesis, clinical manifestations, disease progression, and therapeutic principles related to chronic toxic exposure.

For **biomedical literature**, data were extracted on the type and source of environmental toxicants , study design, study population, autoimmune disease(s) investigated, proposed immune-toxicological mechanisms, biomarkers of immune dysfunction, oxidative stress, inflammatory pathways, epigenetic alterations, and key findings relevant to autoimmune pathogenesis.

The extracted information was organized into predefined thematic domains, including (i) environmental toxicants and their sources causing autoimmune diseases, (ii) mechanisms of immunotoxicity through environmental toxicants (iii) Agada Tantra concepts of chronic toxicity, (iv) conceptual parallels between Agada Tantra and contemporary immunotoxicology, and (v) integrative therapeutic and preventive approaches.

3. Observations

1. Environmental toxicants and their sources causing Autoimmune diseases

Environmental toxicants originate from diverse industrial, agricultural, occupational, dietary, and domestic sources. Chronic exposure occurs through inhalation, ingestion, dermal absorption, and maternal transfer. Unlike acute poisoning, repeated low-dose exposure results in gradual accumulation within tissues resulting in persistent immune activation, and chronic inflammation.

Table 2: Comparative correlation between Agada Tantra concepts and mechanisms of environmental immunotoxicity.[6]

Chemical Category	Chemicals	Common Exposure Sources
Persistent Organic Pollutants	Dichloro-diphenyl-trichloroethane (DDT), aldrin, chlordane, tetrabromobisphenol A, dieldrin, endrin, heptachlor, mirex, polychlorinated biphenyls, hexachlorobenzene, dioxins and furans	Food, water, air, soil, flame retardants, breast milk
Toxic Solvents	Acetone, butanol, toluene, methanol, benzene, carbon tetrachloride, trichloroethylene, xylene	Paint, lacquer, glue, cleaning supplies, industrial soap, degreaser, paint stripper, ink, synthetic rubber
Toxic Heavy Metals	Mercury, lead, cadmium, arsenic	Food, water, air, dental amalgams, cosmetics
Endocrine Disruptors	Bisphenols, dioxins, phthalates, perchlorates, polychlorinated biphenyls, polybrominated diphenyl ethers	Plastic products, herbicides, pesticides, water, food, flame retardants, lining of cans, coating of paper plates

2. Mechanisms of Immunotoxicity

Multiple studies indicate that environmental toxicants contribute to the development of autoimmune diseases through several interconnected mechanisms.

Epigenetic alterations: Recent observational studies have shown association of DNA methylation profiles with several environmental factors including exposure to prenatal tobacco smoke,[^4^](https://pmc.ncbi.nlm.nih.gov/articles/PMC3093958/#bib4) alcohol

consumption,[^5^](https://pmc.ncbi.nlm.nih.gov/articles/PMC3093958/#bib5) and environmental pollutants[6]. They have the ability to impact epigenetic mechanisms of histone modifications, microribonucleic acid (RNA) gene expression, and deoxyribonucleic acid (DNA) methylation[7].

Recent studies provide evidence on involvement of epigenetics in specific autoimmune diseases. For example: Rheumatoid Arthritis the pathology involves hypomethylation of global DNA AND CpG islands, in SLE there is T and B cell global hypomethylation, changes in CD4+ T cells, CD 70 Demethylation, whereas in Systemic sclerosis there is Methylation of CpG islands in FLI1promoter. {#recent-studies-provide-evidence-on-involvement-of-epigenetics-in-specific-autoimmune-diseases.-for-example-rheumatoid-arthritis-the-pathology-involves-hypomethylation-of-global-dna-and-cpg-islands-in-sle-there-is-t-and-b-cell-global-hypomethylation-changes-in-cd4-t-cells-cd-70-demethylation-whereas-in-systemic-sclerosis-there-is-methylation-of-cpg-islands-in-fli1promoter. .unnumbered}

Role of AHR in Autoimmunity: In the context of autoimmunity, activation of the **aryl hydrocarbon receptor (AHR)** by both exogenous and endogenous ligands plays a pivotal role in immune regulation. AHR signaling modulates T-cell differentiation, influences the balance between effector and regulatory T cells, and regulates the function of antigen-presenting cells, thereby contributing to the initiation and progression of autoimmune diseases.[8] Environmental toxicants, including **dioxins, polychlorinated biphenyls (PCBs), and particulate matter (PM) mixtures**, act as potent AHR ligands, leading to receptor activation and subsequent dysregulation of immune responses that promote autoimmunity.[6.]

Depletion of Glutathione and Antioxidants: Glutathione (GSH) is a major intracellular tripeptide antioxidant present in nearly all body cells. It plays a vital role in neutralizing reactive oxygen species, maintaining cellular redox homeostasis, facilitating hepatic detoxification through biotransformation pathways, and modulating both innate and adaptive immune responses.[9] Chronic low-dose exposure to persistent organic pollutants (POPs) has been associated with glutathione depletion, mitochondrial dysfunction, and sustained immune activation, thereby increasing oxidative stress and contributing to immune dysregulation implicated in the pathogenesis of autoimmune diseases.[10]

Endocrine disruptors and Autoimmunity: EDCs exposure can affect autoimmunity by enhancing autoimmune response and systemic inflammation. Exposure to EDCs will lead to endocrine system disorder, imbalance of immune cells, production of proinflammatory cytokines, oxidative stress, DNA oxidative damage and dysbacteriosis, which will affect the occurrence and development of ADs.[11]

Oxidative stress: It is a fundamental mechanism underlying the initiation and progression of autoimmune diseases. Excessive production of reactive oxygen species (ROS), coupled with impaired antioxidant defenses, leads to lipid peroxidation, protein oxidation, DNA damage, mitochondrial dysfunction, and activation of redox-sensitive inflammatory pathways such as NF-κB. These events promote the release of pro-inflammatory cytokines, disrupt immune tolerance, and enhance the activation of autoreactive T and B lymphocytes, thereby perpetuating chronic inflammation and tissue injury.[12]

Gut microbiome and Autoimmune diseases: Alterations in the gut microbiota (gut dysbiosis) are increasingly recognized as an important contributor to autoimmune disease pathogenesis. Increased intestinal permeability permits the translocation of pathobionts and their microbial products into the systemic circulation, triggering pro-inflammatory immune responses. Microbial metabolites can directly modulate the gut mucosal immune system, exerting either pro-inflammatory or immunoregulatory effects depending on their composition. Additionally, molecular mimicry between microbial antigens and host self-antigens can lead to cross-activation of autoreactive T and B lymphocytes, resulting in the loss of immune tolerance and subsequent autoimmune tissue damage. Environmental toxicants further exacerbate gut dysbiosis and intestinal barrier dysfunction, thereby amplifying chronic inflammation and immune dysregulation.[13]

3. Agada Tantra concepts of chronic toxicity

Gara visha: explained as Kritrima visha/artificial poison in agada tantra, prepared by combination of poisonous and non-poisonous substances[14]. Unlike other poison, it does not cause instantaneous death. *Garavisha* commonly enters the body through food preparations[15]. They produce adverse clinical features such as laziness, heaviness of the body, cough, dyspnea and edema that appear after 15 days or 1 month duration of affliction[16].

Dushi visha: Any poison which has not eliminated completely from the body or partially nullified after the using of anti-poisonous remedies, after exposure to fire, the wind, the sun etc. and also the Visha devoid of ten qualities is called Dushi Visha. It does not cause immediate fatality because of its alpa veerytwa/mild potency and due to avarana by kapha it stays inside the body for a long time[17]. Also, frequent exposure to dushita(contaminated, polluted) desha/Habitat , kaala/season, food (Anna) and day sleep (Diwaswapna) leads to vitiation of bodily tissues is dushi visha[18].

Concept of *Viruddha Ahara:* Some food causes *Dosha Utklesha* (excited condition of humors) that is unable to eliminate from the body. They are called *Viruddha Ahara* (incompatible food)[19]

Ama visha: Due to different Nidana/etiological factors, Agni becomes manda and is not able to digest even small amount of the food, such undigested food after getting fermented turns into poisonous substances known as Ama or Ama visha[20].

4. Conceptual parallels between Agada Tantra and contemporary immunotoxicology

Environmental toxicants result in autoimmune diseases through chronic exposure that may result in cumulative tissue injury, immune dysregulation, oxidative stress, epigenetic alterations,

and persistent inflammation. Ayurvedic concepts described in *Agada Tantra* such as **Gara Visha**, **Dushi Visha**, **Ama Visha**, and **Viruddha Ahara** provide parallel explanation to these pathological events. They collectively explain the gradual accumulation of toxic substances, impaired metabolism, disruption of physiological homeostasis, and evolution of chronic diseases. A comparative understanding of these paradigms provides a valuable integrative framework for explaining environmentally induced autoimmune disorders.

Table 3. Conceptual parallels between Agada Tantra and contemporary immunotoxicology

Contemporary Immunotoxicology	**Concepts of Agada Tantra**	**Conceptual Correlation**
Exposure to synthetic chemicals, pesticides, preservatives, plastics, food additives and industrial pollutants	**Gara visha**	Gara Visha refers to artificially prepared poisons composed of multiple substances. Modern synthetic environmental toxicants exhibit similar cumulative and delayed toxic effects.
Chronic exposure to low-dose environmental toxicants Persistent bioaccumulation of toxicants in tissues	**Dushi visha**	Both describe gradual accumulation of toxic substances that remain in the body for prolonged periods and manifest disease after a latent phase.
Impaired detoxification and accumulation of metabolic waste, Gut dysbiosis	**Ama visha**	Gut-derived inflammatory metabolites arising from impaired digestion and microbiome imbalance, toxic substances to enter systemic circulation, contributing to immune activation and chronic inflammation.
Exposure to junk foods, preservatives and additives in the food	**Viruddha ahara**	Incompatible food combinations generating metabolic stress

5. Integrative Therapeutic and Preventive Approaches

The increasing contribution of environmental toxicants to the development and progression of autoimmune diseases necessitates a holistic management strategy that extends beyond symptomatic immunosuppression. Contemporary medicine primarily focuses on suppressing aberrant immune responses using corticosteroids, disease-modifying anti-rheumatic drugs (DMARDs), biologics, and immunomodulators. Although these therapies reduce disease activity, they often do not address persistent environmental exposures or the underlying toxic burden that may contribute to immune dysregulation

From the perspective of Agada Tantra**,** management begins with Nidana parivarjana emphasising the reduction of exposure to environmental toxicants. Pre-requisites for Shodhana such as Deepana/Pachana helps in restoration of Agni thereby initiating normal metabolism. This followed by Shodhana ensure removal of toxicants from the body. Post shodhana application of Agada and Rasayana ensure enhancement of tissue strength which collectively contribute to maintaining immune homeostasis.

4. Discussion

Autoimmune diseases represent a growing global health challenge, with their increasing incidence suggesting that genetic predisposition alone cannot explain disease development. The rapid rise in autoimmune disorders over the past few decades strongly implicates environmental factors, particularly chronic exposure to environmental toxicants, as major contributors to immune dysregulation. Contemporary immunotoxicology has demonstrated that persistent exposure to heavy metals, pesticides, endocrine-disrupting chemicals, persistent organic pollutants, industrial solvents, and airborne pollutants alters immune homeostasis through multiple interconnected mechanisms, including oxidative stress, epigenetic modifications, mitochondrial dysfunction, endocrine disruption, intestinal barrier dysfunction, and activation of pro-inflammatory immune pathways. Collectively, these events culminate in the loss of self-tolerance and the development of autoimmune diseases.

Interestingly, the principles described in **Agada Tantra** provide a very similar conceptual framework for understanding chronic toxic exposure. Among the concepts explained, **Dushi Visha** demonstrates the closest resemblance to chronic environmental toxicant exposure. Classical texts describe Dushi Visha as a poison of reduced potency that persists within the body for prolonged periods, remains clinically silent during its latent phase, and manifests disease only after gradual accumulation or exposure to aggravating factors. This description closely parallels the modern understanding of bioaccumulation of environmental toxicants and their delayed pathological effects.

Similarly, the concept of **Gara Visha**, which denotes artificially prepared poisons composed of multiple substances, closely resembles modern synthetic chemical mixtures encountered through processed foods, food additives, pesticides, industrial pollutants, plastics, and pharmaceutical residues. Likewise, **Viruddha Ahara** may be interpreted beyond incompatible food combinations to include dietary practices that promote chronic metabolic stress, exposure to food contaminants, preservatives, and endocrine-disrupting chemicals. The Ayurvedic concept of **Ama Visha**, resulting from impaired digestion and metabolism, also aligns with current evidence linking metabolic dysfunction, oxidative stress, gut dysbiosis, and increased intestinal permeability with autoimmune pathogenesis.

The integrative therapeutic approach proposed in this review also highlights important areas of convergence. Modern management of autoimmune diseases predominantly relies on immunosuppressive therapies, including corticosteroids, disease-modifying antirheumatic drugs, biologics, and targeted immunomodulators. While these interventions effectively suppress inflammation and disease activity, they do not eliminate ongoing environmental exposures or address the cumulative toxic burden that may perpetuate immune dysregulation. In contrast, Agada Tantra emphasizes **Nidana Parivarjana** (elimination of causative factors), restoration of **Agni**, removal of accumulated toxins, and strengthening of **Ojas** through detoxification, dietary regulation, and Rasayana therapy. These principles complement current preventive strategies advocating reduction of toxicant exposure, healthy dietary practices, antioxidant supplementation, and lifestyle modification.

The findings of this review also have important public health implications. Rapid industrialization, urbanization, increasing consumption of processed foods, extensive plastic use, pesticide exposure, and environmental pollution have substantially increased the burden of chronic toxicant exposure worldwide. Recognizing these exposures as preventable risk factors offers opportunities for primary prevention through environmental regulation, public awareness, occupational safety measures, and promotion of healthy lifestyles. Integrating these public health interventions with the preventive principles of Agada Tantra may provide a comprehensive strategy for reducing the incidence of environmentally induced autoimmune diseases.

5. Conclusion

Integrating the principles of Agada Tantra with contemporary immunotoxicology offers a novel framework for understanding environmentally induced autoimmune diseases and highlights the importance of exposure reduction, healthy lifestyle practices, detoxification, and immune restoration. Further interdisciplinary research and clinical validation are needed to establish evidence-based integrative strategies for the prevention and management of autoimmune disorders.

List of References

1. Song X, Liang H, Nan F, Chen W, Li J, He L, et al. Autoimmune diseases: molecular pathogenesis and therapeutic targets. MedComm (2020). 2025;6(7):e70262. doi:10.1002/mco2.70262.
2. Wang L, Wang FS, Gershwin ME. Human autoimmune diseases: a comprehensive update. J Intern Med. 2015;278(4):369-395. doi:10.1111/joim.12395.
3. Rosenblum MD, Remedios KA, Abbas AK. Mechanisms of human autoimmunity. J Clin Invest. 2015;125(6):2228-2233.
4. World Health Organization. *Principles and methods for assessing autoimmunity associated with exposure to chemicals*. Environmental Health Criteria No. 236. Geneva: World Health Organization; 2012
5. Parks CG, Miller FW, Pollard KM, Selmi C, Germolec D, Joyce K, et al. Expert panel workshop consensus statement on the role of the environment in the development of autoimmune disease. Int J Mol Sci. 2014;15(8):14269-14297. doi:10.3390/ijms150814269.
6. Meda F, Folci M, Baccarelli A, Selmi C. The epigenetics of autoimmunity. Cell Mol Immunol. 2011;8(3):226-236. doi:10.1038/cmi.2010.78.
7. Kharrazian D. Exposure to environmental toxins and autoimmune conditions. Integr Med (Encinitas). 2021;20(2):20-24.
8. O'Driscoll CA, Mezrich JD. The aryl hydrocarbon receptor as an immune-modulator of atmospheric particulate matter-mediated autoimmunity. Front Immunol. 2018;9:2833. doi:10.3389/fimmu.2018.02833.
9. Pizzorno J. Glutathione! Integr Med (Encinitas). 2014;13(1):8-12.
10. Lee DH, Jacobs DR Jr. Hormesis and public health: can glutathione depletion and mitochondrial dysfunction due to very low-dose chronic exposure to persistent organic pollutants be mitigated? J Epidemiol Community Health. 2015;69(3):294-300.
11. Anderton SM. Post-translational modifications of self antigens: implications for autoimmunity. Curr Opin Immunol. 2004;16(6):753-758. doi:10.1016/j.coi.2004.09.001.
12. *Ramani S, Pathak A, Dalal V, Paul A, Biswas S. Oxidative stress in autoimmune diseases: an under dealt malice. Curr Protein Pept Sci. 2020;21(6):611-621. doi:10.2174/1389203721666200214111816.*
13. *Shaheen WA, Quraishi MN, Iqbal TH. Gut microbiome and autoimmune disorders. Clin Exp Immunol. 2022;209(2):161-174. doi:10.1093/cei/uxac057.*
14. *Sharma RK, Bhagwan Dash, translators. Charaka Samhita of Agnivesha. Chikitsa Sthana. 6th ed. Varanasi: Chaukhambha Sanskrit Series Office; 1999. Chapter 23, Verse 14*
15. *Sharma RK, Bhagwan Dash, translators. Charaka Samhita of Agnivesha. Chikitsa Sthana. 6th ed. Varanasi: Chaukhambha Sanskrit Series Office; 1999. Chapter 23, Verse 233.*
16. *Indradev T, Dayashankar T. Yoga Ratnakara. Jangama Visha Chikitsa Adhyaya. Varanasi: Krishnadas Academy; 1998. p.86.*
17. *Shastri AD, editor. Sushruta Samhita of Maharshi Sushruta with Ayurveda Tatva Sandipika Hindi Commentary. Vol. 1. Kalpa Sthana. Varanasi: Chaukhambha Sanskrit Sansthan; 2002. Chapter 2, Verses 25-26. p.32.*
18. *Shastri AD, editor. Sushruta Samhita of Maharshi Sushruta with Ayurveda Tatva Sandipika Hindi Commentary. Vol. 1. Kalpa Sthana. Varanasi: Chaukhambha Sanskrit Sansthan; 2002. Chapter 2, Verse 33. p.34.*
19. *Tumram AC, Chawre SV, Suryavanshi SS, Kamble MR, Sindel VS. Review on therapeutic significance of Viruddhahara (incompatible food combination). Int J Res Ayurveda Pharm. 2014;5(4):571-574.*
20. *Tripathi R, editor. Charaka Samhita. Chikitsa Sthana. Grahani Chikitsa Adhyaya. Reprint ed. Varanasi: Chaukhambha Publications; 2017. Chapter 15, Verse 44. p.367.*

Uveitis in Ayurveda: Understanding the Disease and Its Management

Dr. Gayathri G. Hegde

Associate Professor, Department of Shalakya Tantra, SDM College of Ayurveda, Hospital and Research Centre, Udupi

Abstract

Uveitis is a common cause of preventable vision loss, and non-infectious uveitis is increasingly recognized as an immune-mediated condition. In Ayurveda, its clinical presentation can be correlated with the concepts of *Abhishyanda* and *Adhimantha*, with disturbed, *Agni* *Ama* formation, and impaired *Vyadhikshamatva* contributing to disease progression. This perspective finds relevance with current understanding of the gut–eye axis. An integrated approach involving systemic *Shodhana*, stage-specific *Kriya Kalpa*, and *Rasayana* may help in disease management and reducing recurrence.

Keywords: Uveitis, Kriyakalpa, Ama, Abhishyanda, Adhimantha

Introduction

Uveitis is an inflammation of the uveal layer of the eye, the middle layer that includes the iris, the ciliary body, and the choroid. It causes redness, pain, sensitivity to light, and blurred vision, and if left untreated, it can cause lasting damage to sight[1]. It remains to be one of the common causes of preventable vision loss worldwide. The recurrent and non-infectious form of uveitis, which makes up a significant portion of uveitis cases, is now understood to result from autoimmune pathology where the body's own immune system attacks its own eye tissue, either on its own or as part of a systemic inflammatory disease.

In Ayurvedic ophthalmology, the clinical features of uveitis, including redness, photophobia, pain, lacrimation, and blurred vision, closely resemble a group of conditions described under *Sarvagata Netra Roga* (diseases affecting the entire eye, i.e., all the inner structures of the eye), namely *Abhishyanda* and *Adhimantha*.

Ayurvedic Correlation of Uveitis

The word *Abhishyanda* is derived from two Sanskrit roots: "*Abhi*," meaning towards or upon, and "*Syandana*," meaning to flow, ooze, or exude. Together, *Abhishyanda* means profuse oozing or exudation towards an organ or structure[3]. Acharya Sushruta describes this condition as the root cause of several eye diseases, including the vision-threatening *Adhimantha*, which is painful and also difficult to treat. An excess outflow of fluid within the eye points directly to the kind of process seen in uveitis as described by modern ophthalmology. When the uvea becomes inflamed, the blood-ocular barrier breaks down, and protein-rich fluid and inflammatory cells leak into the aqueous humour ,a characteristic clinical sign described as aqueous flare and cells. In severe cases, this leakage becomes dense enough to form a visible layer of pus at the base of the anterior chamber, called hypopyon.

The definition of *Abhishyanda* as an exudative process resembles the initial inflammatory stages of uveitis, and its classical description as the starting point for deeper, more painful conditions like *Adhimantha* mirrors the description of anterior uveitis as a condition that can worsen and spread to deeper ocular structures, resulting in long-lasting, vision-related impairment.

The *Pittaja* and *Raktaja* subtypes of *Abhishyanda* and *Adhimantha* can be clinically correlated with acute anterior uveitis. Symptoms of *Pittaja Adhimantha* include burning sensation (*Vahninevad Dahyate* and *Ksharenksatamam Eva*), congestion (*Raktarajichitam*) and discharge (*Samravam*), and inflammation with headache (*Shiro-Dahayutam*). *Raktaja Adhimantha*, on the other hand, represents a more aggravated form of *Pittaja Adhimantha*, with symptoms including severe congestion (*Bandhujeeva Pratikasham*), severe tenderness (*Sparsh-Akshamam*), pricking pain (*Nistoda*), and ciliary congestion (*Raktanimagnaarishta Vat Krishnabhaga*)[4].

Nidana and Samprapti (Etiology and Pathogenesis)

Classical *Nidana* (causative factors) for *Netra Roga* include *Viruddhahara* (incompatible or contradictory diet), excessive exposure to heat, dust, and smoke, suppression of natural urges, disturbed sleep cycles, and *Manasika* (psychological) factors such as *Krodha* (anger) and *Chinta* (anxiety) — all of which vitiate *Pitta* and *Rakta* and disturb *Agni*, which represents the body's digestive and metabolic fire. When *Agni* becomes weak, food and other substances are not properly digested and metabolized, leading to *Ama* (undigested, toxic metabolic residue). *Ama* along with vitiated *Dosha* travels through the *Rasavaha* and *Raktavaha* channels, the pathways associated with plasma and blood, and eventually settles in parts of the body that are already weaker (*Khavaigunya*)[5]. The eye, and specifically the uveal tissue, which has a highly vascular supply and is closely connected to the immune system, becomes a susceptible, vulnerable site. The resultant *srotodushti* and *dosha dushya sammurchana* gives rise to the visible signs of inflammation.

Vyadhikshamatva and Autoimmunity

The inherent capacity to resist the onset of disease and to limit its severity once initiated is described as *Vyadhikshamatva*.

Vyadhikshamatva is elaborated as having two parts: *Vyadhibalavirodhitva*, the ability of the body to resist and reduce the severity of a disease that has already started, and *Vyadhi-utpada-pratibandhakatva*, the ability to prevent a new disease from starting in the first place. Acharya Charaka links this capacity closely to *Bala* (strength), classifying it as *Sahaja* (constitutional or genetic), *Kalaja* (seasonal and age-related), and *Yuktikrita* (acquired through diet, regimen, and rejuvenative therapy). Central to this resistance is *Ojas*, described as the most refined essence of all seven *Dhatus* (bodily tissues), which sustains vitality, physiological stability, and the body's power to withstand disease[6].

Autoimmunity, therefore, is not a singular entity but the cumulative outcome of vitiated *Agni* and accumulated *Ama* progressively deranging *Bala* and *Vyadhikshamatva*, finally leading to a state in which the body's resistance becomes disturbed or misdirected and ends up working against its own tissues.

Some researchers have proposed a conceptual parallel between *Ama* and the low-grade endotoxemia that occurs when the intestinal barrier is compromised, drawing attention to the gut microbiome's role in autoimmune disease. This research area, sometimes termed the "gut-eye axis," has identified that gut bacteria can carry protein fragments structurally similar to proteins found in ocular and joint tissue, raising the possibility that an immune response directed at these bacteria could cross-react with the body's own tissu , a mechanism increasingly implicated in uveitis associated with conditions such as autoimmune spondyloarthritis.[7] This highlights the Ayurvedic concept of autoimmune disease arising from disturbance across *Agni*, *Ama*, *Ojas*, and *Vyadhikshamatva* together.

Ayurvedic Treatment Principles for the Management of Uveitis

Ayurvedic management of uveitis follows a sequential, rationale-driven protocol rather than isolated symptomatic treatment. Since the condition is understood as a local expression of a systemic *Dosha* disturbance, treatment proceeds from correcting the root metabolic disturbance to resolving local ocular pathology, combining systemic (*Sarvadehika*) and local (*Sthanika*)[7] measures.

Systemic Treatment Protocols

1. *Deepana-Pachana* – *Tikta rasa*, *Laghu*, *Ruksha guna* for *Ama pachana* are administered.

2. *Shodhana* – *Virechana* and *Raktamokshana* are the two commonly adopted procedures, as uveitis is generally *Pitta* and *Rakta* predominant *Vyadhi*.

Virechana – Preferred mode of *Shodhana* as this is a *Pitta* pradhana *Vyadhi*. *Tiktaka Ghrita* is commonly indicated for *Snehapana* followed by *Virechana* with *Trivrit Leha* and *Draksha Kashaya* or *Ksheera*.

Raktamokshana – Given the high vascularity of the uveal tissue and the *Raktaja* component of the disease, localized blood purification is undertaken. Bloodletting, particularly through *Jaloukavacharana*, introduces biologically active compounds with anti-inflammatory and vasodilatory effects, improving local circulation and reducing vascular congestion.

Local Therapy (Kriya Kalpa)8

Local ocular therapies, collectively termed *Kriya Kalpa*, form the foundation of *Netra Chikitsa*. These are external therapeutic procedures (*Bahir Parimarjana Chikitsa*) selected according to the stage of ocular inflammation.

- ***Aama Avastha*** (acute inflammatory stage) — *Netra Seka* (closed-eye irrigation), *Pindi* (poultice application), and *Bidalaka* (medicated paste on lids) application are used. These are lighter, more superficial interventions suitable for actively inflamed, congested tissue.
- ***Niraama Avastha*** (chronic or resolving stage) — *Akshi Tarpana*, *Aschyotana*, *Anjana* (collyrium/ointment) application are used, allowing deeper and more prolonged tissue contact once acute inflammation has subsided.

Mode of action: Local ocular therapy (*Kriya Kalpa*) exerts its effect through several interconnected mechanisms that together enhance drug delivery to ocular and periocular tissue. Because the eyelid skin has a thinner stratum than skin elsewhere on the body, procedures applied to the lid achieve greater drug permeability, while local therapies broadly act through both lipid-soluble and water-soluble pathways, penetrating corneal and periocular tissue and thereby increasing the possibility of reaching deeper structures such as the uveal tissue. The duration of tissue contact further shapes the nature of the therapeutic response — liquid-based procedures act rapidly due to immediate exposure but offer only brief contact time, whereas procedures involving prolonged retention allow sustained absorption and a more durable local effect, which is particularly relevant in chronic or recurrent inflammation such as uveitis. This absorption is additionally supported by enhanced local vascularity, since preparatory oleation and sudation increase blood flow ahead of the main procedure, and given that the uveal tissue is itself highly vascular, this improved circulation is understood to facilitate drug delivery to the target site.

Shamana Chikitsa (Palliative Internal Therapy)

Drugs with *Amapachana* (digestive), *Srotoshodhana* (cleanses channels), *Pitta-Rakta Dosha Shamaka*, *Rakta Prasadana*, *Shothaghna* (anti-inflammatory), *Vedanasthapaka* (analgesic), *Chakshushya*, and *Rasayana* (rejuvenators) properties are used in the management.

Rasayana therapy is employed in uveitis for its immunomodulatory action, introduced after *Shodhana* and *Shamana*, acting through antioxidant activity, free-radical scavenging, and regulation of the immune response, thereby supporting tissue repair and reducing the risk of recurrence. In this way, *Rasayana* serves as a consolidative measure that restores *Netra Bala*, supporting systemic and local therapy.

Conclusion

Ayurveda and modern immunology describe autoimmune uveitis in strikingly similar terms. Where Ayurveda speaks of weakened *Agni*, accumulated *Ama*, and a deranged *Bala* disturbing *Vyadhikshamatva*, modern science describes genetic susceptibility, gut-derived immune triggers, and inflammatory pathways that turn the immune system against the eye's own tissue. This shared understanding gives Ayurvedic treatment a clear clinical rationale. By combining systemic correction (*Shodhana*), local ocular therapy (*Kriya Kalpa*), and immune-supportive *Rasayana* treatment, Ayurveda aims to address the underlying imbalance rather than only suppressing inflammation, offering a possible advantage in reducing the recurrence often seen in long-term uveitis.

References

1. Joltikov KA, Lobo-Chan AM. Epidemiology and risk factors in non-infectious uveitis: a systematic review. Front Med (Lausanne). 2021;8:695904. doi:10.3389/fmed.2021.695904
2. Chen S, Huang W, Wan Q, Tang Z, Li X, Zeng F, Zheng S, Li Z, Liu X. Investigation of the Acute Pathogenesis of Spondyloarthritis/HLA-B27-Associated Anterior Uveitis Based on Genome-Wide Association Analysis and Single-Cell Transcriptomics. Journal of Translational Medicine. 2024. DOI: 10.1186/s12967-024-05077-y.
3. Abhishyanda vis-à-vis Conjunctivitis: Nirukti (Etymology), Nidana, Samprapti and Modern Correlation. Review article.
4. Nithyashree C.T., Sujathamma K. Anterior Uveitis and management in Ayurveda - A Case Study. Journal of Ayurveda and Integrated Medical Sciences, Sep–Oct 2017, Vol. 2, Issue 5.
5. Priyana TV, et al. Decoding the role of Ama and Agni in ocular disorders: an Ayurvedic insight into pathogenesis and treatment. J Ayurveda Integr Med Sci [Internet]. 2025 [cited 2026 Sep 12].
6. Patil S, Baghel AS. Review on Concept of Ojas in Ayurveda with Reference to Immunology. International Journal of Indian Medicine. 2021;2(4):01-10.
7. Liu M, Geng J, Liu T, Liu X. Gut microbiome dysregulation in noninfectious uveitis. Front Immunol. 2025;16:1614304. doi:10.3389/fimmu.2025.1614304
8. Gupta A. Ojas and Vyadhikshamatava – Ayurvedic Perspectives of Immunity and Its Modulation in Clinical Arena. Journal of Natural and Ayurvedic Medicine. 2023.
9. Concept of Bala (Vyadhikshamatva) – A Review. Paripex Indian Journal of Research.
10. Yadav P, Thakur A, Rajagopala M, Bavalatti N. Approach towards management of anterior uveitis through Ayurveda: a case report. J Ayurveda Case Rep. 2022;5(1):22-27. doi:10.4103/jacr.jacr_61_20
11. Aravind V, Balakrishnan VKV. A case report on Ayurvedic management of chronic uveitis. J Ayurveda Integr Med Sci. 2025;10(9). doi:10.21760/jaims.10.9.44.

12.Rupali, Thakur P, Sujata, Sanjana, Bhardwaj S. A critical review on Rasayana drugs for immune modulation: Ayurvedic concepts and contemporary scientific evidence. J Ayurveda Integr Med Sci. 2026;11(5). doi:10.21760/jaims.11.5.37

From Amavata to Rheumatoid Arthritis: Revisiting Ayurvedic Herbs through the Lens of Immunomodulation

Dr. Harini A.

Professor, Department of Dravyaguna, SDM College of Ayurveda and Hospital, Thanniruhalla, B. M. Road, Hassan, Karnataka

Abstract

Ayurveda describes *Amavata* as a disorder arising from the interaction of *Ama* and aggravated *Vata*, with characteristic joint pain, stiffness, swelling and functional impairment. Rheumatoid arthritis (RA) is a chronic autoimmune inflammatory disorder characterized by persistent synovial inflammation, progressive cartilage destruction and bone erosion. Although modern antirheumatic therapies have substantially improved disease outcomes, long-term management remains challenging because of incomplete therapeutic response, adverse effects and the need for individualized treatment. Several herbs have been effectively utilised in the clinical management of *Amavata*, like *Guduchi* (*Tinospora cordifolia* (Willd.) Hook.f. & Thomson), *Rasna* (*Pluchea lanceolata* (DC.) C.B.Clarke), *Eranda* (*Ricinus communis* L.), *Shunthi* (*Zingiber officinale* Roscoe) and *Dashamula* (the ten roots) among others.

This review examines the therapeutic relevance of these through the interface of Ayurveda and contemporary immunology. Particular attention is given to inflammatory cytokines, T-cell responses, NF-κB-related pathways, oxidative stress, bone remodelling and other mechanisms implicated in RA. *Guduchi* has demonstrated effects on IL-1β, TNF-α, IL-6, IL-17 and mediators of bone damage in experimental arthritis, with additional clinical evidence in patients with RA. *Rasna* has demonstrated immunosuppressive activity involving T-cell populations and Th1 cytokines, and recent experimental work has further demonstrated anti-arthritic, anti-inflammatory and antiangiogenic effects. *Eranda* has demonstrated anti-arthritic effects accompanied by modulation of inflammatory cytokines and oxidative stress. *Shunthi* has demonstrated changes in immune-regulatory genes in patients with active RA, while experimental studies of *Dashamula* demonstrate significant analgesic and anti-inflammatory activity. Collectively, these observations suggest that the therapeutic relevance of these herbs in *Amavata* may be utilised to modulate dysregulated inflammatory and immune responses in RA.

Keywords: Amavata, rheumatoid arthritis, Guduchi, Rasna, Eranda, Dashamula, Shunthi, immunomodulation, Ayurveda, inflammation

Introduction

Ayurveda describes *Amavata* as a distinct disease entity characterized by the pathological interaction of *Ama* and aggravated *Vata*. The clinical manifestations of Amavata, include joint pain, stiffness, swelling, restricted movement and systemic manifestations.[1] Rheumatoid arthritis is a systemic autoimmune disease in which dysregulated immune responses produce persistent synovial inflammation, progressive cartilage damage and bone erosion. The pathogenesis of RA involves a complex interaction of innate and adaptive immunity, inflammatory cytokines, T-cell subsets, fibroblast activation, angiogenesis and mechanisms of bone remodelling.[2] Consequently, contemporary RA research has moved beyond the concept of inflammation alone towards a broader understanding of immune dysregulation.

The management of Amavata traditionally emphasizes *Langhana*, *Deepana*, *Pachana*, elimination of aggravated *Doshas* and appropriate management of *Vata* according to the stage and presentation of disease.[3] Several herbs repeatedly occur in this therapeutic landscape and have been clinically utilised for its effective management. *Guduchi*, *Rasna*, Eranda, *Shunthi* and *Dashamula*[1,3,4,5] are particularly interesting because they represent different pharmacological dimensions: *Rasayana*, *Deepana-Pachana*, *Vata-Kapha shamana*.

Amavata have frequently been discussed in relation to the clinical phenotype of Rheumatoid arthritis.[6] However, *Amavata* should not be considered synonymous with RA; rather, RA provides a useful contemporary disease model through which selected *Ayurvedic* therapeutic principles can be investigated. The question of contemporary relevance is therefore not whether ancient Ayurvedic concepts can be directly equated with contemporary concepts. A more scientifically appropriate question is whether herbs selected through the classical therapeutic framework of *Amavata* demonstrate measurable biological effects on pathways relevant to inflammatory and autoimmune disease, especially RA.

Guduchi (*Tinospora cordifolia* (Willd.) Hook.f. & Thomson)

Guduchi occupies a distinctive position in *Ayurveda* because of its *Rasayana* status and wide therapeutic application. In the context oF Amavata, it is recommended to be used as a decoction along with *Shunthi* and *Pippali churna*,[1,3]*Shunthi* and *Guduchi* kwatha,[4,5] an ingredient in *Shatyadi kwatha*, *Rasnapanchaka kwatha*, *Rasnasaptaka kwatha*, *Rasnadidashamula kwatha*,[1,3,4,5] *Guduchi* and *Shunthi kalka*,[1,3] *Amrutadi churna*,[1,3,4] *Punarnavadi churna*,[1,3] *Amruta ghrita*.[5]

Its pharmacological profile has been investigated extensively, including anti-inflammatory, immunomodulatory and anti-arthritic activities.[7,8] Experimental work using an adjuvant-

induced arthritis model demonstrated that *T. cordifolia* extract reduced arthritic inflammation as well as cartilage and bone damage. Importantly, its effects were associated with reduction of pro-inflammatory cytokines including IL-1β, TNF-α, IL-6 and IL-17. The treatment also reduced the frequency of IL-17-producing T cells and influenced mediators involved in bone remodelling, including RANKL and MMP-9. [9]

These observations are particularly relevant because the Th17/IL-17 axis has an important role in chronic autoimmune inflammation.[10] The findings therefore provide a possible contemporary explanation for the anti-inflammatory and disease-modifying potential attributed to Guduchi. Further, a randomized clinical study involving patients with moderate RA evaluated *Guduchi* aqueous extract and *Guduchi* Satva as adjuncts to methotrexate for 16 weeks. Both preparations produced improvements in several clinical and laboratory parameters, including rheumatoid factor, disease activity measures, pain and morning stiffness, with greater improvement reported in the *Guduchi Satva* group.[11]

***Rasna* (*Pluchea lanceolata* (DC.) C.B.Clarke)**

Pluchea lanceolata, one important botanical source of Rasna, is used for painful joint conditions. In the context of *Amavata*, several formulations containing Rasna, such as *Erandadi kwatha*, *Rasnapanchaka kwatha*, *Rasnasaptaka kwatha*, *Rasnadieranda kwatha*,[1,3,4,5] *Rasna dwadashakam*[4] are recommended and very effectively clinically utilised in the management of *Amavata*. Recent researches have investigated for its immunological effects. Experimental studies demonstrated that its extract inhibited both humoral and cell-mediated immune responses. More specifically, its active chloroform fraction suppressed CD4+ and CD8+ T-cell populations and reduced intracellular Th1 cytokines including IL-2 and IFN-γ.[12]

These findings are particularly interesting in the context of RA because they demonstrate that the biological action of *Rasna* need not be conceptualized merely as analgesic or anti-inflammatory. Modulation of cellular immune responses provides another possible dimension of its therapeutic activity.

More recent research has strengthened this evidence. A 2026 experimental study of *P. lanceolata* in adjuvant-induced rheumatoid arthritis reported reductions in paw swelling, arthritic score and joint pathology. Serum IL-1β, IL-6, TNF-α and CRP were reduced, while in-silico analysis identified compounds such as quercetin, isorhamnetin and linalool as potential interacting molecules for several RA-associated targets. The study further implicated VEGF, MAPK and PI3K-Akt signalling in the observed effects.[13]

Eranda (Ricinus communis L.)

Eranda is recommended in various forms in the management of *Amavata*. Roots of *Eranda* as herb for *swedana* (sudation),[3] Oil from the seeds of *Eranda* are praised for its use in *Amavata*.[1,3,4] Usage of *Eranda taila* with *Rasnadi kwatha*, *Dashamula kwatha* and *Nagara kwatha* is recommended in pain management.[1,3,4,5] It is an ingredient in *Erandadi kwatha*, *Rasnadidashamula kwatha*, *Vatari guggulu*, *Simhanada guggulu*[3,4,5] and many others. *Eranda beeja* with *Shunthi* and *sharkara* is indicated in Amavata.[4]

Modern experimental research provides evidence for a broader pharmacological role. In a complete Freund's adjuvant-induced arthritis model, hydroalcoholic extract of *R. communis* leaves reduced paw swelling and arthritic scores and improved several biochemical and pathological parameters. Importantly, the treatment downregulated IL-1β, IL-6, IL-17A, TNF-α and RANKL, while increasing IL-4, IFN-γ and osteoprotegerin expression. The study also demonstrated reduction of oxidative stress and improvement in histopathological and radiological features of joint damage.[14] An additional recent in-silico investigation of *R. communis* phytochemicals identified predicted interactions with proteins associated with inflammatory and autoimmune pathways, including TNF-related targets.[15] This evidence therefore illustrates an important translational principle that the therapeutic relevance of a drug may involve several layers of action, *Vata*-related therapeutic effects, anti-inflammatory activity, immunological modulation and protection against tissue damage—rather than a single pharmacological mechanism.

Shunthi (Zingiber officinale Roscoe)

Shunthi or dried ginger (*Zingiber officinale*) occupies a prominent position in Ayurvedic management of disorders involving *Ama*, impaired digestion and Vata-Kapha pathology. In the context of Amavata, Shunthi is recommended to be used in various forms, like *Shunthi churna* with *Kanji*, *Shunthi kwatha* with *Eranda taila*,[1,3,4,5] *Haritaki* and *Shunthi kalka*,[1,3] *Guduchi* and *Shunthi kalka*,[1,3] *Shunthi ghrita*[1,3,5] and many more.

Modern research has provided substantial evidence for its anti-inflammatory and anti-arthritic potential. A randomized double-blind placebo-controlled clinical trial involving 70 patients with active RA who received ginger powder or placebo for 12 weeks. The study investigated genes associated with immunity and inflammation. Ginger supplementation significantly increased FoxP3 expression and decreased RORγt and T-bet expression, accompanied by a reduction in disease activity score.[16] FoxP3 is associated with regulatory T-cell function,[17] whereas RORγt is a key transcriptional regulator associated with Th17 differentiation. T-bet is associated with Th1 responses.[18] Consequently, these observations are particularly relevant to the contemporary understanding of immune imbalance in RA. A broader review of preclinical and clinical evidence also documents anti-inflammatory effects of ginger constituents, including effects on inflammatory cytokines and matrix metalloproteinases.[19]

Dashamula (the ten roots)

Dashamula is conceptually different from the other four drugs because it is not a single botanical entity but a classical polyherbal combination of ten roots. *Dashamula* preparations are employed in conditions involving pain, inflammation and

Vata-related disorders. Experimental evaluation of Dashamularishta and *Dashamula Kwatha* demonstrated significant analgesic and anti-inflammatory activity in several animal models. *Dashamularishta* reduced paw oedema, peritoneal protein content and granuloma formation, while *Dashamula* preparations also demonstrated anti-platelet activity.[20]

The significance of this evidence in RA lies in the recognition that inflammation is not mediated by a single target. Multiple interacting pathways involving cytokines, lipid mediators, vascular changes, immune cells and tissue-remodelling processes contribute to chronic arthritis, hence a poly herbal combination like *Dashamula* may act on multiple pathways to restore immune dysfunction.

The evidence for these five herbs can be summarized as follows:

Ayurvedic drug	Principal contemporary evidence	Immunological/biological relevance
Guduchi	Experimental arthritis and clinical RA studies	IL-1β, TNF-α, IL-6, IL-17, Th17 cells, RANKL/MMP-9
Rasna	Experimental immunomodulation and arthritis studies	T cells, Th1 cytokines, IL-1β, IL-6, TNF-α, VEGF-related pathways
Eranda	Experimental arthritis studies	IL-1β, IL-6, IL-17A, TNF-α, RANKL, oxidative stress
Shunthi	Experimental and human RA studies	FoxP3, RORγt, T-bet, inflammatory mediators
Dashamula	Anti-inflammatory and analgesic experimental studies	Inflammatory response, pain and platelet-related mechanisms

The evidence demonstrates that these drugs do not appear to act through one uniform immunity boosting mechanism. Rather, their reported effects include suppression of excessive inflammatory signalling, modulation of T-cell responses, reduction of inflammatory cytokines, attenuation of oxidative stress and protection against tissue damage. This is crucial as the therapeutic objective in autoimmune disease is not necessarily to stimulate immunity indiscriminately but to restore an appropriate balance between inflammatory and regulatory responses.

Although the available evidence is encouraging, much of the existing evidence is derived from animal and cellular models or from in silico predictions using various solvent extracts. These findings therefore require clinical validation to establish their potential for disease modification in humans. Further research should prioritize well-designed clinical trials incorporating comprehensive assessment of inflammatory and immune biomarkers to substantiate their role in restoring immune homeostasis and ameliorating immune dysfunction.

Conclusion

Guduchi, *Rasna*, *Eranda*, *Shunthi* and *Dashamula* represent an important group of Ayurvedic drugs used in the therapeutic landscape of Amavata. Contemporary research provides evidence that their biological effects extend beyond symptomatic relief and may involve modulation of inflammatory cytokines, T-cell responses, oxidative stress, angiogenesis and mechanisms of tissue and bone damage. The significance of these findings lies in their potential to provide a basis for further investigation into their underlying mechanisms, efficacy, and clinical relevance in autoimmune diseases, especially Rheumatoid arthritis.

References

1. Bhavamisra. Bhavaprakasha chikitsa. 1st ed. Vol. 2. Varanasi: Chaukhamba Sanskrit Sansthan; 2013. 277 p.
2. Alivernini S, Firestein GS, McInnes IB. The pathogenesis of rheumatoid arthritis. Immunity. 2022 Dec 13[cited 2026 Sep 16];55(12):2255–70. doi:10.1016/j.immuni.2022.11.009. Available from: https://www.cell.com/immunity/fulltext/S1074-7613(22)00599-4
3. Govindadasa. Bhaishajyaratnavali. 14th ed. Varanasi: Chaukhamba Sanskrit Sansthan; 2001. 485–434 p.
4. Sastri B, editor, Sastri L, translator. Yogaratnakara. 7th ed. Varanasi: Chaukhamba Sanskrit Sansthan; 1999. 564 p.
5. Chakrapanidatta. Chakradatta of Chakrapanidatta. Tripathi I, editor. 4th ed. Varanasi: Chaukhambha Sanskrit Sansthan; 2002:225
6. Chopra A. Ayurvedic medicine and arthritis. Rheumatic Disease Clinics of North America. 2000[cited 2026 Sep 16];26(1):133–44. Available from: https://pubmed.ncbi.nlm.nih.gov/10680201/
7. Verma S. Phytopharmacological profile of Tinospora cordifolia: An updated review. journal of pharmacognosy and phytochemistry [Internet]. 2026 [cited 2026 Sep 16]. Available from: https://www.academia.edu/download/132082175/TC_updated_review_publication.pdf
8. Singh J, Saxena E, Chaudhary AR, Kaur M, Salotra M, Rasane P, et al. Immunomodulatory properties of Giloy (Tinospora cordifolia) leaves and its applications in value-added products. Heliyon. 2025 Jan 15[cited 2026 Sep 16];11(1). doi:10.1016/j.heliyon.2024.e40948. Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC11699423/
9. Sannegowda K, Venkatesha S, Moudgil K. Tinospora cordifolia inhibits autoimmune arthritis by regulating key immune mediators of inflammation and bone damage. Int J Immunopathol Pharmacol. 2015 Dec [cited 2026 Sep 16];28(4):521–31. doi:10.1177/0394632015608248. Available from: https://pubmed.ncbi.nlm.nih.gov/26467057/
10. Xu Lou I, Zhou H and Wan H. The critical role of Th17 cells and IL-17A in autoimmune and inflammation-associated neurological diseases: mechanisms and therapeutic perspectives. Front. Immunol. 2025 [cited 2026 Sep 16]. 16:1656422. doi: 10.3389/fimmu.2025.1656422. Available from:

https://www.frontiersin.org/journals/immunology/articles/10.3389/fimmu.2025.1656422/full

11. Shah PA, Shah GB. Efficacy and Safety of Aqueous Extract and Guduchi Satwa (Starch) of *Tinospora cordifolia* in Patients with Rheumatoid Arthritis. Indian J Pharmacol. 2015 Dec[cited 2026 Sep 16];47(Suppl 1):S4–S7. - Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC4755074/?utm
12. Bhagwat DP, Kharya MD, Bani S, Kaul A, Kour K, Chauhan PS, Suri KA, Satti NK. Immunosuppressive properties of Pluchea lanceolata leaves. Indian J Pharmacol. 2010 Feb[cited 2026 Sep 16];42(1):21-6. doi: 10.4103/0253-7613.62405. Available from: https://pubmed.ncbi.nlm.nih.gov/20606832/
13. Bhardwaj N, Kr Dixit K P, Kandasamy N, Bhardwaj S. Antiangiogenic Effect of Pluchea lanceolata in Adjuvant-Induced Rheumatoid Arthritis in Wistar Rats by Downregulating VEGF Signaling Pathway and Proinflammatory Cytokines -, 2026 [Internet]. [cited 2026 Sep 16]. Available from: https://journals.sagepub.com/doi/10.1177/1540658X261472169?utm
14. Hussain A, Aslam B, Muhammad F, Faisal MN, Kousar S, Mushtaq A, et al. Anti-arthritic activity of Ricinus communis L. and Withania somnifera L. extracts in adjuvant-induced arthritic rats via modulating inflammatory mediators and subsiding oxidative stress. Iran J Basic Med Sci. 2021 Jul[cited 2026 Sep 16];24(7):951–61. doi:10.22038/ijbms.2021.55145.12355 Available from: https://pubmed.ncbi.nlm.nih.gov/34712426/
15. Kota G. Exploring Phytochemicals from Ricinus Communis for Potential Therapeutic Applications in Rheumatoid Arthritis: An in-Silico Approach. International Journal of Bioinformatics and Computational Biology. 2025 Jan 11[cited 2026 Sep 16];03(01):32–41. Available from: https://journals.stmjournals.com/ijbcb/article%3D2025/view%3D197271/?utm
16. Aryaeian N, Shahram F, Mahmoudi M, Tavakoli H, Yousefi B, Arablou T, et al. The effect of ginger supplementation on some immunity and inflammation intermediate genes expression in patients with active Rheumatoid Arthritis. Gene. 2019 May 25[cited 2026 Sep 16];698:179–85. doi:10.1016/j.gene.2019.01.048. Available from: https://pubmed.ncbi.nlm.nih.gov/30844477/
17. Chang H, Wang Y, Gao L, Zheng SJ. Beyond Conventional Transcriptional Regulation Function: FOXP3 as an Integrative Hub for Chromatin Interactions and Protein Complexes in Immune Regulation. Biology. 2026 Jan[cited 2026 Sep 16];15(3):254. doi:10.3390/biology15030254. Available from: https://pubmed.ncbi.nlm.nih.gov/41677725/
18. Miller S, Eizenberg-Magar I, Reich-Zeliger S, Rimer J, Zaretsky I, Reshef D, et al. Independent and temporally separated dynamics for RORγt and Foxp3 during Th17 differentiation. Front Immunol. 2025 Apr[cited 2026 Sep 16] 28;16. doi:10.3389/fimmu.2025.1462045. Available from: https://pubmed.ncbi.nlm.nih.gov/40356912/
19. Szymczak J, Grygiel-Górniak B, Cielecka-Piontek J. Zingiber Officinale Roscoe: The Antiarthritic Potential of a Popular Spice—Preclinical and Clinical Evidence. Nutrients. 2024 Mar 5[cited 2026 Sep 16];16(5):741. doi:10.3390/nu16050741 Available from: https://pmc.ncbi.nlm.nih.gov/articles/PMC10933899/?utm
20. Parekar RR, Bolegave SS, Marathe PA, Rege NN. Experimental evaluation of analgesic, anti-inflammatory and anti-platelet potential of Dashamoola. J Ayurveda Integr Med. 2015[cited 2026 Sep 16];6(1):11–8. doi:10.4103/0975-9476.146565. Available from: https://pubmed.ncbi.nlm.nih.gov/25878458/

From Immune Crisis to Immune Competence: A Child's Voyage from Churg–Strauss Syndrome Reversed to Wholeness through Ayurveda

Dr. Kavya

Assistant Professor, Department of Kaumarabhritya, SDM College of Ayurveda, Hospital and Research Centre, Kuthpady, Udupi

Chief complaints and History of present illness: A male child of 10years hailing from Kundapura, who is a diagnosed case of **Moderate persistent Asthma, Mild Eosinophilia and Churg Strauss Syndrome (a rare autoimmune disorder)** complaining of breathlessness throughout the day & night with yellowish productive cough and mild raise of temperature since 8 days had visited Kaumarabhritya for further management. Patient was on MDI with spacer and nasal spray since past 3 months along with 1 week hospitalization for every month.

Aggravating factors: Aggravates at bedtime and in cold climates

Negative history: No H/o ear pain, hematemesis, seizures, loss of consciousness

Past history: H/o recurrent sore throat minimum once in 2 months since 2years

- **Hospitalization** at KMC Manipal for **Left lower lobar pneumonia** (10/12 to 18/12/24)- PICU admission – Normal ECG

Treatmrnt details – Nebulization , IV cefuroxime, Syp Oseltamavir, 2L Oxygen – tapered and stopped on 5th day,recurred dysfunctional breathing followed by restrted oxgen on Day 5, Sulbacef + amikacin, MDI with spacer & mask, Vit D

Discharge advice: Combihale FB 200/6 1-0-2 puff with spacer 7 mask x 1 month

MDI Foracort 200/6 2BD puff with spacer for 1 month

Tab deltapan 40mg 1OD B/F x 15 days

Tab Flunil 10mg 1BD x 1 month

Tab Deriphylline 150mg 1TID x 1 month

Topisol 3% 1-0-1 L/A over soles x 14 days

Syp Dolo 250/5 5ml SOS (for fever)

- **Hospitalization** due to Acute **severe Asthma / Moderate persistent Asthma** (23/01 to 28/01/25) at KMC Manipal for – cough since a week with fever since 2 days

Tab Deriphylline 150mg 1TID (14days), Later 1 BD for 15 days

Tab Omnacortil 20mg 1TID (3 days), Later 1BD for 3 days

Tab Ketasma 1mg 1HS for 1 month

Tab Vozet 5mg for 1 month

Momeflo nasal spray 2BD for a month

MDI Foracort 200/6 2BD puff with spacer for 1 month

- **Hospitalization** at KMC Manipal for **Churg Strauss Syndrome, Acute severe Asthma / dysfunctional breathing, Elevated IgE** (1171 IU/mL) – (21/03 till 28/03/25)

Treatment – 2L O2, Tab Zempred, /neb Budecort

Discharge medicines: Tab Odimont LC Kid 0-0-1 on alternate days x 1 month

Tab zempred 8mg 1BD x 15 days, later 1OD x 15 days on alternate days

Tab Deltapan 40mg 1OD B/F x 1 month

Tab Azoran 50mg 1-0-0 x 1 month

Family history: Elder brother has a H/O recurrent skin rashes

Birth history: Term male baby extracted out through Elective LSCS (Ind: Previous LSCS i/v/o preeclampsia?), cried soon after birth with a birth weight of 2.5kg.

Developmental history: Developmental milestones were achieved as per the age, currently in 7th standard with average scholastic performance.

Current Personal history: Diet: Predominantly Non vegetarian, Appetite: reduced, Bowel: irregular, Sleep: Disturbed, Micturition: Normal

Vaccination history: Immunization was given as per schedule

Examination

General: Pallor, Icterus, Cyanosis, Clubbing – NIL, B/L cervical lymphedema + - non tender

Systemic: CVS: S1, S2 heard, no murmurs, Tachycardia +

RS – **typical adenoid facies +, H/o open mouth breathing +, Tachypnea +, intercostal retractions +, SpO2 93% at room air**

B/L inferior nasal turbinates enlarged, DNS – Absent

Trachea centrally placed

O/A – crepitation heard throughout the lung fields

CNS: HMF, Cranial nerve, motor and sensory systems – NAD

Investigations: Hb – 14.5gm%, TC WBC – 12,700 cells /cu mm, DC – N-69%,E-4%,M-4%,B-0%,ESR – 39mm/hr, AEC – 430 cells/cu mm, CXR with no pneumonia features

Diagnosis: Acute bronchial Asthma, k/c/o Churg Strauss Syndrome: Tamaka Shwasa

Ayurvedic review: Looking into the history specific to Krura Kosta Avastha, non vegetarian diet practices, Eosinophilia,

recurrent attacks of illness in a short span and Vasculitis (in Churg Stauss Syndrome), involved Tridosha and Prabhoota Dosha Avastha, the diagnosis -Tamaka Shwasa was been considered. Vikara Vighata Bhavasya Abhava (Absence or minimal immunity or Depleted Immunity) was identified.

Treatment planned: Stopping all the previous medications, Tab LS Vati 1TID, Kasa Sudha Kalpa 7.5ml BD was prescribed for 3 days followed by admission for Shodhana Therapy from 05/05/2025 till 13/05/2025

Kramataha Virechana was planned - Snehapana with Kantakari ghrita with 30ml, 60ml, 90ml and 100ml respectively was given and stopped on 4th day by observing Samyak Sneha Siddhi Lakshana. From 5th day Sarvanga Abhyanga with Karpooradi Taila and Brihat Saindhavadi Taila followed by Dashamoola Kwatha Parisheka was given for 3 days followed by Ruksha Virechana using Trivrit lehya 35g with 100ml of Triphala Kashaya on 7th day. Krura Kosta of child and resistency of child to take Ganji or any vegetarian light diet during Vishrama Kala had resulted in no single Virechana Vega despite Samyak Abhyantara Snehana and Bahya Paricharya s. The Vegas were not seen even on administration of 1 Tablet of Ichabhedi Rasa on the same day in Pitta Kala. Due to Avara Shuddhi, an instant Shodhaka Basti was planned using Gandharva Hastadi kashaya 100ml + 15g of Avipatthikara Churna, which cleared the intestinal contents. Advicing the Trikala Samsarjana Krama for 2 days, Nitya Virechana with Trivrit lehya 5g with milk, Syp Indukanta 7.5ml BD for 15 days was prescribed.

Current Status: With persistent Adenoid facies, till date, no single episode of breathlessness and or Asthma is seen. 2 episodes of seasonal productive cough and 1 episode of fever is seen with very mild severity. Despite the failure of Kramataha Virechana, Nityavirechana and herbal immune enhancers have reduced the reactive airway disease markedly, avoiding the repetitive use of nebulization, corticosteroids, antibiotics administerations and hospitalization.

Role of Genes of the X Chromosome on Organs of Matruja Bhava in IPEX Syndrome: An Autoimmune Disorder

Dr. Krishnamurthy N.

Professor, Department of PG Studies in Rachana Sharira, SDM College of Ayurveda, Hospital and Research Centre, Kuthpady, Udupi

INTRODUCTION- The fetus is produced from the mother. Without mother there is no possibility of conception and birth of a viviparous animal. Organs derived from the maternal source are Twak, Lohita, Mamsa, Meda, Nabhi, Hrudaya, Kloma, Yakrut, Pleeha ,Vrukka Basthi, Pureeshadhana, Amashaya, Pakwashaya, Uttaraguda, Adaraguda, Kshudrantra, Sthulantra, Vapa and Vapavahana. Chakrapani comments on this that Organs derived from the maternal source in the embryo are nothing but the organs formed from the Shonita(Artava) of the mother.[1]

Udakavaha srotas are two their moola sthana is Talu and Kloma.On injury to the moola sthanas causes thirst and sudden death.[2]

Injury to the beta cells of the pancreas impair insulin production can lead to type 1 diabetes. Auto immune disorders may be involved in the destruction of beta cells.Blood glucose concentration rises and this causes loss of glucose in the urine. Increased blood glucose causes cell dehydration throughout the body. This occurs partly because glucose does not diffuse easily through the pores of the cell membrane and the increased osmotic pressure in the extra cellular fluid causes osmotic transfer of water out of the cells. Loss of glucose in urine causes osmotic diuresis. Osmotic effect of glucose in the renal tubules greatly decreases tubular reabsorption of fluid. The overall effect is massive loss of fluid in the urine causing dehydration of the extracellular fluid which in turn causes compensatory dehydration of the intracellular fluid. Thus polyuria, intracellular and extracellular dehydration, and increased thirst occurs.

Chronic high glucose concentration leads to increased risk of Heart attack, Kidney disease, retinopathy and blindness[3].

Genes are the structural units of inheritance stored in chromosomes. They have the capability to determine traits, e.g. skin color etc and they have the ability to undergo identical replication and mutation. They are very important for synthesis of proteins and control the growth of various parts of our body. DNA is the chemical basis of gene.[4]

The human sex chromosomes X and Y are morphologically and genetically distinct. In humans women have both X chromosomes alike in size and genetic content. Pairing and recombination can exist along their entire length. Men have one X and one Y chromosome and only two limited regions of identical sequence, located at the tips of the short and long arm of the X and Y chromosome. During meiosis pairing and crossover in men takes place in these two regions and therefore they have been termed Pseudoautosomal region.[5]

IPEX syndrome- Immune dysregulation Polyendocrinopathy Enteropathy, X-linked syndrome is a rare X-linked primary immune dysregulation disorder caused by mutations in the **FOXP3 gene**, which is essential for the development and function of regulatory T cells.

FOXP3 gene is located on the short arm of the X chromosome (Xp11.23). It lies in the non-pseudoautosomal region (non-PAR) of the X chromosome. Therefore, FOXP3 is an X-linked gene and is subject to X-chromosome biology.

Genetics and pathogenesis

FOXP3 mutation → Defective/absent regulatory T cells → loss of peripheral immune tolerance → Uncontrolled autoreactive T-cell activity →systemic autoimmunity.

- Inheritance: X-linked recessive
- Therefore, it predominantly affects males.
- Female carriers are generally asymptomatic

Clinical presentation:

1. Immune dysregulation

- Severe autoimmune manifestations
- Eczema/dermatitis

2. Polyendocrinopathy

- Autoimmune destruction of pancreatic β-cells → insulin-dependent/type 1 diabetes

3. Enteropathy

- Severe chronic watery diarrhea
- Intestinal villous injury/atrophy due to autoimmune enteropathy.[6]

Methodology

Literature regarding the organs of Matruja bhava and Kloma as the moola sthana of Udakavaha Srotas are collected from Charaka Samhitha

Literature regarding the organs of Kloma as the moola sthana of Udakavaha Srotas and its viddha laxana are collected from Sushruta Samhitha

Literature regarding the Beta cells and injury to them causes Type 1 Diabetes is collected from Text book of Medical physiology by Arthur C Guyton

Literature Regarding Genes and Pseudoautosomal region of X chromosome are collected from Genetics books of V.Kapur and Prof AK Datta

Signs & Symptoms of IPEX syndrome are collected from Harrison's principles of Internal Medicine.

RESULT - X chromosome of both ovum and sperm can be considered as a part of Artava which is responsible for the formations of organs formed from the mother. Twak, Kloma, Hridaya, Vrukka and Kshudrantra can be considered as organs of Matruja Bhava because abnormalities in the Skin, Pancreas, Heart, Kidney and Small Intestine are observed in mutations of **FOXP3** gene of X chromosome.

DISCUSSION: Female child retain one of their mother's X chromosomes and another from their father. Since the father retains his X chromosome from his mother, a female child has one X chromosome from her paternal grandmother (father's side) and one X chromosome from her mother. Male child retain one of their mothers X chromosome and Y chromosome from their father. Thus X chromosome can be considered as Maternal in origin. Genes of Pseudoautosomal region of X chromosomes should not be considered as maternal in origin. The Pseudoautosomal region of the sex chromosomes get their name because any genes located within them are inherited just like any autosomal genes. Males have two copies of these genes one in the Pseudoautosomal region of their Y, the other in the corresponding portion of their X chromosome. So males can inherit an allele originally present on the X chromosome of their father and females can inherit an allele originally present on the Y chromosome of their father from the pseudoautosomal region during First meiotic division during spermatogenesis. FOXP3 gene is located in the non pseudoautosomal region of X chromosome. Mutations of this gene leads to Eczema, Dermatitis, Type 1 diabetes leading to damage of Heart and Kidney and Villous atrophy of Small intestine which explains the importance of genes of X chromosome for the healthy maintenance of Skin, Pancreas, Heart, Kidney and Small intestine organs which are considered to be Matruja Bhava.

Reference

1. Vaidya Jadavaji Trikamji Acharya, editor.Commentary Ayurveda Dipika of Chakrapani dutta on Charaka samhita revised by Charaka and Dridhabala; Shareera Sthana, Khuddikam Garbhavakranthi Shareeram, Chapter 3;Verse 6.Varanasi; Chaukambha orientalia;2011.P.738,p.310
2. Vaidya Yadavaji Trikamji Acharya and Narayan Ram Acharya, editors. Commentary Nibandhasangraha of Sri Dalhanaharya and Nyaya Chandrika Panchika on Shareera Sthana on Sushrutha samhitha of Sushrutha,. Shareera Sthana; DhamaniVyakaranam Shareeram, Chapter9; Verse12; Varanasi: Chaukhambha Orientalia; 2007; P.824,p.386
3. Arthur C.Guyton & John E.Hall. Text book of Medical Physiology.10th edition. New Delhi :Elseveir India Private Limited ;2001;P.1061:894
4. Dr.V.Kapur & Dr.R.K.Suri, Basic Human Genetics. 2nd edition. NewDelhi: Jaypee brothers Medical Publishers(P) Ltd;1991;P.77,p.46 &47
5. Prof. ASIM KUMAR DATTA& Dr.BIJU C.MATHEW, ESSENTIALS OF MEDICAL GENETICS,4th edition, Kolkata: A.R.K.PUBLICATION ;2010,P.161,p6
6. Dan L Longo, Antony S Fauci, Dennis L Kasper, Stephen L Hauser, J.Larry Jameson, Joseph Loscalzo, Steven M.Holland, Carol A Langford, editors Harrison's Principle of Internal Medicene.22nd edition. Volume II; Mc Graw Hill;P.3999,p.2803

Sharira Vriddhikara Bhava and Autoimmunity: An Ayurvedic Perspective on Dhatu Integrity and Vyadhikshamatva

Dr. Likhita D. N.

Associate Professor, Department of Samhita Siddhanta and Samskrita, SDM College of Ayurveda, Hospital and Research Centre, Udupi

Abstract

Autoimmune disorders are characterized by immune responses directed against the body's own cells, tissues, or organs. Their development involves complex interactions among genetic susceptibility, environmental exposures, metabolism, tissue homeostasis, and immune regulation. Ayurveda describes the growth and maintenance of Sarira through four factors collectively known as Sarira Vriddhikara Bhava: Kala-yoga, Svabhava-samsiddhi, Ahara-sausthava, and Avighata. These factors can be examined as classical determinants of appropriate bodily development, nourishment, maturation, and maintenance.

Ayurvedic descriptions also indicate that the body's capacity to withstand disease depends on the condition of Sarira and Dhatu. Caraka identifies excessively nourished or depleted bodies, bodies inadequately established in Mamsa, Sonita, and Asthi, physically weak individuals, those nourished by unsuitable food, and those with diminished Sattva as less capable of tolerating disease. This provides a classical basis for interpreting Vyadhi Kshamatva as a broad host-level capacity to resist the establishment, progression, or severity of disease rather than as a synonym for the magnitude of immune activity alone.

This conceptual review examines the possible relationship among Sarira Vriddhikara Bhava, Dhatu integrity, Vikara Vighata Bhava, Vyadhi Kshamatva, and autoimmune disorders. It proposes that disturbance in the factors supporting appropriate tissue development and maintenance may theoretically contribute to altered tissue homeostasis and increased susceptibility to immune dysregulation. Autoimmunity represents a dysregulated defensive response involving impaired self-tolerance and inappropriate targeting of host tissues. The proposed relationship is conceptual and requires validation through clinical, physiological, and molecular research.

Keywords: Sarira Vriddhikara Bhava; Vyadhi Kshamatva; Vikara Vighata Bhava; Dhatu; autoimmune disorders; tissue homeostasis; immune regulation; self-tolerance.

Introduction

The immune system performs two apparently opposing functions: it protects the body from harmful external agents and preserves tolerance toward its own tissues. Autoimmune disease develops when mechanisms of self-recognition and immune regulation become disturbed, allowing immune responses to cause tissue injury. Accordingly, autoimmunity is more accurately understood as a disturbance of immune regulation, tissue interaction, and self-tolerance.

Ayurveda approaches health through the preservation of equilibrium and the integrity of Sarira, Dosa, Dhatu, and bodily functions. In Caraka Samhita, four factors are described as responsible for the overall growth of the body:

कात्ल्र्येन शरीरवृद्धिकरास्त्विमे भावा भवन्ति तद्यथा—कालयोगः स्वभावसंसिद्धिराहारसौष्ठवमविघातश्चेति।1 Cha. Sha 6/12

These factors are conventionally interpreted as appropriate timing, natural completion of development, proper nourishment, and absence of inhibiting or destructive influences. The relevant chapter also discusses factors associated with bodily strength and describes how food, digestion, tissue nourishment, and bodily equilibrium are interrelated.

Caraka further states:

शरीराणि चातिस्थूलान्यतिकृशान्यनिविष्टमांसशोणितास्थीनि दुर्बलान्यसात्म्याहारोपचितान्यल्पाहाराण्यल्पसत्त्वानि च भवन्त्यव्याधिसहानीति।2 Ch. Su 28/7

The verse presents certain bodily states as less capable of tolerating disease and contrasts them with bodies having the opposite characteristics. It therefore places disease resistance within the broader context of host constitution, tissue condition, nourishment, and mental strength.

This perspective is relevant to autoimmune disorders. The present review explores on relation of the factors responsible for appropriate bodily development and maintenance with the alteration in Dhatu integrity and tissue homeostasis which influence immune regulation.

The central proposition is that Sarira Vriddhikara Bhava may be understood as supporting host resilience through appropriate Dhatu development and maintenance. Disturbance of these factors may theoretically alter the tissue environment and, in a susceptible individual, contribute to immune dysregulation and impaired self-tolerance.

Materials and Methods

Study design

This study is a conceptual narrative review based on classical Ayurvedic literature and contemporary biomedical concepts relevant to autoimmunity and tissue homeostasis. Primary emphasis was placed on relevant passages from the Caraka Samhita concerning: Sarira Vriddhikara Bhava, Factors responsible for bodily strength, Dhatu development, nourishment, equilibrium, Svabhava-samsiddhi,

Svabhavoparama Ahara-saushtava and food transformation, Viruddhahara and inappropriate dietary practices, Avighata and factors that interfere with bodily maintenance, Vikara Vighata Bhava, Vikara Vighata Abhava, Vyadhi Kshamatva and Avyadhi-sahatva. The cited Caraka passages describe Sarira Vriddhikara Bhava and explain the relationship among diet, tissue equilibrium, bodily constitution, and capacity to withstand disease.

Contemporary concepts considered for comparison included: Immune tolerance and self-tolerance, Tissue homeostasis, Cellular formation, Nutritional and metabolic influences on immune regulation, environmental susceptibility to autoimmune disease.

Method

A comprehensive literary review was undertaken to explore the Ayurvedic concepts of Sarira Vriddhikara Bhava, Vyadhi Kshamatva, and Vikara Vighata Bhava. The relevant references to these terms and their associated concepts were identified from the Bṛuhat Trayi, comprising the Caraka Saṃhita, Sushruta Saṃhita, and Aṣṭanga Hridaya. The retrieved textual references were critically examined with their respective commentarial interpretations. The concepts were subsequently compared and analyzed to identify their conceptual similarities, differences, interrelationships, and their possible sequential or complementary roles in maintaining physiological integrity and resistance to disease. The analysis was primarily based on textual interpretation and conceptual synthesis of the classical Ayurvedic literature.

Ayurvedic and biomedical concepts were compared at the level of broad physiological principles, such as maintenance, nourishment, regulation, resilience, disease susceptibility and destruction. No Ayurvedic term was treated as a direct one-to-one equivalent of a specific immune cell or clinical diagnosis.

Literary Review

Sarira Vriddhikara Bhava

The four Sarira Vriddhikara Bhava may be organized as follows:

Ayurvedic factor	Conceptual significance	Possible relevance to host resilience
Kala-yoga	Appropriate time and sequence of development	Supports orderly maturation and functional organization
Svabhava-samsiddhi	Natural completion of developmental processes	Supports maturation, maintenance, and physiological turnover
Ahara-saushtava	Proper quality, quantity, transformation, and utilization of food	Supports nourishment and maintenance of Dhatu
Avighata	Absence of factors that obstruct or damage development and maintenance	Absence of disturbance protects tissue integrity.

The Caraka Samhita presents these factors as supporting overall bodily growth. The same chapter separately identifies factors that promote strength, including excellence of food, physique, adaptability, mental qualities, exercise, youth, and natural developmental completion. This broader context suggests that growth and strength are related but not identical constructs.

Kala-yoga

Kala-yoga indicates the importance of appropriate timing. Development is not simply a matter of increasing material or accelerating growth; it involves a sequence of formation, differentiation, maturation, and functional organization. Conceptually, appropriate Kala may be associated with:

- Sufficient duration for development.
- Orderly progression of maturation.
- Coordination among developing tissues.
- Appropriate adaptation to age and season.

Disturbance in developmental timing could theoretically influence tissue organization and later physiological regulation. However, disruption of developmental timing may influence tissue maturation or regulatory capacity in ways that deserve investigation.

Svabhava-samsiddhi

Svabhava-samsiddhi may be understood as the natural completion of developmental processes. The body is not static; it undergoes continuous formation, maturation, maintenance, transformation, and decline.

The related concept of Svabhavoparama [3] emphasizes that natural cessation or destruction is an inherent aspect of embodied existence. In conceptual terms, formation and removal are linked processes. Contemporary biology similarly recognizes that tissue homeostasis depends on regulated cellular proliferation, differentiation, turnover, apoptosis, and clearance.

This comparison offers a framework for asking whether disturbed formation or clearance could alter tissue homeostasis and affect immune recognition.

Ahara-saushtava

Ayurveda gives central importance to food, its transformation, and its utilization. Caraka states:

> परिणमतस्त्वाहारस्य गुणाः शरीरगुणभावमापद्यन्ते
> यथास्वमविरुद्धाः। विरुद्धाश्च विहन्युर्विहताश्च विरोधिभिः शरीरम्॥
>
> 4 Ch. Sha 6/16

The present reference emphasizes that the qualities of properly transformed food contribute to bodily qualities, whereas (Viruddha Ahara) incompatible or improperly processed factors may impair the body. The relevant process therefore includes more than the quantity of food; it includes digestion, transformation, assimilation, compatibility, timing, and individual suitability.

The Caraka Samhita also describes food transformation as contributing to nourishment, strength, complexion, health, longevity, and tissue maintenance. Inappropriate dietary timing, quantity, combinations, or habitual intake may theoretically disturb this process. Examples discussed in Ayurvedic literature include Akala-bhojana (untimely food habits), Adhyashana (eating food before digestion of previous meal), Samashana (intake of healthy and un-healthy food together)[5] , and Viruddhahara (foods which disturbs Dosha but does not expel them out)[6] . These should be investigated as potential influences on metabolism, tissue maintenance, and immune regulation rather than declared direct causes of autoimmunity.

Avighata

Avighata refers to the absence of factors that obstruct or damage bodily growth and maintenance. It may include freedom from excessive depletion, inappropriate exertion, persistent physiological disturbance, and other influences that interfere with normal function.

Caraka describes the effect of psychological and behavioural factors on digestion:

मात्रयाप्यभ्यवहृतं पथ्यं चान्नं न जीर्यति।

चिन्ता शोक भय क्रोध दुःखशय्या प्रजागरैः॥ 7Ch. Vi. 2/9

When wholesome food taken in an appropriate quantity, it may not be properly digested in the presence of worry, grief, fear, anger, distress, disturbed sleep, or excessive wakefulness.

It supports a unique view that diet, mental state, sleep, digestion, and tissue maintenance are interconnected. Contemporary research may examine whether persistent stress and sleep disturbance influence immune regulation or tissue homeostasis in individuals at risk of autoimmune disease.

Discussion

Dhatu Integrity and Vyadhi Kshamatva

The four Vriddhikara Bhava may collectively be viewed as supporting proper formation and maintenance of Dhatu: Kala-yoga provides appropriate developmental timing, Svabhava-samsiddhi supports natural maturation and turnover, Ahara-saushtava provides nourishment and material support, Avighata reduces destructive interference.

When these factors operate appropriately, they may contribute to tissues that are structurally and functionally resilient. Conversely, disturbance may theoretically result in deficient, excessive, irregular, or poorly maintained tissue states.

The Caraka description of bodies that are Ati-sthula, Ati-krisha, inadequately established in Mamsa, Sonita, and Asthi, physically weak, nourished by Asatmya-ahara, inadequately nourished, or associated with low Sattva provides a classical basis for linking tissue condition with disease tolerance.

Vyadhi Kshamatva

Vyadhi Kshamatva should not be restricted to a direct equivalent of modern immunity. It may be understood more broadly as the capacity of the host to: Resist the initiation of disease, Prevent or delay disease establishment, Limit disease progression, Tolerate pathological influences, Preserve functional integrity during illness.

The Caraka account in Sutra Sthana 28/7 is especially important because it states that not all bodies possess equal disease resistance and that bodily condition influences whether a disease becomes mild, severe, rapid, or chronic. The disease expression depends not only on the intensity of external cause but also on the susceptibility and resilience of the host.

Vikara Vighata Bhava–Abhava8

When the pathogenic influence (Cause) is weak on the Dhatu (tissues exposed to the cause), resistance is observed and disease may not manifest. This may be described conceptually as Vikara Vighata Bhava. When the causative factors are sufficiently strong and the tissue-Dushya is susceptible (low tolerance), Vikara Vighata Abhava may be considered.

This framework does not imply that a strong Dhatu prevents every disease. It indicates that disease expression is conditional and depends on the relationship between causative factors and host resistance.

Autoimmunity and the Ayurvedic Framework

A protective system requires at least two capacities:

8. The ability to respond against harmful external factors.
9. The ability to preserve and tolerate the body's own tissues.

In autoimmune disease, immune activity may remain strong or excessive in particular pathways, while self-tolerance and regulatory control are impaired. Therefore, autoimmunity should not be interpreted as increased Vyadhi Kshamatva. It is better understood as dysregulated defense in which protective mechanisms become misdirected toward the host. Vighata occurring during the formation and development of Sarira may be considered a potential contributing factor in the pathogenesis of autoimmune disorders. Genetic susceptibility, infections, environmental exposures, medications, sex, age, hormonal factors, metabolism, and other influences may interact with tissue and immune regulation. The Ayurvedic factors should therefore be considered possible upstream determinants of host resilience.

Kala-yoga and immune regulation

Appropriate timing is relevant to biological development because tissues undergo sequential proliferation, differentiation, maturation, and remodeling. Disturbance of these processes may theoretically influence the functional organization of tissues and their interaction with regulatory systems.

The Ayurvedic principle of Kala-yoga may therefore serve as a conceptual framework for studying developmental timing and tissue resilience. However, accelerated or dysregulated growth may also be considered a potential contributing factor in the development of autoimmune disorders.

Svabhava-samsiddhi, turnover, and self-tolerance

Tissue health requires balance between formation and removal. If damaged or altered cellular material is not adequately cleared, or if tissue signals are changed, the local environment may become more inflammatory or immunologically active.

Svabhava-samsiddhi and Svabhavoparama may provide philosophical frameworks for examining these processes. Unwarranted alterations in these natural physiological processes may contribute to dysregulation of cellular immune responses.

Ahara-saushtava and immune susceptibility

Ahara-saushtava provides a potential bridge between Ayurvedic tissue nourishment and contemporary study of nutrition, metabolism, intestinal physiology, and immune regulation. More the food taken more the tissues formed, less the food, less the nourishment. But food are disturbed with Adhyashana, Samashana, Viruddha Ahara may not always take out the Dosha from system. The retained Dosha may hinder the formed Dhatu- Shonita- Mamsa-Asthi. Framing compromised Dhatu. Reducing VYadhi Kshamatva. Disruption of natural physiological processes may contribute to immune dysregulation, potentially leading to an aberrant immune response in which the body's own Dhatus are recognized as targets rather than as components of self.

Avighata- Absence of hindrance

Avighata, signifying the absence of hindrance or obstruction, may be understood as the unhindered execution of physiological processes involved in the formation and maintenance of Dhatus. In a physiological state, Prakruta Vata facilitates Dhatu-vyuhana[9], which may be interpreted as encompassing both Dhatu-racana, the formation and organization of Dhatu, and Dhatu-vahana, their appropriate movement and transportation within the body.

When Vata becomes aggravated due to factors such as stress, anxiety, excessive depletion, suppression of natural urges (Vega-dharana) and other Vata-prakopaka Nidanas, its physiological regulatory functions may become disturbed. Such dysregulated Vata may adversely influence the formation, organization, nourishment and transportation of Dhatu, particularly when the Dhatu are already compromised.

Consequently, impairment in Dhatu integrity and function may reduce the body's capacity to maintain physiological homeostasis and respond appropriately to disease processes

Conclusion

Sarira Vriddhikara Bhava provides a useful Ayurvedic framework for examining the conditions required for the appropriate development and maintenance of the body. Kala-yoga, Svabhava-samsiddhi, Ahara-saushtava, and Avighata may collectively support Dhatu formation, nourishment, maturation, and functional maintenance.

Caraka's description of excessively nourished, depleted, weak, poorly nourished, structurally compromised, or psychologically diminished bodies as less capable of tolerating disease supports the view that disease resistance depends on the condition of the host and its tissues. Within this framework, Vyadhi Kshamatva is best understood as a broad capacity to resist the establishment, progression, or severity of disease, rather than as the intensity of immune activity alone.

The possible relevance to autoimmunity lies in the hypothesis that persistent disturbance of factors supporting tissue development and maintenance may alter Dhatu homeostasis and the tissue environment. In an individual with additional genetic, environmental, metabolic, or immunological susceptibility, such alterations may contribute to impaired self-tolerance and immune attack against host tissues.

The central proposition is:

Sarira Vriddhikara Bhava may contribute to Vyadhi Kshamatva through the appropriate formation and maintenance of Dhatu. Disturbance of these supporting factors may alter tissue homeostasis and, in susceptible individuals, potentially contribute to dysregulation of self-tolerance and autoimmune disease.

References

1. Acharya YT, editor, (Reprinted edition: 2017), Charaka Samhita by Agnivesha, Sarira Sthana; Sariravichaya Sariram: chapter 06, Verse 12. Varanasi: Chaukhambha Sanskrit Sansthan, 2017; 332
2. Acharya YT, editor, (Reprinted edition: 2017), Charaka Samhita by Agnivesha, Sutra Sthana; Vividhasitapitiyam: chapter 28, Verse 7. Varanasi: Chaukhambha Sanskrit Sansthan, 2017; 178
3. Acharya YT, editor, (Reprinted edition: 2017), Charaka Samhita by Agnivesha, Sutra Sthana; Cikitsaprabhritiyam: chapter 16, Verse 27. Varanasi: Chaukhambha Sanskrit Sansthan, 2017; 97
4. Acharya YT, editor, (Reprinted edition: 2017), Charaka Samhita by Agnivesha, Sarira Sthana; Sariravichaya Sariram: chapter 06, Verse 16. Varanasi: Chaukhambha Sanskrit Sansthan, 2017; 332
5. Acharya YT, editor, (Reprinted edition: 2017), Charaka Samhita by Agnivesha, Chikitsa Sthana; Grahanicikitsitam: chapter 15, Verse 235- 236. Varanasi: Chaukhambha Sanskrit Sansthan, 2017; 525
6. Acharya YT, editor, (Reprinted edition: 2017), Charaka Samhita by Agnivesha, Sutra Sthana; Atreyabhadrakapiya: chapter 26, Verse 81. Varanasi: Chaukhambha Sanskrit Sansthan, 2017; 149
7. Acharya YT, editor, (Reprinted edition: 2017), Charaka Samhita by Agnivesha, Vimana Sthana; Trividhakukshiyam: chapter 2, Verse 9. Varanasi: Chaukhambha Sanskrit Sansthan, 2017; 238
8. Acharya YT, editor, (Reprinted edition: 2017), Charaka Samhita by Agnivesha, Nidana Sthana; Pramehanidanam: chapter 4, Verse 4. Varanasi: Chaukhambha Sanskrit Sansthan, 2017; 212
9. Acharya YT, editor, (Reprinted edition: 2017), Charaka Samhita by Agnivesha, Sutra Sthana; Vatakalakaliya: chapter 12, Verse 8. Varanasi: Chaukhambha Sanskrit Sansthan, 2017; 79

Monograph on a Potent Immunomodulatory Herb: Journey from Traditional Practice to the Scientific Laboratory

Dr. Mallya Suma, Dr. B. N. Satish

Department of Dravyaguna, SDM College of Ayurveda, Hospital and Research Centre, Kuthpady, Udupi

Introduction

Habenaria longicorniculata J. Graham from family *Orchidaceae*, are tuberous herbs, endemic to peninsular India, found commonly at foot hills and slopes amongst grasses. The underground tubers are widely used by traditional *Vaidyas* in the treatment of malignancy as a rejuvenator. These are also said to be found adulterated for *Riddhi*, one among *Ashtavarga dravya* used as a rejuvenator. Around eight species of *Habenaria* are reported from India among which *Habenaria longicorniculata* J. Graham is one of them. It is specifically terrestrial erect herbs having 1-2 tubers and white flowers. Tubers of which are used in wasting disease, fever, disorders of blood, hemorrhage and fainting and specifically used as overall rejuvenators.

Materials and Methods

Collection and identification of sample

Tubers of *Habenaria longicorniculata* J.Graham were collected from Kodachadri hills of Udupi district, Chikmagalur, Sirsi and Chitradurga in the month of August and September, cleaned properly from extraneous matter, authenticated and sample preserved. (Voucher specimen No.17082201). Pharmacognostic study, Nutritional value assessment,vAntioxidant study, Cytotoxic study and In-vivo immune-modulatory activity conducted as per standard Guidelines.

Results

Macro- Microscopy

Tubers of *H. longicorniculata* J. Graham when collected freshly were 15-35 mm long and 10-25 mm thick, oval, obovate, or oblong in shape with shrunken surface, covered with numerous white hairs. Internally they were white in colour, mucilaginous to touch. When dried tubers become hard, light brown in colour.

The T.S. of tubers have shown the presence of single layered epidermis and some of the cells of which elongate and form unicellular hairs. The epidermis is followed by 8-12 layers of parenchymatous cortex. Some of the outer cortical cells of varying size exhibit presence of starch grains. A few parenchymatous cells of outer cortex contain starch grains, mostly of simple type, consisting of both small and large grains are found distributed in abundance throughout the parenchyma as well as in the epithelial cells of mucilage canals.

Figure 1: Macro-microscopy of *Habenaria longicorniculata J.Graham*

Table 1. Physicochemical standards of *Habenaria longicorniculataJ.Graham*

Parameter	Results n = 3 %w/w
Loss on drying	6.71
Total Ash	5.44
Acid Insoluble Ash	2.73
Water soluble Ash	2.19
Alcohol soluble extractive value	5.85
Water soluble extractive value	29.57

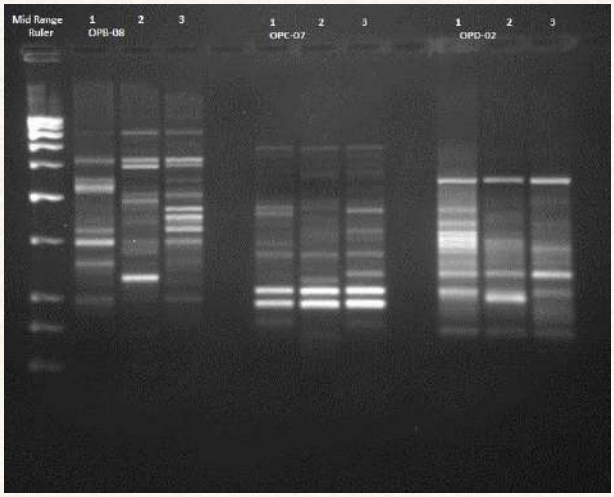
Table 2: Phytochemical constituents of *H.longicorniculata* J.Graham tubers

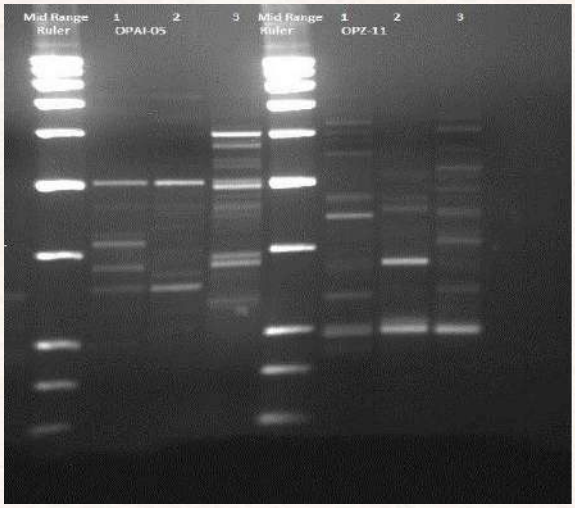
Test	*Inference*
Alkaloid	+
Steroid	+
Carbohydrate	+
Tannin	+
Flavanoids	-
Saponins	+
Terpenoid	-
Coumarins	-
Phenols	-
Carboxylic acid	-
Amino acids	-
Resin	-
Quinone	-

Molecular markers by RAPD techniques

Three species of *Habenaria longicorniculata* J.Graham, *Habenaria plantaginea* Lindl., and *Habenaria crinifera* Lindl., were collected from their natural habitat. RAPD analysis was conducted after DNA extraction. OPB-06, OPAI-05and OPZ-11 primers resulted in RAPD patterns that differentiated the three samples very clearly.

Figure 2.RAPD - OPB, OPC, OPD; RAPD - OPAI, OPZ





Note: Ruler-mid range ruler ranging from 0.1, 0.2, 0.3, 0.6, 1, 1.5, 2.0, 2.5, 3.0&3.5kb

Anti- oxidant activity

Antioxidant activity of *H. longicorniculata* J. Graham tuber extract was evaluated by in-vitro Hydrogen peroxide assay, which showed scavenging capacity of 68.6189µg/ml.

Acute Oral Toxicity

Data obtained from the study on single dose administration of *Habenaria longicorniculata* J. Graham oral administration up to 14 days of observation period on Albino rats does not result in any physical and behavioral changes. The test drug did not produce any mortality up to the dose of 2000mg/kg per oral which is equivalent to 22.4g total dose for a human being weighing 70 kg man. Thus it can be concluded that the test drug is without any toxic potential even at the dose of 2000mg/kg in animals equivalent to 22.4g for human being.

Table 3. Nutritional content of *Habenaria longicorniculata* J. Graham

Parameter	***Results n = 3 %w/w***
	Habenaria longicorniculata
Fat	3.15
Fibre	2.15
Carbohydrate	13.46
Protein	4.15

Cell Line Studies

In-vitro cytotoxicity of *Habenaria longicorniculata* J Graham was tested against MCF 7, HepG2 and HeLa cell line. The test substance, Tuber ethanolic extract exhibited a CTC_{50} value of >1000 on MCF 7, HepG2 and HeLa cell lines.

MTT assay on cancer Cell line:

Tuber ethanolic extract showed results for MCF 7 Human breast carcinoma cells at the test concentration of 1000µg/ml - 37.34% and at 500 µg/ml - 32.87% of cytotoxicity inhibition respectively. For HepG2 Human Liver carcinoma cells at the test concentration of 1000µg/ml - 33.07% and at 500 µg/ml - 24.75% of cytotoxicity inhibition. Whereas for HeLa Human Cervical adenocarcinoma cells at the test concentration of 1000µg/ml - 45.81% and at 500 µg/ml - 41.74% of cytotoxicity inhibition respectively.

Immunomodulator activity by Humoral antibody formation

Experimental study was designed on *Wistar albino rats* for assessment of immunity by Humoral anti-body formation using Sheep red blood cells (SRBC) as antigen. Effect of Tubers on Humoral antibody formation against SRBC showed very significant increase in the antibody titer when compared to the SRBC control group. Percentage of change in test group showed 134% increase when compared to SRBC control group which is statistically significant at $P<0.01$.

Overall results reflect that, tubers showed significant stimulation of the anti-body formation. Antibody formation represents expression of Humoral immunity; hence based on the results obtained it can be inferred that test drug Tubers of *H. longicorniculata* J Graham have moderate to high immune enhancing effect.

Discussion and Conclusion

Habenaria longicorniculata J.Graham, belongs to family *Orchidaceae,* tubers used by traditional practitioners to enhance immunity. Hence a work carried out prepare its monograph with evident scientific researches. Pharmacognostical study revealed their standard features along with RAPD markers. Tubers showed potent antioxidant property and as prime source of Carbohydrate and Protein. Toxic dose was determined through acute toxicicty and cell line method. Tubers have shown positive result on MCF 7 (Human breast cancer), Human Liver carcinoma (HepG2), and Human cervix adenocarcinoma (HeLa) cells by MTT assay. In-vivo Immunomodulatory activity by Humoral Anti-body formation showed significant stimulation of the anti-body formation. Thus drug proved as best immune modulator along with evident research data.

Bibliography

1. Handa, S.S. 1986. In: Vij S.P, editor. Biology, conservation and culture of orchids. New Delhi: East West Press, pp.89-100.
2. Graham, J. 1839. A catalogue of the plants growing in Bombay and its vicinity. Government Press, Bombay, p.202.
3. Kirtikar, K.R. and Basu, B.D. 1981. An ICS. Indian medicinal plants, 2nd ed. Dehradun, India: International Book Distributor, pp.2399-2415.
4. Roy, A.R., Patel, R.S., Patel, V.V. and Yadav, D.S. 2007. Medicinal Orchids of Meghalaya.*J. Orchid Soc. Ind*. 21: 15-27.
5. **5. Quality control methods for medicinal plants. Geneva: World Health Organization; 1998; p25-8**
6. **6. MukharjeePulok K, Quality Control of Herbal Drugs; New Delhi: Business Horizons; 2002; p68**
7. Satish B N, Mallya Suma V; Evident experimental data of Habenaria longicorniculata J Graham. On Cell mediated immunity- promising source of herbal immunomodulator; International Journal of Ayurvedic Medicine, 2022, Vol 13 (2), 508-510
8. BN Satish, Mallya Suma V, Pharmacological updates on humoral immunity of Habenaria longicorniculata J Graham on Wister Albino Rats. 2021 IJRAR October 2021, Volume 8(4), E-ISSN 2348-1269.

A Case-Based Reflection on the Role of Shodhana Karma and Shamana Aushadhi in the Management of Childhood Scalp Psoriasis

Dr. Nagaratna S. Jartarghar

Associate Professor, Department of PG Studies in Kaumarabhritya, SDM College of Ayurveda, Hospital and Research Centre, Kuthpady, Udupi

Introduction

Childhood is a period of growth, exploration and discovery, and maintaining healthy skin is an important part of a child's overall well-being. Psoriasis is a chronic, immune-mediated, papulosquamous disorder of the skin characterized by well-demarcated erythematous plaques with silvery-white scaling, resulting from hyper proliferation and abnormal differentiation of keratinocytes along with dermal inflammatory infiltration[1]. Pediatric onset, though less frequent than adult-onset disease, is increasingly recognized, and scalp involvement is among the most common and distressing presentations in children owing to visible scaling, itching, and secondary bleeding from scratching[2]. Scalp involvement is reported in nearly half of pediatric psoriasis cases at presentation (46.8%) in population-based data[3], rising to about 79% when assessed as a lifetime history in children with plaque psoriasis, making the scalp one of the most common and persistently affected sites in the pediatric age group[4].

Contemporary management options for scalp psoriasis in children are largely limited to topical corticosteroids, keratolytic agents, tar-based shampoos, and, in refractory disease, phototherapy or systemic agents — all of which carry limitations of relapse on discontinuation, cutaneous atrophy, and restricted long-term use in children[5]. Ayurveda describes similar cutaneous conditions under the broad umbrella of *kushtha roga*, with lesions dominated by *kandu* (itching), *twak vaivarnya* (discolouration), and *twacha daurbalya* (thin, scaly skin) corresponding to conditions such as *Eka Kushtha* and *Kitibha Kushtha*. Classical texts attribute the Samprapti (pathogenesis) of *Kushtha* to vitiation of *Vata, Kapha*, and *Rakta* involving the *twak, rakta*, *mamsa,* and *lasika dhatu*, precipitated by *Nidana* such as *Virudhahara* (incompatible food combinations) and *Matsya Sevana* (fish intake)[6] — factors that were notably present in the index case.

Ayurvedic management of *Kushtha* classically follows a *Shodhana*-predominant approach, since *Kushtha* is considered a *rakta pradoshaja vyadhi* requiring *rakta shodhana* in addition to *dosha shamana*[7]. This case report documents the clinical presentation, Ayurvedic assessment, and outcome of a *Shodhana* based treatment protocol — comprising *Snehana, Swedana*, and *Virechana Karma* supported by *Shamana Aushadhi* — administered to a six-year-old child with moderate scalp psoriasis, with the aim of highlighting the supportive and corrective role Ayurveda may play in pediatric psoriasis management.

Case Presentation

A six-year-old female child, first product of a non-consanguineous marriage, was brought by her mother to the outpatient department of Kaumarabhritya, SDM Ayurveda Hospital, Udupi, with complaints of dry, white, scaly flakes and reddish, thick, elevated skin lesions over the scalp, associated with moderate itching leading to oozing of fresh blood over specific regions, dandruff, and visible lice on the hair since three years of age.

History of Present Illness

The child was reportedly normal until three years of age. While shaving the child's head, the mother first noticed a reddish, circumscribed, elevated skin lesion greater than 0.5 cm in diameter over the nape of neck and some regions of the head during regrowth of hair, which subsequently developed into an abnormal rough layer of skin with silvery scaling and reddish discoloration. This was initially mistaken for dandruff. Over time, the white scaly flakes worsened and red, thick, elevated, circumscribed lesions spread over the scalp with associated itching; scratching produced fresh bleeding over specific sites, and irregular dandruff persisted. The family consulted multiple hospitals and received internal and external (topical) medications, with symptomatic relief on treatment, but on discontinuation of the medicines symptoms relapsed. Lice infestation of the scalp was also noted by the mother. For persistence of these complaints, the child was brought to our hospital, ***Aggravating factors:*** Intake of chicken, fish, curd, prawns, brinjal, and crab worsened itching; sun exposure precipitated new lesions. ***Relieving factor:*** Symptomatic relief was noted on regular use of a external applications.

Personal History

- Bowel: Constipated
- Appetite: Good
- Micturition: Painful & burning during micturation
- Sleep: Sound
- Diet: Mixed diet; fond of packed and bakery food items

Ayurvedic Clinical Assessment

- *Nidana* (causative factors): intake of excess salt, pickles, *Matsya Sevana* (fish intake) followed by curds etc *viruddhaaahara*, processed foods and junk.

- *Poorvaroopa* (prodrome*): Kandu* (itching), *Darunaka* (scalp scaling/dandruff).
- *Roopa* (presenting features): *Kandu* (itching), *raktavarna mandala, vivarnata, srava*.

Samprapti Ghataka (Components of Pathogenesis)

Component	Findings
Dosha	*Kapha pradhana pitta vata*
Dushya	*Rasa, Rakta*
Agni	*Jatharagni and DhatvagniMandya*
Ama	*Jatharagnimandyajanya*
Srotas	*Rasavaha, Raktavaha*
Srotodushti	*Sanga*
Rogamarga	*Bahya*
Adhishthana	*Twak*
Udbhavasthana	*Amashaya*
Vyaktasthana	*Shiras*
Rogavastha	*Chirakari*
Sadhyasadhyata	*Krichrasadhya*

Ashtasthana Pareeksha:

Parameter	Finding	Parameter	Finding
Nadi	*Kapha-Vata*	*Druk*	*Prakruta*
Mala	*Malabhaddata*	*Akruti*	*Madhyama*
Mutra	*Alpa Mutra*	*Shabda*	*Prakruta*
Jihva	*Alipta*	*Sparsha*	*Anushna-Sheeta, Khara*

Dashavidha Pareeksha:

Parameter	Assessment	Parameter	Assessment
Prakruti	*Vata-Kapha*	*Satmya*	*Madhyama*
Vikruti	*Kapha-pradhanaTridosha*	*Ahara Shakti*	*Madhyama*
Sara	*Madhyama*	*Vyayama Shakti*	*Madhyama*
Samhanana	*Madhyama*	*Pramana*	*Madhyama*
Satva	*Madhyama*	*Vaya*	*Baala*

General Examination

Parameter	Value
Built	Moderate
Nourishment	Moderately nourished
Gait	Normal
Posture	Normal
Pallor	Absent
Icterus	Absent
Cyanosis	Absent
Clubbing	Absent
Lymphadenopathy	Absent
Edema	Absent
Temperature	98.6°F
Pulse	110/min
Respiratory rate	24/min

Systemic Examination

- CVS: S1, S2 heard; no murmur
- RS: Normal vesicular breath sounds; no adventitious sounds
- CNS: Cranial nerves intact; conscious and well oriented to time, place, and person
- GIT: Abdomen soft, non-tender; no organomegaly

Local Examination

- Presence of red, thick, elevated, circumscribed skin lesion over the back of the head
- Dandruff present
- Dry, scaly white flakes seen
- Lice noted over the scalp
- No scaly lesions were noted over the trunk/abdomen (Koshta), and no abnormality was found over the extremities (Hasta-Pada).

Integumentary System Examination

Parameter	Finding
Primary lesion	Papule
Secondary lesion	Plaque
Site of onset	Scalp
Site of progression	Over the scalp and above the nape of the neck

Parameter	Finding
Size	No specific size; individual lesions ranging 4–8 cm
Boundary	Few well-demarcated, few irregular
Type of lesion	Secondary scaly, erythematous plaque
Surface	Dry
Onset	Chronic
Progression	Gradual
Duration	3 years
Course	Progressive
Aggravating factor	Intake of fish, chicken, seafood
Relieving factor	Use of topical medicines
Itching	Moderate
Nail	No abnormality
Tenderness at lesion site	Absent
Sensation at lesion site	Intact

Specific signs

Signs	Value
Candle grease sign	Positive
Auspitz sign	Positive
Koebner phenomenon	Positive

Treatment (ChikitsaYojana)

The child was admitted in the inpatient department and managed with the following Shodhana and shamana Ayurveda protocol:

Day / Date	Intervention
30/10/2025 and 31/10/2025 *Purva karma*	*Chitrakadi vati* 1Tid
Day 1 (01/11/2025)	*PravichananaSnehapana – MahatiktakaGhrita 25 ml*
Day 2 (02/11/2025)	*PravichananaSnehapana – MahatiktakaGhrita 25 ml*
Day 3 (03/11/2025)	*PravichananaSnehapana – MahatiktakaGhrita 25 ml*
Day 4 (04/11/2025)	*PravichananaSnehapana – MahatiktakaGhrita 25 ml*
Day 5–7 (05–07/11/2025)	*Sarvanga Abhyanga* with '777' oil + Psorahaerb oil, followed by *Nimbakaranja Patra Parisheka*, for 3 days
Day 7 (07/11/2025) *Pradhana Karma*	*Virechana Karma* with *Manibhadra Guda* 5 g administered with warm water.
Day 1–7 (throughout admission)	*Shiro Abhyanga* with Psora herb oil + '777' oil, followed by *Nimbakaranja Patra Parisheka*, for 7 days
Vegas & Shuddhi	*Madhyamashuddhi* with 5 Vegas & *pittanta*
Samsarjana Krama Paschat Karma	Administered for 3 days in a sequential manner with *Peya, Vilepi, Krita and AkritaYusha.*

Shamana Aushadhi (Discharge Medications, for 7 days)

Medication	Dosage/Schedule
Tab. GandhakaRasayana	1-1-1, after food
Tab. Panchatiktaka GugguluGhrita	1-0-1, twice daily, before food
Khadirarishta	5 ml twice daily with 5 ml water, after food
NarasimhaRasayana	5 g, twice daily
Psoraherb Oil + DhurdhurapatradiTaila	Local application over scalp

Observation and Results

Following the *Virechana karma*, the child showed marked reduction in the erythema, induration, and desquamation of the scalp plaques as compared to the admission. Active itching and bleeding on scratching resolved, dandruff reduced considerably, and the parents reported improved bowel movement along with relief from pain and burning during micturation. *Virechana Karma* was well tolerated, with Five Vegas of soft, yellowish stool. The child was discharged in stable general condition on *shamana aushadhi* with dietary and lifestyle changes, (*pathya-apathya*), advised follow-up after 1 week. During the follow up there was complete resolution of the lesion, erythema, itching and plaques completely reduced.

PSSI-Based Scalp Severity Score

As the lesions were localized to the scalp, a region-specific Psoriasis Area and Severity Index (PSSI) scoring — originally

described to grade erythema, induration, and desquamation in Scalp psoriasis and subsequently adapted for site-specific scalp assessment in clinical studies [8] — was applied to grade the scalp lesions.

Parameter	Score (0–4) Before treatment	Score (0–4) After treatment	Score (0–4) Follow up
Erythema	3	1	0
Induration	2	1	0
Desquamation	3	1	0
Total score (pre-treatment)	8/ 10 **PSSI = (3 + 2 + 3) × 3 = 24** **Baseline PSSI = 24**	3/10 **PSSI = (1 + 1 + 1) × 2 = 6** **Baseline PSSI = 6**	0/10 **PSSI = (0 + 0 + 0) × 0 = 0** **Baseline PSSI = 0**

Discussion

Chitrakadi Vati was administered prior to *Snehapana* to stimulate the *Jatharagni* and facilitate *Ama Pachana*. Its *Deepana* and *Pachana* properties, supported by its *Laghu*, *Ruksha*, and *Ushna Gunas*, help digest accumulated *Ama*, enhance metabolic activity, and prepare the digestive system for effective *Snehapana*[9]. *Snehapana*, as a *Purvakarma*, was given prior to *Shodhana*, internal administration of medicated *Ghrita* helps mobilize vitiated *Doshas* from *Twak* and *Rakta Dhatu* into the *Koshta* for elimination. It also softens lesions, enhances *Sroto-shodhana*, improves *Agni*, and prepares the body for effective *Shodhana* therapy[10]. *Mahatiktaka Ghrita*, with its *Tikta Rasa*, *Madhura Vipaka*, and *Ushna Virya*, was considered ideal for *Snehapana* in this case, it has *Rakta-shodaka*, *Kushtaghna*, *Kandughna*, and *Varnya* properties[11]. Hence *Snehapana* with *Mahatiktaka Ghrita* was done for 4 days, as the child had aversion towards the *ghrita* so it was given in the form of *pravicharana sneha* which the child tolerated well. *Abhyanga* with psora herb oil and 777 oil followed by *Nimba* and *Karanja Patra Parisheka* was done locally and to the whole body, psora herb oil and 777 oil are indicated in *Kushta, Kandu*, and *Rakta Dushti*[12], while *Nimba* and *Karanja* leaves help relieve *Kandu* and are *Tvak Prasadaka*[13] in nature. *Parishekasweda* in psoriasis helps soften thickened plaques, reduce scaling, and relieved itching through vasodilation, improving circulation and metabolic activity there by pacifying *Kapha pitta*. It also helps in enhancing overall skin health[14]. In case of *Kushta*, *Virechana* with *Manibhadra Guda*, helps to eliminate vitiated Pitta Kapha and purify Rakta, Its *Rechana* effect not only clears the gut but also purifies *Raktadhatu*, reducing itching & scaling[15]. Being mild & palatable, *Manibhadra Guda* was considered safe for paediatric use, ensuring effective *Shodhana* with minimal discomfort. After *Virechana*, *Saṃsarjana Krama* is essential to rekindle *Agni* and restore digestive strength. By gradually shifting from *Peya* to normal diet, it prevents *Agni-mandya* and ensures the stability of *Shodhana* effects in pediatric *Kitibha Kushta*.

***Shamanoushadhi*:** Gandhaka Rasayana is described as *Kushthaghna, Kandughna, Krimighna* and *Rasayana*; helps in Twak Shodhana and pacifies vitiated Pitta-Kapha[16]. Panchatiktaka Guggulu Ghrita having Predominantly *Tikta-Kashaya rasa*, with *Pitta-Kaphashamana*, *Kushthaghna, Shothahara and Raktaprasadana* properties. Ghrita supports Snehana and nourishment of tissues[17]. *Khadira* is mentioned as *Kushthaghna, Kandughna and Raktashodhaka*. It helps pacify Kapha-Pitta and supports management of TwakVikara[18]. Narasimha Rasayana is a *Rasayana* formulation that supports the deeper absorption and assimilation of active ingredients administered after *Shodhana*. It helps promote tissue rebuilding and supports *Dhatu Poshana*, particularly of *Twak* and related tissues. By enhancing overall tissue nourishment, it may contribute to maintaining healthy skin and hair[19].

Conclusion

This case highlights the potential of a *Shodhana* based Ayurvedic therapeutic protocol, incorporating *Snehana, Swedana, and Virechana Karma*, along with *Shamana Aushadhi* and appropriate *Pathya Apathya* recommendations, in achieving clinically meaningful improvement in a pediatric patient with moderate scalp psoriasis refractory to previous conventional treatment. However, larger case series and well-designed comparative studies are warranted to further substantiate its clinical efficacy, safety, and applicability in pediatric psoriasis.

References

1. Griffiths CEM, Barker JNWN, Bleiker T, Chalmers R, Creamer D, editors. Rook's Textbook of Dermatology. 9th ed. Oxford: Wiley-Blackwell; 2016. Chapter 35, Psoriasis.
2. Paller AS, Mancini AJ. Hurwitz Clinical Pediatric Dermatology: A Textbook of Skin Disorders of Childhood and Adolescence. 5th ed. Philadelphia: Elsevier; 2016. Chapter 4, Psoriasis.
3. Tollefson MM, Crowson CS, McEvoy MT, Maradit Kremers H. Incidence of psoriasis in children: a population-based study. J Am Acad Dermatol. 2010;62(6):979-87.
4. Mercy K, Kwasny M, Cordoro KM, Menter A, Tom WL, Korman N, et al. Clinical manifestations of pediatric psoriasis: results of a multicenter study in the United States. 2013;30(4):424-8.

5. Griffiths CEM, Barker JNWN, Bleiker T, Chalmers R, Creamer D, editors. Rook's Textbook of Dermatology. 9th ed. Oxford: Wiley-Blackwell; 2016. Chapter 35, Psoriasis: Management.

6. Agnivesha. Charaka Samhita, revised by Charaka and Dridhabala, with Ayurveda Dipika commentary of Chakrapanidatta. Acharya YT, editor. Varanasi: ChaukhambhaSurbharati Prakashan; reprint 2015. Nidana Sthana, Kushtha Nidana Adhyaya 5.

7. Sushruta. Sushruta Samhita, with Nibandhasangraha commentary of Dalhana. Acharya YT, editor. Varanasi: ChaukhambhaSurbharati Prakashan; reprint 2014. Nidana Sthana, Kushtha Nidana Adhyaya 5; Sutra Sthana, Vranaprashna Adhyaya 24.

8. Bagel J, Duffin KC, Moore A, Ferris LK, Siu K, Steadman J, et al. The effect of secukinumab on moderate-to-severe scalp psoriasis: results of a 24-week, randomized, double-blind, placebo-controlled phase 3b study. J Am AcadDermatol. 2017;77(4):667–674.

9. Sen G. Bhaishajya Ratnavali, with Siddhiprada Hindi commentary of Siddhinandan Mishra. Varanasi: ChaukhambhaSurbharati Prakashan; reprint 2013. Grahani Chikitsa Prakarana 11 (Chitrakadi Vati).

10. Agnivesha. Charaka Samhita, revised by Charaka and Dridhabala, with Ayurveda Dipika commentary of Chakrapanidatta. Acharya YT, editor. Varanasi: ChaukhambhaSurbharati Prakashan; reprint 2015. Sutra Sthana, Snehadhyaya 13.

11. Sen G. Bhaishajya Ratnavali, with Siddhiprada Hindi commentary of Siddhinandan Mishra. Varanasi: ChaukhambhaSurbharati Prakashan; reprint 2013. Kushtharogadhikara Prakarana 54/118-124 (Mahatiktaka Ghrita).

12. Chakrapanidatta. Chakradatta, with Vaidyaprabha Hindi commentary of Indradev Tripathi. Varanasi: Chaukhambha Sanskrit Sansthan; reprint 2010. Kushtha Chikitsa Adhyaya 50 (Taila prayoga in Kushtha).

13. Sharma PV. Dravyaguna Vijnana. Vol 2. Varanasi: Chaukhambha Bharati Academy; reprint 2011. Monographs on Nimba (Azadirachta indica) and Karanja (Pongamia pinnata).

14. EPRA international journal of multidisciplinary research, a critical review of parisheka : an Ayurvedic external therapeutic procedure, volume 11, issue 8, august 2025, issn 2455-3662

15. Sharangadhara. Sharangadhara Samhita, with Dipika commentary of Adhamalla and Gudhartha-Dipika commentary of Kasirama. Shastri PP, editor. Varanasi: Chaukhambha Surbharati Prakashan; reprint 2013. Madhyama Khanda, Churna Kalpana Adhyaya 7 (Manibhadra Guda).

16. Krishna Gopal Ayurved Bhawan. Rasatantrasara evam Siddhaprayoga Sangraha. Part 2. Ajmer: Krishna Gopal Ayurved Bhawan; reprint. Chapter on GandhakaRasayana.

17. Sen G. Bhaishajya Ratnavali, with Siddhiprada Hindi commentary of Siddhinandan Mishra. Varanasi: ChaukhambhaSurbharati Prakashan; reprint 2013. Kushtharogadhikara Prakarana 54 (PanchatiktakaGuggulu Ghrita).

18. Sharangadhara. Sharangadhara Samhita, with Dipika commentary of Adhamalla and Gudhartha-Dipika commentary of Kasirama. Shastri PP, editor. Varanasi: ChaukhambhaSurbharati Prakashan; reprint 2013. Madhyama Khanda, Sandhana Kalpana Adhyaya 10 (Khadirarishta).

19. Vagbhata. Ashtanga Hridaya, with Sarvangasundara commentary of Arunadatta and Ayurvedarasayana commentary of Hemadri. Paradkar HS, editor. Varanasi: ChaukhambhaSurbharati Prakashan; reprint 2014. Uttara Sthana, Rasayana Vidhi Adhyaya 39 (Narasimha Rasayana).

IMAGES

BEFORE

AFTER

FOLLOW UP

From Biomarkers to Molecular Signatures: The Future of Autoimmune Disease Diagnosis

Dr. Naveen Chandra N. H., MSc, PhD

Senior Research Officer, SDM Centre for Research in Ayurveda and Allied Sciences, Udupi

Introduction: Autoimmune diseases represent major group of chronic disorders in which the immune system reacts against the body's own tissues. The diagnosis and monitoring of autoimmune diseases have traditionally relied on a combination of clinical presentations, imaging, histopathology and laboratory investigations. Among laboratory investigations autoimmune markers become important tool for identifying abnormal immune activity and supporting disease classification. However, conventional biomarkers generally provide information only about individual components of much complex biological process of autoimmunity. A positive autoantibody may indicate immune sensitization without necessarily reflecting the severity, prognosis or precise molecular mechanism of a disease. This indicates the need for approaches capable of examining autoimmune disease at a broader biological level. Recent advances in proteomics and metabolomics offer an opportunity to address this limitation.

Proteomics enables large scale characterization of proteins and their abundance, modifications, interactions and functional pathways in biological samples. This will provide a molecular picture of immune activation, complement pathways, cytokine signaling, tissue injury and cellular responses. In contrast metabolomics evaluates the small molecule metabolites generated through cellular and biochemical process and these metabolites represent the consequences of genetic, environmental, immune and metabolic influences. Metabolomics profiling can provide valuable information about the functional status of tissues and the organism.

Autoimmune immune markers: These are mainly antibodies or other laboratory indicators associated with abnormal immune responses. These markers can contribute to the identification and characterization of autoimmune disorders, For example, Anti-TPO and anti-thyroglobulin antibodies provide evidence of autoimmune involvement of thyroid gland. Anti-CCP is particularly useful in the evaluation of rheumatoid arthritis, while ANA and anti-dsDNA are important investigations in systemic lupus erythematosus.

Importantly, autoimmune markers should always be interpreted in conjunction with clinical findings and other laboratory investigations. A positive antibody test does not necessarily mean that an individual has an active autoimmune disease.

Important autoimmune biomarkers

Autoimmune disease	Potential biomarkers
Rheumatoid arthritis	Rheumatoid factor (RF), anti-CCP/ACPA, anti-CarP
Systemic lupus erythematosus (SLE)	ANA, anti-dsDNA, anti-Sm, anti-Ro/SSA, anti-La/SSB, C3/C4
Autoimmune thyroid disease	Anti-TPO, anti-thyroglobulin (ATG),TSH-receptor antibody (TRAb), TSI
Coeliac disease	Anti-tissue transglutaminase (Anti-tTG) IgA, anti-endomysal antibody (EMA)
Autoimmune vasculitis	ANCA
Autoimmune hepatitis	ANA, AMA, anti-smooth muscle antibody (ASMA), anti-LKM-1, anti-SLA/LP
Type 1 diabetes	Anti-GAD65, IA-2 antibody, insulin autoantibody (IAA), ZnTB antibody
Antiphospholipid syndrome	Anticardiolipin, lupus anticoagulant, anti-β2 glycoprotein I.
Pernicious anemia/autoimmune gastritis	Anti-intrinsic factor, antiparietal cell antibody
Sjorgren syndrome	Anti-Ro/SSA, anti-La/SSB, ANA, RF
Systemic sclerosis (scleroderma)	Anti-Scl-70, anticentromere, anti-RNA polymerase III
Multiple sclerosis	CSF oligoclonal IgG bands, IgG index
Autoimmune hemolytic anemia	Coombs direct & Indirect
Autoimmune thrombocytopenia	Platelet autoantibodies

Role in early and differential diagnosis: One of the important advantages of autoimmune markers is their potential role in identifying immune dysregulation at an early stage, sometimes even before the complete clinical expression of the disease. Appropriate use of autoimmune markers can provide an

opportunity for earlier recognition, closer clinical observation and timely treatment or referral.

For example, antinuclear antibody (ANA) is an important screening marker in patients suspected of having systemic autoimmune connective tissue diseases. A positive ANA particularly when associated with compatible clinical features such as persistent joint pain, unexplained fever, photosensitivity, recurrent oral ulcers may prompt further investigations for SLE or other connective tissue disorders. More specific antibodies such as anti-double-stranded DNA (anti-dsDNA) and anti-Sm can provide additional diagnostic support for SLE.

Anti-cyclic citrullinated peptide (anti-CCP) antibodies are valuable in the early evaluation of rheumatoid arthritis. The presence of anti-CCP in a patient with inflammatory joint symptoms increases the likelihood of rheumatoid arthritis and may help to distinguish from non-inflammatory cause of joint pain. Rheumatoid factor (RF) may provide additional information, although it is less specific because it can be positive in other diseases and occasionally even in healthy individuals.

Another example we can provide is anti-thyroid peroxidase (anti-TPO) and anti-thyroglobulin (ATG) antibodies in autoimmune thyroid disease. These antibodies help us to identify an autoimmune component in patients with thyroid dysfunction. Thyroid function tests establish the functional status of the thyroid gland, while autoimmune markers can help to determine whether an autoimmune process such as Hashimoto thyroiditis or Graves' disease contributing to the abnormality in a young patient presented with nonspecific symptoms such as fatigue, weight changes, menstrual irregularities, mood changes or palpitations.

Pancreatic islet autoantibodies such as GAD65 antibodies, IA-2 antibodies, insulin autoantibodies and ZnT8 antibodies can provide evidence of β cell destruction in Type 1 diabetes mellitus and their appropriate application can contribute to better classification of diabetes and selection of appropriate clinical management.

Autoimmune markers are also valuable in differentiating diseases with overlapping gastrointestinal manifestations. For example patients presenting with chronic diarrhea, abdominal bloating, recurrent abdominal discomfort, weight loss, malabsorption, nutritional deficiencies, fatigue or iron-deficiency anemia of uncertain etiology may have several possible underlying causes, including coeliac disease. In this case anti-tissue transglutaminase (anti-tTG) IgA and anti-endomysial antibodies (EMA) can support the evaluation of coeliac disease and this illustrates how an apparently nonspecific clinical presentation can be investigated further using disease associated biomarkers.

Another important application of immune markers is in autoimmune liver disease. Here detection of ANA, anti-smooth muscle antibodies (ASMA), anti-LKM-1 or anti-SLA/LP antibodies which help us to differentiate autoimmune hepatitis from viral hepatitis, metabolic liver disease and drug-induced liver injury. Similarly, anti-mitochondrial antibody (AMA) is strongly associated with primary biliary cholangitis and can assist in the differential diagnosis of cholestatic liver disease.

One more important application we can see in patients with suspected systemic vasculitis which is a group of disorders characterized by inflammation and damaged blood vessels. Here because of the nonspecific clinical manifestations, auto immune markers play an important role in establishing the diagnosis. Anti-neutrophil cytoplasmic antibodies (ANCA) are particularly useful in the evaluation of certain small vessel vasculitis. The two major antigenic specifications are PR3 (proteinase-3)-ANCA and MPO (myeloperoxidase)-ANCA. The detection of PR3-ANCA can provide important supportive evidence for granulomatosis with polyangitis (GPA) in a patient presented with persistent sinusitis, nasal crusting, or ulcers, recurrent respiratory symptoms, pulmonary nodules or infiltrates, hemoptysis and features of rapidly progressive glomerulonephritis. MPO-ANCA is particularly informative in microscopic polyangitis (MPA) and some other vasculitic disorders when a patient presents with hematuria, proteinuria, rapidly deteriorating renal function, pulmonary hemorrhage and skin manifestations.

However, autoimmune markers should not be interpreted as standalone diagnostic tests. A positive autoantibody does not invariably indicate active autoimmune disease; conversely a negative marker does not always exclude possibility of autoimmune disease. Therefore, interpretation should consider the patient's clinical history, physical findings, conventional laboratory parameters and imaging.

From single Biomarkers to Molecular profiling: The future autoimmune disease diagnosis may move from the measurement of individual biomarkers towards high dimensional molecular profiling with developing research in proteomics and metabolomics. Here the conceptual shift from "Which autoimmune marker is positive?" to "What is the molecular profile of this patient's diseases?, which biological pathway is responsible?, and how these information help in the diagnosis, prognosis and treatment?"

Integration of autoimmune markers, proteomics and metabolomics: The greatest potential lies not in replacing conventional biomarkers but in integrating different levels of biological information and this may provide a much more comprehensive molecular representation of an autoimmune disease than any individual biomarkers.

Rheumatoid arthritis provides a useful example of this transition. At present diagnosis and disease assessment is done based on RF, anti-CCP antibodies together with clinical examinations, CRP, ESR and imaging. However, these parameters fail to explain why patients with apparently similar disease may respond differently to treatment. In the future, an integrated approach could combine anti-CCP and RF with proteomic profiling to identify inflammatory and immune signaling patterns and metabolomics profiling to identify changes in lipid, protein and energy metabolism. These molecular signatures could help categorize patients into subgroups and identify pathways associated with disease progression or response to treatment.

In systemic lupus erythematosus (SLE) proteomics and metabolomics may help us to identify alteration in interferon-related proteins, inflammatory mediators and immune signaling

pathways, mitochondrial function. Combining these data with clinical findings along with conventional immune biomarkers may help us to identify molecular subtypes of SLE and shall improve prediction of disease activity and therapeutic response.

In multiple sclerosis, conventional biomarkers such as CSF oligoclonal bands indicate intrathecal immune activity. With the help of proteomics and metabolomics we can identify changes in neurofilament related inflammatory proteins, sphingolipid pathways and mitochondrial energy metabolism. Integrating these data may provide molecular picture connecting immune activation → myelin injury → neuronal damage → clinical disability.

In Hashimoto's thyroiditis also integration of proteomics and metabolomics data sets with conventional biomarkers and clinical presentation could help to distinguish the immune process from metabolic changes secondary to hypothyroidism.

PR3-ANCA and MPO-ANCA identify important autoimmune subtypes in ANCA associated vasculitis. Integrated approach help us to explain how autoantibody associated immune progress to neutrophil activation and vascular tissue injury.

Integration of these methods is not merely summation of these methods, but rather Autoantibody profile → cellular/protein signature → metabolic signature → pathway/network analysis → disease phenotype → treatment response.

Conclusion: The transition from single marker analysis to integrated molecular profiling has the potential to reshape autoimmune disease research and diagnosis. By connecting immune responses with protein networks and cellular metabolism, integrated proteomics, metabolomics approaches may provide the mechanistic depth required for precision medicine and for the development of more effective, personalized strategies for diagnosis, prognosis and therapy.

Autoimmunity and Pregnancy: An Integrative Review of Modern Immunology and Ayurvedic Perspectives

Dr. Padmasaritha K., Dr. Sakhare Prajakta Shrihari

Department of Prasuti Tantra and Stri Roga, SDM Institute of Ayurveda and Hospital, Bengaluru

Abstract

Pregnancy is a unique physiological condition in which the maternal immune system accepts a semi-allogeneic fetus while simultaneously protecting both mother and fetus against infections. Earlier pregnancy was considered an immunosuppressed state; however, current evidence demonstrates that pregnancy is an immunomodulated state characterized by dynamic interactions between innate and adaptive immune systems. The establishment of maternal-fetal immune tolerance involves uterine natural killer cells, regulatory T cells, trophoblast HLA molecules, cytokines, complement regulation, and placental immune mechanisms. Alterations in these immune pathways contribute to pregnancy complications such as recurrent miscarriage, preeclampsia, antiphospholipid syndrome, Rh isoimmunization, and autoimmune disorders.

Ayurveda describes pregnancy as a finely balanced physiological state maintained by proper nourishment of Garbha, Rasa Dhatu, Ojas, and harmonious functioning of Doshas, along with tailormade nourishment of garbhini with increased physiological needs of fetus. Concepts such as Garbhini Paricharya, Garbhasthapaka Dravyas, Rasayana, and Ojas provide a preventive and promotive approach that closely resembles the concept of immune regulation described in modern medicine. This review aims to correlate current concepts of reproductive immunology with Ayurvedic principles and highlight opportunities for integrative research.

Keywords: Pregnancy, Immunology, Maternal-fetal tolerance, Ojas, Garbha, Rasayana

Introduction

Pregnancy is a unique physiological state characterized by complex endocrine, metabolic, vascular, and immunological adaptations that support the growth and development of the fetus[1]. From an immunological perspective, pregnancy represents one of the most fascinating biological phenomena because the fetus inherits approximately half of its genetic material from the father and therefore expresses paternal human leukocyte antigens (HLA)[2], making it a semi-allogeneic graft[3]. Under normal circumstances, tissues expressing foreign antigens are recognized and eliminated by the host immune system. However, during a successful pregnancy, the maternal immune system accepts the fetus while simultaneously maintaining protection against infectious agents. This phenomenon, often referred to as the "immunological paradox of pregnancy"[4], has remained a subject of extensive scientific investigation.

The concept of pregnancy as an immunological paradox was first proposed by Sir Peter Medawar (1953), who questioned why the maternal immune system does not reject the semi-allogeneic fetus. Initially, pregnancy was believed to be an immunosuppressed state; however, advances in reproductive immunology have demonstrated that pregnancy is better described as a state of controlled immunomodulation rather than immune suppression[5]. Successful pregnancy depends on a finely regulated balance between immune activation and immune tolerance, enabling implantation, placental development, fetal growth, and parturition while preserving maternal defence against pathogens.

The maternal immune system undergoes dynamic changes throughout gestation. Early pregnancy is characterized by a controlled pro-inflammatory environment essential for embryo implantation and trophoblast invasion. During the second trimester, an anti-inflammatory milieu predominates to facilitate fetal growth and maintain maternal-fetal tolerance. As pregnancy approaches term, the immune system shifts back to a pro-inflammatory state, promoting cervical ripening, membrane rupture, and the onset of labor. These trimester-specific immunological adaptations involve coordinated interactions between innate and adaptive immune responses.

The placenta plays a central role in maintaining maternal-fetal immune tolerance[6]. Beyond its functions in nutrient exchange and endocrine regulation, it serves as an active immunological interface between the mother and the fetus[7]. Placental trophoblasts exhibit unique immunological characteristics, including selective expression of non-classical HLA molecules, which interact with decidual immune cells, particularly uterine natural killer (uNK) cells[8], macrophages, dendritic cells, and regulatory T (Treg) cells. These interactions regulate trophoblast invasion, spiral artery remodeling, placental development, and immune tolerance while preventing excessive maternal immune responses against fetal tissues. Cytokines, chemokines, complement regulatory proteins, and pregnancy-associated hormones further contribute to maintaining this delicate immune equilibrium.

Disruption of maternal immune tolerance has been implicated in the pathogenesis of several obstetric complications, including recurrent pregnancy loss, preeclampsia, fetal growth restriction, antiphospholipid syndrome, Rh isoimmunization, autoimmune diseases during pregnancy, and spontaneous preterm birth. Increasing evidence suggests that alterations in cytokine balance, impaired regulatory T-cell function, abnormal uterine NK-cell activity, complement activation, and defective trophoblast-immune interactions play significant roles in these disorders. Consequently, reproductive immunology has

emerged as an important field for understanding the mechanisms underlying normal pregnancy and pregnancy-related complications.

Although classical Ayurvedic texts do not describe immune cells or cytokines, they provide a holistic understanding of maternal health through concepts such as Vyadhikshamatva[9] (disease resistance), Ojas[10] (vital essence), Bala (strength), Garbha Sambhava Samagri[11], and Garbhini Paricharya[12] and avoiding Garbha-upaghatakara bhava. Ayurveda emphasizes that successful pregnancy depends upon the proper nourishment of the mother and fetus, balanced Agni, Doshas especially Vyana and Apana vata, healthy Dhatus especially Rasa with maintainence of Satva, and preservation of Ojas, which is considered essential for vitality, disease resistance, and fetal well-being. The concept of Vyadhikshamatva closely resembles the modern understanding of immune competence, while Garbhini Paricharya focuses on dietary, lifestyle, and therapeutic measures that promote healthy pregnancyand prevent complications. Furthermore, several Ayurvedic herbs described as Rasayana and Garbhasthapaka Dravyas, such as *Guduchi*[13] *(Tinospora cordifolia)*, *Shatavari*[14] *(Asparagus racemosus)*, *Amalaki*[15] *(Emblica officinalis)*, and *Yashtimadhu*[16] *(Glycyrrhiza glabra)*, have demonstrated antioxidant, anti-inflammatory, and immunomodulatory properties in contemporary experimental studies.

Considering the growing recognition of immune regulation as a key determinant of pregnancy outcomes, integrating modern reproductive immunology with Ayurvedic principles may provide a broader understanding of maternal-fetal health. Therefore, the present review aims to comprehensively discuss the immunological adaptations during normal pregnancy, the immunopathogenesis of major obstetric disorders, and their correlation with the Ayurvedic concepts of Vyadhikshamatwa, Ojas, Garbhini Paricharya, and Rasayana, thereby providing an integrative perspective on immunity and pregnancy.

1. Maternal Immune System During Pregnancy

Pregnancy is associated with remarkable immunological adaptations that enable the maternal immune system to tolerate the semi-allogeneic fetus while maintaining protection against infections. Earlier, pregnancy was considered a state of generalized immunosuppression; however, current evidence suggests that it is a state of immune modulation, in which the maternal immune system undergoes selective changes to support implantation, placental development, fetal growth, and successful parturition. These adaptations involve coordinated interactions between the innate and adaptive immune systems, placental trophoblasts, cytokines, hormones, and immune cells.

The maternal immune response changes throughout gestation according to the physiological requirements of pregnancy. During the first trimester, a controlled pro-inflammatory environment facilitates embryo implantation and trophoblast invasion. The second trimester is characterized by an anti-inflammatory state that promotes maternal-fetal tolerance and supports fetal growth. Towards the third trimester, the immune system shifts back to a pro-inflammatory state, contributing to cervical ripening and the initiation of labor. Thus, successful pregnancy depends on a delicate balance between immune activation and immune tolerance.

1.1 Innate Immune System17

The innate immune system provides the first line of defense against pathogens through immune cells such as neutrophils, macrophages, dendritic cells, natural killer (NK) cells, and the complement system. Besides protecting against infections, these cells play a crucial role in implantation, placentation, and maintenance of pregnancy.

Among these, uterine natural killer (uNK) cells are the predominant leukocyte population in the decidua during early pregnancy. Unlike peripheral NK cells, uNK cells exhibit low cytotoxicity and primarily regulate trophoblast invasion, spiral artery remodeling, placental vascularization, and maternal-fetal immune tolerance. Their interaction with trophoblast-expressed HLA-G, HLA-E, and HLA-C molecules is essential for normal placental development, and abnormalities in this interaction have been linked to recurrent miscarriage and preeclampsia.

Macrophages are the second most abundant immune cells in the decidua and contribute to tissue remodeling, clearance of apoptotic cells, angiogenesis, and immune regulation by secreting anti-inflammatory cytokines such as IL-10 and TGF-β. Neutrophils participate in host defence through phagocytosis and production of antimicrobial mediators, while excessive activation may contribute to inflammatory pregnancy disorders. The complement system also plays an important role in protecting against infections, but its activity is tightly regulated by the placenta to prevent immune-mediated placental damage.

1.2 Adaptive Immune System18

The adaptive immune system provides antigen-specific immunity and immunological memory through T lymphocytes, B lymphocytes, and antigen-presenting cells. During pregnancy, adaptive immunity is selectively regulated to promote fetal tolerance without compromising maternal defence against pathogens.

$CD4^+$ T helper (Th) cells differentiate into Th1, Th2, Th17, and regulatory T (Treg) cells, each producing distinct cytokines. Successful pregnancy has traditionally been associated with a shift from Th1-mediated pro-inflammatory responses to Th2-mediated anti-inflammatory responses, although recent studies indicate that a balanced interaction among Th1, Th2, Th17, and Treg cells is essential. Regulatory T (Treg) cells play a central role by suppressing maternal immune responses against fetal antigens and maintaining immune tolerance. Reduced Treg activity has been associated with recurrent pregnancy loss, preeclampsia, and other immune-mediated pregnancy complications.

B lymphocytes produce antibodies against infectious agents while generally maintaining tolerance toward fetal antigens. However, under pathological conditions such as Rh isoimmunization, maternal IgG antibodies can cross the

placenta and destroy fetal erythrocytes, resulting in hemolytic disease of the fetus and newborn.

Overall, the maternal immune system undergoes dynamic and tightly regulated adaptations throughout pregnancy. The coordinated actions of innate and adaptive immune components ensure successful implantation, placental development, maternal-fetal tolerance, and protection against infections, thereby contributing to a healthy pregnancy outcome.

2. Placental Immunology19

The placenta is a unique temporary organ that acts as the interface between the mother and the fetus. Besides its roles in nutrient transfer, gas exchange, and hormone production, it functions as an important immunological organ, maintaining maternal-fetal immune tolerance while protecting against infections.

The placenta consists of syncytiotrophoblasts, cytotrophoblasts, and extravillous trophoblasts (EVTs). Syncytiotrophoblasts, which are in direct contact with maternal blood, lack classical HLA Class I and II molecules, preventing maternal T-cell recognition and fetal rejection. In contrast, EVTs express non-classical HLA-G, along with HLA-C and HLA-E, which interact with uterine natural killer (uNK) cells to regulate trophoblast invasion, spiral artery remodeling, and immune tolerance.

The placenta also produces cytokines, growth factors, and hormones that help maintain an anti-inflammatory environment. It expresses complement regulatory proteins to prevent immune-mediated placental damage and allows the transfer of maternal IgG antibodies, providing passive immunity to the fetus.

Thus, the placenta is not only an organ of fetal nourishment but also a highly specialized immunological barrier that ensures maternal-fetal immune tolerance. Impaired placental immune regulation has been associated with complications such as recurrecurrent miscarriage, preeclampsia, fetal growth restriction, and preterm birth.

3. Maternal–Fetal Immune Tolerance20

Maternal–fetal immune tolerance is a unique physiological mechanism that enables the maternal immune system to accept the semi-allogeneic fetus while maintaining protection against infections. This tolerance is achieved through coordinated interactions between the placenta, trophoblasts, maternal immune cells, cytokines, and hormones.

A key mechanism involves the expression of HLA-G by extravillous trophoblasts, which interacts with uterine natural killer (uNK) cells and regulatory T (Treg) cells to suppress maternal immune responses and promote placental development. Additionally, trophoblasts lack classical HLA Class I and II molecules, preventing recognition by maternal T lymphocytes.

The placenta also secretes anti-inflammatory cytokines, regulates complement activation, and produces hormones such as progesterone and human chorionic gonadotropin (hCG) that support immune tolerance. Furthermore, a balanced interaction between Th1, Th2, Th17, and Treg cells is essential for maintaining a healthy pregnancy.

Thus, maternal–fetal immune tolerance is a dynamic process that ensures fetal survival while preserving maternal immune function. Disturbances in these mechanisms are associated with complications such as recurrent miscarriage, preeclampsia, and fetal growth restriction.

4. Immunology Across Pregnancy

The maternal immune system undergoes dynamic changes throughout pregnancy to support fetal development while maintaining protection against infections. These immunological adaptations vary across the three trimesters and are characterized by alternating pro-inflammatory and anti-inflammatory phases.

First Trimester:

The first trimester is a pro-inflammatory phase, essential for embryo implantation, trophoblast invasion, and remodeling of the uterine spiral arteries. Immune cells such as uterine natural killer (uNK) cells, macrophages, and dendritic cells facilitate these processes through the secretion of cytokines and growth factors.

Second Trimester:

The second trimester is predominantly an anti-inflammatory phase, promoting maternal-fetal immune tolerance and supporting rapid fetal growth. During this period, anti-inflammatory cytokines and regulatory T (Treg) cells predominate, creating a favorable environment for placental development and fetal maturation.

Third Trimester:

As pregnancy approaches term, the immune system shifts back to a pro-inflammatory state. Increased production of inflammatory cytokines contributes to cervical ripening, membrane rupture, uterine contractions, and the onset of labor. This controlled inflammatory response is essential for normal parturition.

Thus, pregnancy is characterized by a dynamic immunological balance, with carefully regulated inflammatory and anti-inflammatory responses that ensure successful implantation, fetal growth, and delivery.

5. Immunological Disorders in Pregnancy

Alterations in maternal immune regulation can disrupt maternal–fetal tolerance and contribute to various obstetric complications. Immune dysfunction involving abnormal cytokine production, impaired trophoblast function, autoantibodies, and complement activation plays a key role in adverse pregnancy outcomes.

- Recurrent Pregnancy Loss (RPL): Associated with reduced regulatory T (Treg) cells, abnormal uterine natural killer (uNK) cell function, and an imbalance between pro-inflammatory and anti-inflammatory cytokines.
- Preeclampsia: Characterized by defective trophoblast invasion, reduced HLA-G expression, abnormal uNK cell activity, and increased inflammatory cytokines such as TNF-α and IL-6.

- Antiphospholipid Syndrome (APS): Autoantibodies cause thrombosis of uteroplacental vessels, leading to recurrent miscarriage, fetal growth restriction, and stillbirth.
- Rh Isoimmunization: Maternal anti-D IgG antibodies cross the placenta and destroy fetal red blood cells, causing hemolytic disease of the fetus and newborn.
- Autoimmune Diseases: Conditions such as systemic lupus erythematosus (SLE) and immune thrombocytopenic purpura (ITP) may affect pregnancy through transplacental transfer of autoantibodies.

Thus, proper immune regulation is essential for maintaining maternal–fetal tolerance and ensuring a successful pregnancy outcome.

Ayurvedic Perspective on Immunity During Pregnancy

Ayurveda considers pregnancy (*Garbhavastha*) as a unique physiological state that requires proper nourishment, balanced Doshas, healthy Dhatus, and preservation of Ojas to ensure the well-being of both the mother and the fetus. Although the classical texts do not describe immunity in terms of immune cells or cytokines, the concepts of Vyadhikshamatva, Ojas, Bala, Garbha Sambhava Samagri, and Garbhini Paricharya closely parallel the modern understanding of immune competence and maternal–fetal immune tolerance. These principles emphasize prevention, maintenance of physiological balance, and promotion of a healthy pregnancy.

- **Vyadhikshamatva:**

Acharya Charaka defines Vyadhikshamatwa as the inherent capacity of the body to resist the onset and progression of diseases (*Vyadhi Bala Virodhitvam* and *Vyadhi Utpada Pratibandhakatvam*). It represents the body's natural defence mechanism, enabling resistance against infections and facilitating recovery from illness. During pregnancy, adequate Vyadhikshamatwa helps the mother adapt to physiological changes while protecting both maternal and fetal health. This concept closely resembles the modern concept of immune competence, where an efficiently regulated immune system maintains health without excessive inflammatory responses.

- **Ojas:**

Ojas is regarded as the essence (*Sara*) of all seven Dhatus and is considered the foundation of Bala (strength), vitality, and immunity. It is responsible for maintaining physical and mental well-being, supporting fetal growth, and enhancing disease resistance. According to Ayurveda, depletion of Ojas (*Ojakshaya*) results in weakness, increased susceptibility to diseases, and unfavourable pregnancy outcomes. From a modern perspective, Ojas can be correlated with overall immune homeostasis, reflecting the integrated functioning of the immune, endocrine, and metabolic systems.

Garbha Sambhava Samagri

Ayurveda states that successful conception and healthy fetal development depend on four essential factors, collectively known as Garbha Sambhava Samagri:

- Ritu – Appropriate fertile period
- Kshetra – Healthy reproductive organs
- Beeja – Healthy ovum and sperm
- Ambu – Adequate maternal nutrition

These factors provide an optimal environment for implantation, placental development, and fetal growth. Adequate maternal nutrition and a healthy uterine environment also support proper immune adaptation during pregnancy.

- **Garbhini Paricharya:**

Garbhini Paricharya refers to the month-wise antenatal regimen described in Ayurvedic classics, including dietary recommendations, lifestyle modifications, and behavioural practices. This regimen aims to maintain maternal health, ensure proper fetal nourishment, prevent pregnancy-related complications, and facilitate normal labour. A balanced diet rich in nutritious foods, along with proper rest and mental well-being, helps preserve Ojas and Bala, thereby supporting the body's natural defense mechanisms throughout pregnancy.

- **Rasayana and Garbhasthapaka Dravyas:**

Rasayana therapy promotes longevity, tissue nourishment, and enhancement of Vyadhikshamatva by improving the quality of Dhatus and Ojas. Similarly, Garbhasthapaka Dravyas are Ayurvedic herbs traditionally used to support pregnancy and prevent miscarriage. Medicinal plants such as Guduchi (*Tinospora cordifolia*), Shatavari (*Asparagus racemosus*), Amalaki (*Emblica officinalis*), and Yashtimadhu (*Glycyrrhiza glabra*) have demonstrated antioxidant, anti-inflammatory, adaptogenic, and immunomodulatory properties in modern experimental studies. These herbs may help maintain maternal immune balance and support healthy fetal development.

Thus, Ayurveda provides a holistic approach to pregnancy by emphasizing the maintenance of Vyadhikshamatva, preservation of Ojas, appropriate antenatal care through Garbhini Paricharya, and the use of Rasayana and Garbhasthapaka Dravyas. These concepts complement the modern understanding of maternal immune regulation and provide a scientific basis for integrative approaches in obstetric care.

Discussion

Pregnancy is a unique immunological state in which the maternal immune system maintains a balance between protecting against infections and tolerating the semi-allogeneic fetus. Rather than being immunosuppressed, pregnancy is now recognized as a state of immune modulation, involving coordinated interactions among innate and adaptive immune cells, trophoblasts, cytokines, and the placenta. Proper regulation of these mechanisms is essential for successful implantation, placental development, fetal growth, and maintenance of pregnancy.

Disruption of maternal-fetal immune tolerance has been associated with several obstetric complications, including recurrent pregnancy loss, preeclampsia, antiphospholipid syndrome, Rh isoimmunization, and autoimmune disorders. Advances in reproductive immunology have improved the understanding of these conditions and may contribute to earlier diagnosis and targeted therapeutic strategies.

Ayurveda complements this understanding through the concepts of Vyadhikshamatva, Ojas, Garbhini Paricharya, and Rasayana, which emphasize maintaining maternal strength, disease resistance, and fetal well-being. Although these concepts are described differently from modern immunology, they share the common objective of preserving physiological balance during pregnancy. Experimental studies demonstrating the immunomodulatory properties of Ayurvedic herbs such as Guduchi, Shatavari, and Amalaki further support their potential role in maternal healthcare.

Thus, integrating modern reproductive immunology with Ayurvedic principles may provide a comprehensive approach to understanding pregnancy and offers promising directions for future research in integrative obstetric care.

Conclusion

Pregnancy is a dynamic immunological state characterized by finely regulated immune adaptations that enable maternal tolerance of the semi-allogeneic fetus while preserving protection against infections. The coordinated actions of innate and adaptive immune cells, trophoblasts, cytokines, regulatory T cells, uterine natural killer cells, and the placenta are essential for successful implantation, placental development, fetal growth, and maintenance of pregnancy. Disruption of these immune mechanisms contributes to several obstetric complications, including recurrent pregnancy loss, preeclampsia, antiphospholipid syndrome, Rh isoimmunization, and autoimmune disorders.

Ayurveda provides a holistic perspective through the concepts of Vyadhikshamatva, Ojas, Garbhini Paricharya, Rasayana, and Garbhasthapaka Dravyas, which emphasize disease resistance, maternal well-being, and healthy fetal development. Although described in different terminology, these principles show meaningful parallels with the modern concept of immune regulation during pregnancy.

An integrative understanding of modern reproductive immunology and Ayurvedic principles may provide new insights into the prevention and management of pregnancy-related complications. Further evidence-based research is required to validate Ayurvedic interventions and explore their potential role in improving maternal and fetal outcomes.

References

1. Cunningham FG, Leveno KJ, Bloom SL, Dashe JS, Hoffman BL, Casey BM, Spong CY. Williams Obstetrics. 26th ed. New York: McGraw-Hill; 2022. Pg. 93
2. Konar H. DC Dutta's Textbook of Obstetrics. 9th ed. New Delhi: Jaypee Brothers Medical Publishers (P) Ltd.; 2018. Pg. 590.
3. Medawar PB. Some immunological and endocrinological problems raised by the evolution of viviparity in vertebrates. *Symp Soc Exp Biol.* 1953;7:320-338.
4. Medawar PB. Some immunological and endocrinological problems raised by the evolution of viviparity in vertebrates. *Symp Soc Exp Biol.* 1953;7:320-338.
5. Mor G, Cardenas I. The immune system in pregnancy: a unique complexity. *Am J Reprod Immunol.* 2010;63(6):425-433. doi:10.1111/j.1600-0897.2010.00836.x.
6. Nancy P, Erlebacher A. T cell behavior at the maternal-fetal interface. *Int J Dev Biol.* 2014;58:189-198.
7. Erlebacher A. Mechanisms of T cell tolerance towards the allogeneic fetus. *Nat Rev Immunol.* 2013;13(1):23-33.
8. Konar H. DC Dutta's Textbook of Obstetrics. 9th ed. New Delhi: Jaypee Brothers Medical Publishers (P) Ltd.; 2018. Pg. 590.
9. Agnivesha. Charaka Samhita. Chakrapanidatta commentary. Yadavji Trikamji, editor. Varanasi: Chaukhambha Surbharati Prakashan; Reprint edition.
10. Sushruta. Sushruta Samhita. Nibandhasangraha commentary of Dalhana. Yadavji Trikamji, editor. Varanasi: Chaukhambha Surbharati Prakashan.
11. Vagbhata. Ashtanga Hridaya. Sarvangasundara commentary of Arunadatta. Harisastri Paradakara, editor. Varanasi: Chaukhambha Orientalia.
12. Kashyapa. Kashyapa Samhita (Vriddha Jivakiya Tantra). Sharma H, editor. Varanasi: Chaukhambha Sanskrit Series.
13. Upadhyay AK, Kumar K, Kumar A, Mishra HS. Tinospora cordifolia (Guduchi): pharmacological review. *J Ethnopharmacol.* 2010.
14. Alok S, Jain SK, Verma A, Kumar M, Mahor A, Sabharwal M. Plant profile, phytochemistry and pharmacology of Shatavari. *Asian Pac J Trop Dis.* 2013.
15. Baliga MS, Dsouza JJ. Amla (Emblica officinalis): pharmacology and therapeutic applications. *Food Res Int.* 2011.
16. Pastorino G, Cornara L, Soares S, Rodrigues F, Oliveira MBPP. Liquorice (Glycyrrhiza glabra): pharmacological properties. *Phytother Res.* 2018.
17. Konar H. DC Dutta's Textbook of Obstetrics. 9th ed. New Delhi: Jaypee Brothers Medical Publishers (P) Ltd.; 2018. Pg. 590.
18. Konar H. DC Dutta's Textbook of Obstetrics. 9th ed. New Delhi: Jaypee Brothers Medical Publishers (P) Ltd.; 2018. Pg. 590.
19. Konar H. DC Dutta's Textbook of Obstetrics. 9th ed. New Delhi: Jaypee Brothers Medical Publishers (P) Ltd.; 2018. Pg. 590-591.
20. Konar H. DC Dutta's Textbook of Obstetrics. 9th ed. New Delhi: Jaypee Brothers Medical Publishers (P) Ltd.; 2018. Pg. 591.

Understanding the Role of Immunomodulatory Plants in Supporting the Immune System

Dr. Prakash L. Hegde

Chairperson, PCIM&H, New Delhi; Professor, Department of Dravyaguna, SDM College of Ayurveda and Hospital, Hassan 573 201, Karnataka

Abstract

Ayurveda has emphasized on *Vyadhikshamatva* (Immunity) in resisting any possible manifestation of the disease. It is very well accepted that the person who possess very good immunity will not be suffering with any kind of disease at the beginning and if afflicted also who can overcome the *Vyadhi* (Disease) in very quick time. Hence it is desirable to have good immunity to lead a disease-free life. In the present scenario the population needs immunomodulatory preparations prepared from natural resources. Hence, a good knowledge about immunomodulatory plants may pave the way to protect one's immunity and thereby help an individual to utilize them in their day-to-day life.

Immunomodulatory activity simply does not mean which boosts one's immunity rather it regulates the immunity of an Individual. So, immunomodulatory herbs are medicinal plants that may influence the activity of the immune system, helping regulate immune responses rather than simply "boosting" immunity. Plants such as Drugs like *Haridra*, *Shunthi*, *Lashuna*, *Guduchi*, *Ashwagandha*, *Tulasi*, *Amalaki*, *Yashtimadhu*, *Shatavari* and *Pippali* are considered to have immunomodulatory activities having attracted considerable scientific interest because their phytochemicals can interact with inflammatory pathways, immune cells, and antioxidant systems.

Key Words: *Vyadhikshamatva*, Immunity, Immunomodulatory, Vyadhi, Plants

Introduction

In Ayurveda there are mentioning of several preparations having immunomodulatory actions which are being utilized in various diseases. Diseases like *Amavata* (Rhumatoid arthritis), *Tamaka Shwasa* (Asthma), *Madhumeha* (Type 1 Diabetes mellitus) some types of *Kushta* (Skin diseases) *Pratishyaya* (Rhinitis) etc. which are commonly encountered ailments in present days certainly requires the supportive therapy in the form of Immunomodulatory drugs.

To understand the immune system that it is a complex network involving physical barriers, immune cells, signalling molecules, antibodies, and organs such as the thymus, spleen, lymph nodes, and bone marrow. The primary responsibility is to identify and respond to potentially harmful organisms and abnormal cells while maintaining tolerance toward the body's own tissues.

What are Immunomodulatory Herbs?

An immunomodulatory herb is a plant that may modify immune function. Its not just immune-boosting herb, depending on the requirement it does either increase or decrease the immunity and strikes balance which is required. Some plants may stimulate immune activity, and some plants may reduce excessive inflammatory responses. Certain plants may potentially do both depending on dose, preparation, physiological state, and the immune pathway involved.

There are various important mechanisms are involved in herbal immunomodulation criteria like regulation of cytokines, acting on macrophages, lymphocytes, Antioxidant activity which protects against oxidative stress, Acting on gut microbiome etc.

1. Haridra (Curcuma longa L.) – Turmeric1,3

Haridra (*Curcuma longa* L.) is one of the best-known medicinal plants associated with immune related diseases.

Part used – *Kanda* (Rhizome)

Pharmacological action: Immunomodulatory, Anti-inflammatory, boosts antibody response.[2,4,5]

Principal group of compounds in *Haridra* is curcuminoids, particularly curcumin. Curcumin has demonstrated anti-inflammatory and antioxidant effects in numerous laboratory and experimental studies. Researchers have investigated its influence on signalling pathways involved in inflammatory mediator production and immune regulation.[6]

2. Shunthi (Zingiber officinale Roscoe) - Ginger1,3

Ginger (*Zingiber officinale* Roscoe) is another widely used medicinal plant. Ginger contains bioactive constituents including gingerols and shogaols.

Part Used – *Kanda* (Rhizome)

Compounds present in *Shunthi* (ginger) can influence inflammatory mediators and oxidative-stress pathways. Moreover, Shunthi has been traditionally used for digestive complaints, nausea, and symptoms associated with inflammatory conditions. Its potential immunomodulatory effects are documented in various research findings. [2,4,5]

3. Lashuna (Allium sativum L.) - Garlic1,3

Lashuna (*Allium sativum* L.) has a long history of culinary and medicinal use. Its sulphur-containing compounds, including allicin and related molecules, are responsible for many of its pharmacological actions.

Part used - Bulb

Pharmacological actions: Antimicrobial, Antioxidant, Anti-inflammatory, and immune-related activities. Lashuna

preparations can influence immune-cell function and inflammatory signalling. [2,4,5]

4. Guduchi (Tinospora cordifolia Miers.) – Indian Giloe1,3

Guduchi (*Tinospora cordifolia* Miers.), commonly known as Amruta, is an important medicinal plant in Ayurveda especially used for *Jwara* (fever), *Madhumeha* (Diabetes mellitus), general health, and other health related conditions.

Part used – *Kaanda* (Stem)

Pharmacological actions: Immunological and anti-inflammatory effects from extracts of *T. cordifolia* is proven. Researchers have investigated the possible effects on macrophages, cytokines, WBC count and other components of immune regulation. [2,4,5]

5. Ashwagandha (Withania somnifera Dunal) 1,3

Ashwagandha (*Withania somnifera* Dunal) is another prominent Ayurvedic medicinal plant. Its major constituents include withanolides.

Part used – *Mula* (Root)

Pharmacological actions: Adaptogenic immunomodulator, boosts immunity under stress and balances overactive immunity. [2,4,5]

Research into *Ashwagandha* has focused on stress, inflammation, metabolic health, and immune-related processes. Some experimental evidence suggests that its constituents can influence inflammatory and immune signalling.

The potential immunomodulatory activity may be connected partly to its effects on stress physiology. Chronic psychological stress can influence immune function, sleep, inflammation, and hormonal signalling, so an herb that affects several of these systems may have indirect as well as direct immune effects.[6]

6. Tulasi (Ocimum sanctum L.) – Holy basil1,3

Tulasi (*Ocimum sanctum* L.) is one of the best immunomodulatory herbs which is mainly beneficial in respiratory system diseases and stress related conditions.

Part used – *Patra* (Leaves)

Pharmacological actions: Antioxidant, Anticancer, Antistress, Anti-inflammatory, Anti diabetic, Antipyretic and Immunomodulatory activity. [2,4,5]

7. Amalaki (Phyllanthus emblica L.) – Indian gooseberry1,3

Amalaki (*Phyllanthus emblica* L.) is one of the best *Rasayana Dravya* (Rejuvenative drug) mentioned in Ayurveda which is a versatile plant with multiple health benefits including Immunomodulatory activity.

Part used – *Phala* (Fruit)

Pharmacological actions: Antioxidant, increasing cellular immunity, hepatoprotective and rejuvenating. *Amalaki* (*Phyllanthes emblica* L.) has the ability to activate the immune system, which is a powerful and protective defence against newly emerging infectious diseases. [2,4,5]

The immune-modulatory actions of *Phyllanthes emblica* L., when taken orally, it appears to enhance neutrophil activity and it considerably lessens the effects of stress-induced inhibition of neutrophil activity. *Amalaki* has mild cytoprotective and immunostimulant properties.[6]

To get more effect the Amalaki churna (Powder) must be triturated with *Amalaki Swarasa* (juice of gooseberry) and then utilized.

8. Yashtimadhu (Glycyrrhiza glabra L.) – Liquorice1,3

Yashtimadhu (*Glycyrrhiza glabra* L.) is one of the best used immunomodulator which acts as *Rasayana* (Antioxidant) and *Vrashya* (Aphrodisiac) which is having multiple health benefits as mentioned in many *Dashemani Vargas* of *Charaka* as compared to any other drugs making it as a special drug used in treating many diseases.

Part used – *Mula* (Root)

Pharmacological actions: Antiviral, Immunomodulatory, Antioxidant, Antiulcer, Antithrombotic, Memory enhancing activity, Anti-asthmatic activity, Hepato protective, Cerebro protective and Anxiolytic activity. [2,4,5]

9. Shatavari (Asparagus racemosus Willd) – Asparagus1,3

Shatavari is one of the best immunomodulatory drugs especially among women which also enhances immune tolerance. Shatavari is very commonly used for various health conditions which improves *Vyadhi kshamatva* (Immunity). The presence of various bioactive chemicals such as steroidal glycosides, saponins (primarily Shatavarins I, II, III, and IV), polyphenols, flavonoids, alkaloids (racemosol), and vitamins make it as one of the best medicinal plants with multiple health benefits.

Part used – *Mula* (Root)

Pharmacological actions: Antimicrobial, Anticancer, Antidepressant, Antineoplastic, Antiinflammatory, Antioxidant, immunostimulant activity and strong rejuvenating activity. [2,4,5]

10. Pippali (Piper longum L.) – Long pepper1,3

Pippali is one of the best drugs used in immune related problems especially diseases related to Respiratory system. As a single drug or in combination with drugs *Pippali* can be used as an immunomodulator. If it is used with other drugs then can increase bio-availability of other herbs.

Part used – *Phala* (Fruit) & *Mula* (Root)

Pharmacological actions: Anti-inflammatory, Antiviral, Antimicrobial, Immunomodulatory activity, Anti asthmatic activity. [2,4,5]

In Ayurveda, *Rasayana* therapy is considered one of the most important treatments for promoting longevity, vitality, and overall well-being. *Rasayana* herbs are believed to rejuvenate the

body, enhance immunity, and slow down the aging process. *Pippali* is classified as a *Rasayana* (Rejuvenate) herb due to its ability to promote health, increase vitality, and enhance the body's resistance to diseases.

How Do These Herbs Modulate Immunity?

The mechanisms behind herbal immunomodulation are very complex. Plant extracts contain numerous constituents, and several may act simultaneously.

- One major pathway involves cytokine regulation. Cytokines coordinate communication between immune cells. Excessive production of certain inflammatory cytokines can contribute to tissue damage, while insufficient signalling can impair immune responses. Some plant compounds appear capable of altering cytokine production under experimental conditions.
- Another mechanism involves oxidative stress. During immune activation, cells can generate reactive oxygen species. Antioxidant compounds may help regulate oxidative processes, although antioxidant activity in a test tube does not necessarily predict clinical benefits.

Herbs may also affect innate immunity, which provides an early response to pathogens, and adaptive immunity, which involves specialized lymphocytes and immunological memory.

The gut represents another potentially important pathway. Dietary plant compounds can influence intestinal microorganisms and their metabolic products, which may subsequently affect immune signalling.

Immunomodulation Versus Immune Stimulation

The difference between immune stimulation and immunomodulation is essential to be known and understand appropriately.

If the immune system is already excessively activated, indiscriminately stimulating it may theoretically be counterproductive. Autoimmune diseases, involve inappropriate immune activity against the body's own tissues. Similarly, some inflammatory conditions involve excessive or persistent immune signalling.

An immunomodulator is therefore not necessarily intended to make immunity "stronger." The objective is potentially to restore or maintain appropriate immune regulation.

This concept explains why claims such as "boosts immunity" should be approached cautiously. A healthy immune system is not analogous to a muscle that can simply be strengthened by adding more stimulation.

Integrating Herbs with Healthy Immune Function

Herbal medicine should be considered within the broader context of immune health. Apart from drug application one should also concentrate on Adequate sleep, balanced nutrition, physical activity, vaccination where appropriate, good hygiene, management of chronic diseases, and avoidance of tobacco are supported by substantially stronger evidence for maintaining health not only on herbal supplements.

A varied diet supplies numerous plant-derived compounds naturally, including polyphenols, carotenoids, vitamins, minerals, and fibre. Culinary use of herbs and spices can therefore be a practical way of incorporating plant diversity without automatically turning every food into a concentrated supplement.

For people interested in medicinal preparations, the most appropriate herb depends on the intended purpose, existing health conditions, medications, and evidence available for the specific preparation.

Conclusion

Immunomodulatory herbs represent an exciting intersection of traditional medicine, phytochemistry, immunology, and modern pharmacology. 10 Drugs mentioned like *Haridra*, *Shunthi*, *Lashuna*, *Guduchi*, *Ashwagandha*, *Tulasi*, *Amalaki*, *Yashtimadhu*, *Shatavari* and *Pippali* contain compounds that have demonstrated various immune- and inflammation-related activities in experimental research.

However, the phrase "immune boosting" oversimplifies the biological actions. The immune system depends on regulation and balance, and an experimental immunological effect does not necessarily translate into prevention or treatment of disease.

The future of herbal immunomodulation will depend on standardized extracts, clearer identification of active constituents, rigorous safety monitoring, and a greater understanding of interactions between plant compounds, immune pathways, genetics, metabolism, and the gut microbiome.

Judicial use or appropriate application of these single drugs may have their impact on improving one's *Vyadhikshamatva* (immunity) thereby protecting the individuals from the diseases.

References

1. Prof K R Srikanthamurthy, Bhavaprakasha of Bhavamishra, Edn 2004, Varanasi, Chaukhambha Krishnadas Academy, 2004, Pg. No. 191, 165, 194, 228, 257, 290, 164, 181, 257, 166.
2. Qadry J S, Pharmacognosy, 16th Edn 2010, New Delhi, J S Qadry Publications, 2010, Pg No. 332, 388, 389, 281, 439,532,533, 84, 267, 268.
3. Hegde Prakash L., Harini A, Text Book of Dravyaguna Vijnana, 1st Edn, 2024, New Delhi, Chaukhambha Publications, 2024, Pg No. 563, 33, 268, 716, 655, 538, 247, 72.
4. Gupta S K, Drug Screening Methods, 1st Edn, 2004, New Delhi, Jaypee Brothers Medical Publishers (P) Ltd., 2006, Pg. No 487, 490.
5. Tripathi K D, Essentials of Medical Pharmacology, 5th Edn, 2003, New Delhi, Jaypee Brothers Medical Publishers (P) Ltd., 2004, Pg. No, 185, 187, 258, 771,773, 785-90.
6. Kokate C.K., Purohit A P., Gokhale S B., Pharmacognosy, 26th Edn, 2004, Pune, Nirali Prakashan, 2004, Pg no. 352, 520, 268, 543

Understanding Autoimmunity in the Framework of Vyadhikshamatwa: A Conceptual Interpretation of Asatmya–Dushi Visha, Viruddha–Gara Visha and Sahaja Satmya

Prof. Prasanna N. Mogasale, MD (Ayu)
SDM College of Ayurveda, Hospital and Research Centre, Udupi

Abstract

Background: Autoimmunity is presented as a condition arising when immune tolerance is lost. Within the Vyadhikshamatwa framework, the relevant conceptual sequence includes Deha Dhatu Pratyanika Dravya, Asatmya-Dushi Visha, Viruddha-Gara Visha, immune tolerance, immune reaction, immunogenicity, antigenicity, antibody/cell-mediated response, memory and finally autoimmunity.

Objective: To reorganize the stated understanding of autoimmunity into a coherent academic framework without adding mechanisms or relationships beyond those specifically described.

Materials and Methods: A conceptual textual synthesis was undertaken using the classical propositions and the corresponding immunological interpretations linked with Vyadhikshamatwa. The sequence was retained as presented: host-opposing influences, antigen/hapten interpretation, tolerance, immune reaction, immune memory and loss of tolerance.

Results: Sahaja Satmya is used to explain the normal non-destructive coexistence of opposing Dosha qualities. Immune tolerance is described as regulated unresponsiveness to self-antigens or other antigens capable of inducing an immune response. Dushi Visha/Asatmya and Gara Visha/Viruddha are placed under Deha Dhatu Pratyanika Dravya and are interpreted through antigen and hapten respectively. Autoimmunity is specifically understood as the state that develops when immune tolerance is lost and opposing qualities that ordinarily do not injure one another begin to act against each other.

Conclusion: The core understanding of autoimmunity in this framework is failure of tolerance. The Asatmya-Dushi Visha and Viruddha-Gara Visha interpretations form the preceding immunological context, whereas the explicit autoimmune event is linked to loss of immune tolerance and loss of the normal mutually non-destructive state explained through Sahaja Satmya.

Keywords: Autoimmunity; Vyadhikshamatwa; Sahaja Satmya; immune tolerance; Asatmya; Dushi Visha; Viruddha; Gara Visha; Deha Dhatu Pratyanika Dravya; antigen; hapten.

10. Introduction

Vyadhikshamatwa is described as Vyadhi Bala Virodhitva and Vyadhi Utpada Pratibandhakatva, indicating opposition to the strength of disease and prevention of disease occurrence [1]. The same framework emphasizes that all bodies are not equally capable of Vyadhikshamatwa [1]. Thus, disease development is considered in relation to the interaction among causative factors, Dosha, Dushya and the presence or absence of Vikara Vighata Bhava [2].

For understanding immune-related disease, the framework subsequently identifies Deha Dhatu Pratyanika Dravya as substances or influences that oppose the normal state of Deha Dhatu [3]. Viruddha and Asatmya are placed within this host-opposing field, followed by the toxicological interpretations of Gara Visha and Dushi Visha, and then by antigen/hapten, immune tolerance, immune reaction, immunogenicity, antigenicity, antibody/cell-mediated response, memory and autoimmunity [3-15].

The purpose of the present article is therefore not to add a new mechanism of autoimmune disease, but to reorganize the stated conceptual sequence and clarify exactly where autoimmunity is positioned within it.

4. Materials and Methods

This is a conceptual interpretive article. Classical propositions relating to Vyadhikshamatwa, Deha Dhatu Pratyanika Dravya, Asatmya, Viruddha, Dushi Visha, Gara Visha, Sahaja Satmya, immune reaction, immunogenicity, antigenicity, memory and autoimmunity were arranged in their stated logical sequence. Only relationships explicitly represented in the framework were retained. No additional autoimmune disease examples, molecular pathways, cytokine mechanisms or causal claims were introduced.

5. Results

3.1 Vyadhikshamatwa as the host background

Vyadhikshamatwa comprises two functional aspects: Vyadhi Bala Virodhitva and Vyadhi Utpada Pratibandhakatva [1]. This establishes a host-related background in which disease expression depends not only upon exposure but also upon the capacity of the body to oppose the disease process or prevent its occurrence.

The concept of Vikara Vighata Bhava further explains that the relation among Nidana, Dosha and Dushya determines whether disease does not manifest, manifests after a long period, manifests mildly, or manifests rapidly and fully [2]. This forms the general disease-development background before the specific immunological interpretation begins.

3.2 Deha Dhatu Pratyanika Dravya

The classical statement that Deha Dhatu Pratyanika Dravya oppose Deha Dhatu is used as the central bridge to

immunological interpretation [3]. In the same framework, Viruddha is identified as Deha Dhatu Pratyanika, and Asatmya/Apathya is also placed in this opposing category [3-6].

The immunological interpretation then describes Dushi Visha/Asatmya and Gara Visha/Viruddha as capable of interacting with or vitiating Deha Dhatu, and therefore as Deha Dhatu Pratyanika Dravya. This is the point at which the concepts are linked with immunogenicity and antigenicity in the proposed understanding [3,11,12].

3.3 Asatmya-Dushi Visha understanding

Asatmya is described as that which does not become compatible with the body and which may disturb the Prakrita Rupa [4]. Dushi Visha is described in association with Ahitashana or less potent toxic influence, repeated exposure and eventual Dhatu Pradushana [9-11]. Dushi Visha is therefore interpreted as acting like Asatmya because its eventual action is Dhatu Pradushaka [9].

Within the immunological interpretation, the correspondence is presented as:

Asatmya = Dushi Visha = Antigen

3.4 Viruddha-Gara Visha understanding

Viruddha is described as an opposing or incompatible influence and is linked with Deha Dhatu Pratyanika, Asatmya and Apathya [3-6]. Gara Visha is specifically described in relation to the combination of Nirvisha Dravya, and Viruddha Veerya Dravya Samyoga is also identified as Gara Visha [7,8]. Thus, Gara Visha is interpreted as Viruddha within this conceptual sequence.

The framework compares the combination-dependent nature of Gara Visha with a hapten. A hapten is described as a non-immunogenic small substance that becomes capable of eliciting an immunogenic reaction after conjugation with a carrier, and this processing/association is compared with Viruddha or Gara [3]. The correspondence is presented as:

Viruddha = Gara Visha = Hapten

3.5 Antigen/hapten and Deha Dhatu interaction

An antigen is described as a molecular structure or foreign particulate matter that can bind to a specific B-cell receptor or T-cell receptor and may or may not elicit an immune response. A hapten is described as non-immunogenic by itself but capable of producing an immune response after attachment to a larger carrier [3].

In the proposed comparison, antigen binding to BCR/TCR is paralleled with Dushi Visha/Asatmya interacting with Deha Dhatu and producing Dhatu Dushti and Dosha Kopa. Hapten-carrier processing is paralleled with the Viruddha/Gara situation [3]. This interpretation precedes the discussion of immune tolerance and autoimmunity; it is not itself stated as the definition of autoimmunity.

3.6 Immune tolerance and Sahaja Satmya

Immune tolerance is described as an active and highly regulated state of unresponsiveness of the immune system to self-antigens or hetero-antigens that are capable of inducing an immune response [13]. A self-antigen is described as an antigen naturally present in the body that may nevertheless elicit an immune response.

The Ayurvedic parallel is explained through Sahaja Satmya. The Doshas possess mutually opposing qualities, yet they generally do not destroy one another because of Sahaja Satmyatva [13]. This normal state of mutual non-injury is the principal conceptual background used for understanding tolerance.

3.7 Immune reaction, immunogenicity and antigenicity

The immune response is described as being exhibited through inflammation, and inflammation is interpreted through Tridosha involvement [14-17]. Immunogenicity is defined as the ability of a substance to induce a humoral or cellular immune response; Dushi/Asatmya and Gara Visha/Viruddha are placed in this category through their interaction with Deha Dhatu [3,14].

Antigenicity is described as the ability of a substance to bind specifically to the products of an immune response. Satmya Vipareeta is identified as Anupashaya or Asatmya; Asatmya is described as triggering illness and Anupashaya as perpetuating illness [12].

3.8 Antibody/cell-mediated response and memory

The framework states that an antigen/hapten may conjugate with BCR and produce antibody, or interact with TCR and produce T-helper and cytotoxic T-cell responses. In the Ayurvedic comparison, Dushi/Asatmya and Gara Visha/Viruddha interact with Deha Dhatu [3].

The interaction is further viewed through the principle that when opposing qualities come together, the stronger overcomes the weaker [18]. After an immune response, the body is described as being imprinted with memory cells; on re-exposure to the antigen/Deha Dhatu Pratyanika Dravya, the subsequent response is modified [19].

3.9 Core understanding of autoimmunity

The Ayurvedic understanding of autoimmunity may be conceptually correlated with the contemporary principle of loss of immune tolerance, wherein failure of self-tolerance permits immune-mediated injury to self-tissues. Ayurveda describes that, although Doshas possess mutually opposing Guṇas, they ordinarily do not injure one another because of Sahaja-satmyatva, or inherent physiological compatibility. Under specific pathological circumstances, however, Guṇa-upaghata (injurious interaction of opposing qualities) may occur, as discussed in relation to Adrusta [20,21]. Cakrapaṇi relates Adrusta to Daiva, interpreted as the effect of prior Karma, while Caraka identifies Daiva with Paurvadehika Karma, which becomes disease-producing when it reaches maturation at an appropriate Kala [22,23]. Thus, Daiva, understood as

Paurvadehika Karma, is considered to manifest its pathological effects upon maturation at a specific Kala, culminating in the manifestation of Roga. Kala functions here as the temporal context of karmic manifestation (Kala-vyanjita), rather than necessarily as an independent Kala-janita cause. This may provide a conceptual framework for understanding pathological disruption of physiological compatibility, analogous in principle to the contemporary concept of loss of immune tolerance and autoimmune disease [23,24].

Accordingly, the autoimmune interpretation is: opposite Guna of Dosha generally do not fight each other because of Sahaja Satmya; when this mutually non-destructive state is lost and the opposing qualities begin to act against one another, the condition is interpreted as autoimmunity [20,21].

3.10 Reorganized conceptual sequence

Concept	Stated understanding	Reference
Vyadhikshamatwa	Vyadhi Bala Virodhitva and Vyadhi Utpada Pratibandhakatva	[1]
Deha Dhatu Pratyanika Dravya	Opposes/interacts with Deha Dhatu	[3]
Asatmya-Dushi Visha	Non-compatible/Dhatu-pradushaka; interpreted as antigen	[4,9-11]
Viruddha-Gara Visha	Incompatibility/combination-generated; interpreted as hapten	[3,5-8]
Immune tolerance	Highly regulated unresponsiveness to self-antigen or other antigenic challenge	[13]
Sahaja Satmya	Opposing Dosha qualities ordinarily do not injure one another	[13,21]
Immune reaction	Expressed through inflammation; interpreted with Tridosha involvement	[14-17]
Memory	Response is modified after prior exposure	[19]
Adrishta-Daiva/Karma-Kala	Daiva = Paurvadehika Karma; disease manifestation occurs with its maturation/fruition at the relevant Kala; Kala is the time-mediated manifestation context	[22-24]
Autoimmunity	Loss of tolerance; opposing qualities begin to act against each other	[20,21]

6. Discussion

The sequence shows that autoimmunity is not introduced at the beginning of the framework. It appears after the discussion of Deha Dhatu Pratyanika Dravya, antigen/hapten interaction, immune tolerance, immune reaction, immunogenicity, antigenicity, antibody/cell-mediated response and memory. This ordering is important because it distinguishes the background of immune interaction from the specific autoimmune event.

Asatmya-Dushi Visha and Viruddha-Gara Visha are used to explain host-opposing and immunogenic/antigenic interactions. The framework specifically compares Asatmya-Dushi Visha with antigen and Viruddha-Gara Visha with hapten [3]. These comparisons form part of the immunological interpretation of Vyadhikshamatwa. However, the statement defining autoimmunity itself is narrower: autoimmunity occurs when immune tolerance is lost [20,21].

Sahaja Satmya is therefore central to the autoimmune understanding. The coexistence of opposing Dosha qualities without mutual destruction represents the normal tolerated state [13,21]. Chakrapani states that mutual Guna Upaghata of the Doshas generally does not occur, although it may occur in some circumstances under Adrishta [20]. Within this classical explanation of Adrishta, Daiva is connected with prior Karma, and Paurvadehika Karma becomes a cause of disease when it reaches maturation/fruition at the relevant Kala [22,23]. The statement "सम्प्राप्तिः कालकर्मणाम्" further identifies Karma-samprapti with pacyamana-karma-yoga [24]. Accordingly, Kala is understood here particularly as the time-mediated context of manifestation (Kala-vyanjita), rather than necessarily as an independent Kala-janita cause [23,24]. This clarification does not introduce an additional immunological mechanism; when the normal non-destructive relationship is lost, the framework interprets the resulting mutual opposition as autoimmunity.

The conceptual distinction may therefore be maintained as follows: Deha Dhatu Pratyanika Dravya explains opposition to the body tissues; Asatmya-Dushi Visha and Viruddha-Gara Visha provide antigen/hapten-related interpretations; immune reaction explains the response; memory explains modification after exposure; and loss of tolerance together with breakdown of Sahaja Satmya provides the immediate conceptual basis for autoimmunity.

Deha Dhatu Pratyanika Dravya

↓

Asatmya-Dushi Visha / Viruddha-Gara Visha

↓

Antigen/Hapten - Deha Dhatu interaction

↓

Immune reaction / Immunogenicity / Antigenicity

↓

Immune memory

↓

Deha Dhatu Pratyanika Dravya

Loss of immune tolerance / loss of normal Sahaja Satmya relationship

↓

Opposing qualities begin to act against one another

↓

AUTOIMMUNITY

7. Conclusion

The understanding of autoimmunity within the Vyadhikshamatwa framework is fundamentally an understanding of failed tolerance. Sahaja Satmya explains the normal condition in which mutually opposing Dosha qualities coexist without injuring one another. Autoimmunity is interpreted when this tolerance is lost and the normally non-destructive opposing qualities begin to act against each other [20,21].

Asatmya-Dushi Visha and Viruddha-Gara Visha remain important in the preceding conceptual sequence because they are placed under Deha Dhatu Pratyanika Dravya and interpreted through antigen and hapten respectively [3-12]. They explain the background of host-opposing interaction, whereas the explicit autoimmune event is linked to loss of immune tolerance. The Daiva-Karma-Kala clarification is retained only as the classical explanatory context for Adrishta and does not alter the central autoimmune interpretation of failed tolerance [20-24]. This distinction preserves the original logic of the framework and avoids extending the concept beyond what is specifically stated.

References

1. Agnivesha. Charaka Samhita, Sutra Sthana 28/7, Ayurveda Dipika commentary of Chakrapani Dutta. (Vyadhikshamatwa: Vyadhi Bala Virodhitva and Vyadhi Utpada Pratibandhakatva.)

2. Agnivesha. Charaka Samhita, Vimana Sthana 4/4. (Nidana-Dosha-Dushya relationship and Vikara Vighata Bhava/Abhava.)

3. Agnivesha. Charaka Samhita, Sutra Sthana 26/81, Ayurveda Dipika commentary of Chakrapani Dutta. (Deha Dhatu Pratyanika Dravya.)

4. Agnivesha. Charaka Samhita, Sharira Sthana 1/127, Chakrapani commentary. (Asatmya and Prakrita Rupa Upaghata.)

5. Sushruta. Sushruta Samhita, Nidana Sthana 2/4, Nibandha Sangraha commentary of Dalhana. (Viruddha including Asatmya-related intake.)

6. Agnivesha. Charaka Samhita, Sutra Sthana 26/12, Ayurveda Dipika commentary of Chakrapani Dutta. (Viruddha/Apathya context.)

7. Madhava Nidana 69/33-34, Madhukosha and Atankadarpana commentaries. (Gara as Samyogaja Visha from Nirvisha Dravya.)

8. Vagbhata. Ashtanga Sangraha, Uttara Sthana 40/62. (Viruddha Veerya Dravya Samyoga and Gara Visha.)

9. Vagbhata. Ashtanga Hridaya, Uttara Sthana 35/37. (Dushi Visha and Dhatu Pradushana.)

10. Sushruta. Sushruta Samhita, Kalpa Sthana 2/25-26. (Dushi Visha arising from reduced/altered potency of Visha.)

11. Sushruta. Sushruta Samhita, Kalpa Sthana 2/33, Dalhana commentary. (Repeated exposure and Dushi Visha.)

12. Vagbhata. Ashtanga Hridaya, Sutra Sthana 8/55, Ayurveda Rasayana commentary. (Satmya Vipareeta, Asatmya and Anupashaya.)

13. Agnivesha. Charaka Samhita, Chikitsa Sthana 26/293; Vagbhata. Ashtanga Hridaya, Sutra Sthana 1/9. (Sahaja Satmya and immune-tolerance interpretation.)

14. Vagbhata. Ashtanga Hridaya, Nidana Sthana 16/56; Sushruta Samhita, Sutra Sthana 15/4(2); Charaka Samhita, Sutra Sthana 17/117; Sushruta Samhita, Sutra Sthana 17/7-8. (Bala, Tridosha and inflammatory/immune-reaction interpretation.)

15. Agnivesha. Charaka Samhita, Sutra Sthana 26/81. (Immunogenicity interpretation through Deha Dhatu Pratyanika Dravya.)

16. Vagbhata. Ashtanga Hridaya, Sutra Sthana 8/55, Ayurveda Rasayana commentary. (Antigenicity interpretation through Asatmya/Anupashaya.)

17. Sushruta. Sushruta Samhita, Sutra Sthana 17/7-8. (Tridosha involvement in inflammatory response.)

18. Agnivesha. Charaka Samhita, Vimana Sthana 1/14. (Interaction of opposing qualities: stronger overcomes weaker.)

19. Vagbhata. Ashtanga Sangraha, Sharira Sthana 8/4. (Memory-cell interpretation after prior exposure.)

20. Agnivesha. Charaka Samhita, Vimana Sthana 1/10, Chakrapani commentary. (Mutual Guna Upaghata of Doshas generally absent; occasional occurrence linked with Adrishta.)

21. Agnivesha. Charaka Samhita, Sutra Sthana 17/62, Ayurveda Dipika commentary of Chakrapani Dutta. (Sahaja Satmya explained as natural compatibility under Daiva; non-injury among mutually opposing Doshas, with the same interpretive extension to Rasa, Rakta and other Dhatus.)

22. Agnivesha. Charaka Samhita, Chikitsa Sthana 30/8, Ayurveda Dipika commentary of Chakrapani Dutta. (Daiva: "दैवादिति प्राक्तनाधर्मवशात्" — explained as operating under the influence of prior Adharma.)

23. Agnivesha. Charaka Samhita, Sharira Sthana 1/116, Ayurveda Dipika commentary of Chakrapani Dutta. (Daiva as Paurvadehika Karma; disease manifestation when Karma matures/fructifies at the appropriate Kala; Kala explained as the time characterized by pacyamanata of Karma.)

24. Agnivesha. Charaka Samhita, Sharira Sthana 1/98, Ayurveda Dipika commentary of Chakrapani Dutta. ("Sampraptih Kalakarmanam"; Kala-samprapti and Karma-samprapti, with Karma-samprapti explained as pacyamana-karma-yoga.)

Integrating Ayurvedic Wound-Care Therapies in Autoimmune Diseases: A Narrative Review

Dr. Rajneesh V. Giri, MS (Ayu), PhD (BHU), FICA, YIC

Professor and Head, Department of PG Studies in Shalya Tantra, SDM College of Ayurveda, Hospital and Research Centre, Udupi

Abstract

Introduction: Patients with autoimmune diseases, when suffer from wounds, present a unique challenge for surgeons. Firstly, the complex interplay of wound management and the management of the patient with the autoimmune disease requires a multidisciplinary approach. Secondly, the use of immunosuppressive therapy — which is essential to control the systemic immune response — increases infection susceptibility and also prolongs the normal wound healing processes. Ayurveda describes wound management under the concept of *Vrana*, especially the management of chronic wounds under the concept of *Dushta Vrana* with a detailed therapeutic approach in the form of *Shasthi Upakrama* aimed at local measures like *Vrana Shodhana* (cleansing the wound), *Vrana Ropana* (tissue regeneration) along with emphasis on a systemic restoration of balance of vitiated *Dosha* through *Shodhana* (purificatory measures), *Oushadha* (internal medications) and individualized prescriptions of *Ahara* and *Vihara* (dietary and lifestyle modification). This review critically evaluates the current evidence regarding the role of Ayurvedic principles and therapies in wound healing among such patients with autoimmune diseases. **Methods:** A narrative review was written examining classical Ayurvedic principles related to *Vrana Shodhana* and *Vrana Ropana*, scientific literature on wound healing and various other scientific works regarding various Ayurvedic interventions in autoimmune and chronic wound management scenarios. **Results:** Principles of management of *Vrana* mentioned in Ayurveda may accelerate healing time through multiple ways, including early breaking down of the process of inflammation, promotion of healthy and strong granulation tissue, early epithelialization, increasing the perfusion of blood to the local tissue and creating an equilibrium of various systemic factors viz. digestion, metabolism, nutrition, and restoration of immune responses which may support the process of healing. However, the evidences mainly deal with textual descriptions, observational studies, few case reports and small clinical studies, with limited standard randomized controlled trials in subjects of autoimmune diseases with concurrent wounds. **Conclusion:** Ayurveda may have a robust supportive role in influencing wound healing outcomes in patients with autoimmune diseases, particularly through individualized, multimodal interventions targeting both local wound pathology and systemic inflammatory imbalance. Scientific collaborative studies between Ayurvedic practitioners, wound care specialists and clinical researchers may help define its supportive or stand-alone therapeutic role in a more unbiased concrete way.

Integrating Ayurvedic Wound-Care Therapies in Autoimmune Diseases: A Narrative Review

Introduction

Wound healing passes through four sequential stages: hemostasis, inflammation, proliferation, and remodeling. In healthy individuals this process completes within weeks. In patients with autoimmune diseases (ADs), however, dysregulated healing stages, small-vessel vasculopathy, and the pharmacological effects of disease-modifying therapy give rise to wounds that fail to heal for months, posing a significant challenge to surgeons.

Fig 1: Stages of wound healing

Shalyatantra, the surgical branch of Ayurveda, extensively details the classification and management of *Vrana* (wounds). Its scientific approach to wound care — *Vrana Shodhana* (wound debridement) and *Vrana Ropana* (tissue regeneration) — is codified under *Shashti Upakrama* (the sixty measures of wound care). Given the difficulty of managing autoimmune-related wounds with conventional care alone, integrating these Ayurvedic therapies with contemporary wound management is increasingly viewed as a necessity rather than an option.

This review examines the pathophysiological basis of impaired wound healing in autoimmune disease, the Ayurvedic conceptual framework for wound care, and the clinical evidence supporting individual Ayurvedic agents and procedures, with attention to their relevance and safety in autoimmune populations.

Methods

This is a narrative synthesis of biomedical and Ayurvedic literature relevant to wound healing in autoimmune disease. Sources included peer-reviewed clinical trials, preclinical/animal studies, case series, cohort studies, and postgraduate/doctoral theses from Ayurvedic teaching institutions, alongside classical Ayurvedic textual descriptions of wound management (*Shashti Upakrama), Panchakarma* and related *Sthanika Chikitsa* (local therapeutic procedures). No formal systematic-review protocol, database search strategy, or quality-scoring tool was applied; the

review is qualitative and descriptive in nature, and findings should be interpreted with the same limitations inherent to any narrative synthesis.

Results

Pathophysiology of impaired wound healing in autoimmune disease

In ADs, loss of immune tolerance leads to autoantibody production, immune-complex deposition, complement activation, and sustained release of pro-inflammatory cytokines (TNF-α, IL-6, interferons), disrupting the normal biologic cascade of tissue repair [1,2]. Wounds in these patients often fail to progress beyond the inflammatory phase, resulting in excessive proteolytic activity, impaired fibroblast migration, dysfunctional angiogenesis, and delayed collagen deposition—prolonging healing time relative to non-autoimmune populations [3]. Vasculitis and immune-mediated endothelial injury further contribute to micro-thrombosis, ischemia-reperfusion injury, and impaired oxygen delivery, all of which compromise wound viability [4]. Disease-modifying corticosteroids commonly used in AD management additionally inhibit epithelial proliferation and blunt the inflammatory response, leading to incomplete granulation, reduced wound contraction and possibly increased infection risk [5,6].

The Ayurvedic conceptual framework for wound healing

Ayurveda attributes wound healing to the equilibrium of *Dosha*, principally *Pitta* (governing inflammation, and metabolic transformation) and *Vata* (governing tissue and nerve function), together with disturbance of *Rakta* (blood quality, composition and local flow) and accumulation of *Ama* (toxic residue). Imbalance among these factors is implicated in the transformation of a *Shuddha Vrana* (healthy wound) into a *Dushta Vrana* (callous, non-healing ulcer). Management is traditionally staged: *Vrana Shodhana* (cleansing/debriding measures — medicated powders, cleansing decoctions, irrigation) and *Anushastra Karma* (minimally invasive procedures such as *Kshara Karma, Jalukavacharana* and *Agni Karma*), followed by *Vrana Ropana* (healing-promotion measures, including medicated oils and ghee). This staged approach parallels the modern debridement-to-closure framework of wound bed preparation, motivating contemporary evaluation of individual Ayurvedic therapies against conventional pharmacological endpoints.

Fig 2: Wound care methodology

Evidence base for individual Ayurvedic interventions

Ayurvedic agent/procedure	Proposed mechanism	Level of clinical evidence	Key caution in autoimmune disease
Curcuma longa (curcumin)	Anti-inflammatory (NF-κB, COX-2 inhibition), antioxidant, promotes fibroblast migration and collagen deposition	Multiple small RCTs and a 2025 scoping review (19 trials) support topical/oral use for wound healing and psoriasis; larger confirmatory trials lacking	Possible additive bleeding risk with anticoagulants; rare contact dermatitis
Aloe vera (topical gel)	Antimicrobial, promotes angiogenesis, keratinocyte and fibroblast activity	Several RCTs in diabetic foot ulcers, caesarean wounds, burns and pressure injuries show faster healing scores vs. standard care	Generally well tolerated topically; oral latex form has laxative/electrolyte effects
Madhu (honey) formulations	Osmotic debridement, antibacterial, moist wound environment	RCTs in chronic wounds and pressure-injury prevention show benefit comparable to or better than saline dressings	Caution in patients with known bee-product allergy; glycemic effect if ingested
Guggulu Trayodashang guggulu	Downregulates NF-κB and COX-2; reduces synovial cytokines (IL-1β, TNF-	Preclinical (rodent adjuvant-arthritis) evidence strong; human RCT data limited and	Thyroid-stimulating action reported; caution with hepatic or thyroid disease

Ayurvedic agent/procedure	Proposed mechanism	Level of clinical evidence	Key caution in autoimmune disease
	α) in animal RA models	largely from small Indian trials	
Boswellia serrata *(Shallaki)*	5-lipoxygenase/leukotriene inhibition, immunomodulatory	RCTs in osteoarthritis and case series in RA/psoriatic arthritis; wound-specific human data indirect	GI upset at high doses; theoretical additive effect with NSAIDs
Withania somnifera *(Ashwagandha)*	Adaptogenic; shifts cytokine balance (↑IL-2, IFN-γ; ↓IL-6, IL-1β, NF-κB) but also stimulates NK cells, macrophages and T-lymphocyte proliferation	Clinical trials mainly in stress, sleep and metabolic outcomes; immune-stimulatory actions demonstrated in preclinical models	Because it can enhance cell-mediated immunity, theoretical risk of counteracting immunosuppressive therapy or provoking disease flare; avoid without specialist supervision
Panchakarma procedures	Claimed to reduce systemic "ama" (toxic load) and modulate local wound bed via cleansing and medicated-oil procedures	Mostly case series and small cohort studies from Ayurvedic institutions; no adequately powered RCTs in autoimmune populations	Invasive elements (bloodletting, purgation) carry procedural risk in patients who are anaemic, on anticoagulants, or haemodynamically fragile

Table 1: *Selected Ayurvedic wound-healing interventions: mechanism, evidence, and autoimmune-specific cautions.*

Curcuma longa (turmeric/curcumin)

Curcumin is the most extensively studied Ayurvedic wound-healing agent in the modern literature. Laboratory and animal studies show it acts across the inflammatory, proliferative, and remodeling phases of repair, shortening overall healing time [7]. Its effects are mediated through modulation of TNF-α, MMP-9, α-SMA, and collagen expression; in TNF-α-treated fibroblasts, curcumin reduces MMP-9 production and increases collagen synthesis via the NF-κB pathway [8]. It also improves wound contraction rate and promotes angiogenesis in chronic wounds [9].

Aloe vera

Aloe vera dressings prevent ulcer progression and enhance healing across a range of dermal injuries — burns, frostbite, skin infections, surgical wounds, herpes ulcers, diabetic foot ulcers, pressure sores, and chronic wounds. In burn wounds specifically, Aloe vera outperformed petroleum jelly gauze, 1% silver sulfadiazine ointment, and framycetin cream, reducing healing time for first- and second-degree burns to 9 days ($P = 0.006$) [10]. Randomized trial support also extends to diabetic foot ulcers, caesarean-section wounds, split-thickness skin-graft donor sites, and pressure-injury prevention, with proposed mechanisms including enhanced fibroblast/keratinocyte migration, angiogenesis, and antimicrobial activity. As with curcumin, no identified trials specifically targeted autoimmune-disease-related ulcers, though its topical route and favorable tolerability make it a plausible candidate for further study in this population.

Honey (Madhu) and ghrita-based dressings

Honey establishes an optimal moist wound environment, exerts rapid antimicrobial activity (including against drug-resistant organisms), and provides deodorizing and de-sloughing effects. It mitigates inflammation, edema, and exudation (reducing dressing-change pain), carries immunomodulatory potential relevant to autoimmune wound care, and stimulates debridement and regeneration [11,12,13]. Sushruta describes ghee as enhancing honey's action: when combined, ghee helps honey maintain viscosity at body temperature and prolongs contact with the wound surface, augmenting its effect [14]. These benefits are documented in general populations; dedicated studies in autoimmune-disease-affected patients are still needed.

Guggulu (Commiphora wightii) and Boswellia serrata

Guggulu-based formulations, particularly *Trayodashanga guggulu* and Boswellia serrata (*Shallaki*) are traditionally used for inflammatory joint disease. Preclinical rheumatoid arthritis models show reduced paw swelling, serum rheumatoid factor, C-reactive protein, and pro-inflammatory cytokines (IL-1β, TNF-α), attributed to NF-κB and COX-2 downregulation. Boswellia has stronger randomized-trial support in osteoarthritis than in autoimmune arthritis specifically, and no controlled trials have directly evaluated either agent for wound-closure outcomes.

Panchakarma and other Sthanika Chikitsa

Vamana, Virechana, Basti, Nasya and *Raktamokshana* are used for detoxification, rejuvenation, and targeted treatment of the pathophysiology underlying chronic wounds. Available evidence suggests *Panchakarma* procedures have anti-inflammatory, antimicrobial and immunomodulatory properties and may accelerate wound healing and tissue restoration [15]. Combined with local *Prakshalana* (cleansing decoctions) and *Lepa* (medicated external applications), these procedures address both systemic *Dosha* correction and local wound-bed management. Supporting evidence, however, derives largely

from case series, cohort studies, and postgraduate/doctoral theses; no adequately powered, blinded randomized trial has been conducted in autoimmune-disease-related wounds.

Jalukavacharana (medicinal leech therapy) has demonstrated anti-inflammatory, thrombolytic, and lymphatic-enhancement effects, benefiting ulcer healing and reducing leg swelling [16,17]. It has successfully promoted early healing of varicose ulcers, avoiding the need for skin grafting or other surgical intervention [18]. Its role specifically in autoimmune-disease-related chronic wounds, however, remains unstudied.

Discussion

Methodological limitations of the current evidence base

Several limitations constrain confidence in the findings summarized above:

- Most Ayurveda-specific wound-healing and arthritis trials are small (often fewer than 60 participants) and single-center.
- Blinding is frequently absent.
- Formulations are rarely standardized.
- Wound-healing endpoints are inconsistently reported; validated tools (e.g., Bates-Jensen Wound Assessment Tool, PASI, DAS28) are used in only a minority of studies.
- Autoimmune-disease-specific populations are markedly under-represented — most positive wound-healing data for curcumin, Aloe vera, and honey derive from diabetic, surgical, or burn wounds rather than autoimmune-disease-associated ulcers.

Clinical implications and recommendations

Given biological plausibility but limited disease-specific evidence, a cautious, integrative approach is more appropriate than either wholesale adoption or dismissal of Ayurvedic wound-care interventions in autoimmune disease. Practical recommendations include:

- Treating Ayurvedic interventions as adjunctive to, not a substitute for, disease-modifying therapy.
- Prioritizing better-characterized topical agents (e.g., curcumin, Aloe vera, honey) over systemic immune-stimulating herbs pending more disease-specific data.
- Safeguarding product quality and standardization when Ayurvedic formulations are used.
- Pursuing adequately powered, standardized randomized controlled trials specifically enrolling patients with autoimmune-disease-associated chronic wounds, using validated wound-healing endpoints.

Conclusion

In autoimmune diseases, wounds frequently fail to transition beyond the inflammatory phase, with excessive proteolytic activity, impaired fibroblast migration, dysfunctional angiogenesis, and delayed collagen deposition. Vasculitis and immune-mediated endothelial injury further drive micro-thrombosis, ischemia-reperfusion injury, and impaired oxygen delivery, compromising wound viability. Ayurveda offers a detailed therapeutic framework for wound management through *Shashti Upakrama*, and several agents — particularly *Haridra*, *Kumari* and honey-based dressings — have reasonable general wound-healing evidence and biologically plausible anti-inflammatory mechanisms. Clinical evidence specific to autoimmune-disease populations, however, remains sparse, methodologically limited, and largely uncontrolled. Immune-stimulating herbs such as *Ashwagandha* may carry a theoretical risk of interfering with immunosuppressive treatment, and herb–drug interactions represent genuine, documented safety concerns. Clinicians should approach Ayurvedic adjuncts in this population with informed caution — eliciting full disclosure of use, favoring better-characterized topical agents, safeguarding product quality, and awaiting more rigorous, disease-specific trial data before broader integration into standard wound-care pathways.

References

1. Jakovija A, Chtanova T. Skin immunity in wound healing and cancer. *Front Immunol*. (2023) 14:1060258.
2. Dai Y, Chen Y. Targeting persistently activated inflammatory microenvironment to promote chronic wound healing. *Front Immunol*. (2025) 16:1708358.
3. Kirloskar K M, Dekker P K, Kiene J, Zhou S, Jenna C, Bekeny J C et al. The relationship between autoimmune disease and disease-modifying antirheumatic drugs on wound healing. *Adv Wound Care (New Rochelle)*. (2022) 11:650–6.
4. Ceran F, Bozkurt M, Karakol P. Effectiveness of the combined therapy in the treatment of chronic non-healing wounds in patients with autoimmune diseases. *J Plast Reconstr Aesthet Surg*. (2025) 101:126–33.
5. Franz MG, Steed DL, Robson MC. Optimizing healing of the acute wound by minimizing complications. Curr Probl Surg 2007; 44:691–763.
6. Wagner AE, Huck G, Stiehl DP, Jelkmann W, Hellwig-Bürgel T. Dexamethasone impairs hypoxia-inducible factor-1 function. Biochem Biophys Res Commun 2008; 372:336–40.
7. **Dania Akbik, Maliheh Ghadiri, Wojciech Chrzanowski, Ramin Rohanizadeh,**

Curcumin as a wound healing agent, Life Sciences, Volume 116, Issue 1,2014, Pages 1-7

8. Yen YH, Pu CM, Liu CW, Chen YC, Chen YC, Liang CJ, Hsieh JH, Huang HF, Chen YL. Curcumin accelerates cutaneous wound healing via multiple biological actions: The involvement of TNF-α, MMP-9, α-SMA, and collagen. Int Wound J. 2018 Aug;15(4):605-617.
9. Heydari, P.; Zargar Kharazi, A.; Asgary, S.; Parham, S. Comparing the Wound Healing Effect of a Controlled Release Wound Dressing Containing Curcumin/Ciprofloxacin and

Simvastatin/Ciprofloxacin in a Rat Model: A Preclinical Study. *J. Biomed. Mater. Res. Part A* **2022**, *110*, 341–35.

10. Maenthaisong R, Chaiyakunapruk N, Niruntraporn S, Kongkaew C. The efficacy of aloe vera used for burn wound healing: a systematic review. Burns. 2007; 33:713–8.
11. Molan P. The role of honey in the management of wounds. J. Wound Care. 1999; 8:415–418.
12. Nikhat S., Fazil M. History, phytochemistry, experimental pharmacology and clinical uses of honey: A comprehensive review with special reference to Unani medicine. J. Ethnopharmacol. 2022; 282:114614.
13. Oryan A., Alemzadeh E., Moshiri A. Biological properties and therapeutic activities of honey in wound healing: A narrative review and meta-analysis. J. Tissue Viability. 2016; 25:98–118.
14. Udwadia, Tehemton. (2011). Ghee and Honey Dressing for Infected Wounds. Indian Journal of Surgery. 73. 278-283. 10.1007/s12262-011-0240-7.
15. Akhani, Dr. (2025). ROLE OF PANCHKARMA IN THE MANAGEMENT OF DUSHTA VRANA. EPH - International Journal of Biological & Pharmaceutical Science. 11. 10.53555/eijbps. v11i1.65.
16. Bapat R.D., Acharya B.S., Juvekar S., Dahanukar S.A. Leech therapy for complicated varicose veins. Indian J Med Res. 1998; 107:281–284. PMID: 9701897.
17. Koeppen D., Aurich M., Pasalar M., Rampp T. Medicinal leech therapy in venous congestion and various ulcer forms: perspectives of Western, Persian and Indian medicine. J Tradit Complement Med. 2019;10(2):104–109.
18. Rajneesh Giri. Role of Jalukavacharana (hirudotherapy) in the management of varicose ulcer - A case Report. J. res. tradit. med. (2018), [cited June 27, 2026]; 4(5-6): 114-120

Traditional Ayurveda Approach for Autoimmune-Mediated Male Sexual Dysfunctions

Dr. Shailesh Y.

Associate Professor, Department of PG and PhD Studies in Kayachikitsa, SDM College of Ayurveda, Hospital and Research Centre, Kuthpady, Udupi

Reproduction is a normal biological event in the living organism. Sexual reproduction is the variety of reproduction in higher animals like humans. In this type of reproduction, both parents are equally responsible to obtain a progeny. Healthy progeny is the prime base for healthy society. According to Indian philosophy, obtaining the progeny is one of the route to attain *Purushartha* (four goals of life). Being a medical science, Ayurveda (Traditional Indian System of Medicine) also agrees this theory. Incorporating all traditional human values of Indian culture, this medical science also direct how to lead the life. Hence Ayurveda is not only the medical science, it's a life science.

Male sexual dysfunction is any ongoing physical or mental problem that prevents a man or his partner from enjoying sexual activity. It can affect desire, arousal, or climax. This condition affects nearly 50% of men over age 40, but it can happen at any age. Erectile dysfunction (ED), Premature ejaculation (PE), Delayed ejaculation, Low libido, Painful intercourse, Seminal dysfunction are major complaints under this heading. Vascular issues, Chronic illness like Diabetes, hypertension etc, hormonal imbalances, autoimmunity, chronic medications are under main physical causes. Mental health, performance anxiety, addictions like smoking, alcohol uses fall under psychological causes for male sexual dysfunction.

Autoimmune-mediated male sexual dysfunction is a condition where the body's immune system mistakenly attacks its own tissues, blood vessels, or nerves, leading to difficulties with sexual desire, arousal, erection, or ejaculation. Vascular damage created by chronic inflammation, neurological impairment, endocrine disruptions like hormonal imbalance, psychological toll and chronic medications are under cream line of mechanism for this dysfunction. Systemic sclerosis, Rheumatoid arthritis, Ankylosing spondylitis, Inflammatory bowel diseases, Systemic lupus erythematosus are commonly listed autoimmune mediated male sexual dysfunction conditions. Multidisciplinary strategies like immune suppression, medications like phosphodiesterase, hormone replacement therapy and life style supports are existing contemporary approaches in this field.

But above approach may be associated with certain limitations and adverse effects. Immunosuppressive therapy may increase susceptibility to infections, cause metabolic and cardiovascular complications, produce hepatic or renal toxicity, and require long-term monitoring. PDE5 inhibitors may cause headache, flushing, dyspepsia, nasal congestion, dizziness, visual disturbances, and, rarely, priapism or significant cardiovascular events, particularly in susceptible individuals or when used with contraindicated medications such as nitrates. Hormone replacement therapy, particularly testosterone therapy, may lead to erythrocytosis, acne, fluid retention, worsening of sleep apnea, gynecomastia, and suppression of endogenous testosterone production and spermatogenesis, thereby potentially affecting fertility.

In Ayurveda concepts like Ama (improperly processed metabolic products), Dosha dushya samurchana (interaction of aggravated Doṣas with susceptible tissues), Khavaigunya (weakness/susceptibility in a particular tissue), Dhatu vaishamya (disturbance of tissue-level metabolism) or Oja kshaya (disturbed immune resilience) can be correlated to the concept of Autoimmunity. In case of Autoimmune mediated male sexual dysfunction involvement of sapta dhatu are essential and clinical presentation are observed in the shukravaha srotas. Persistent disturbance of agni may result in improper digestion and metabolism, leading to the formation and accumulation of ama. This may contribute to doṣa prakopa, particularly involving vata and pitta, with subsequent impairment of normal dhatu metabolism and nourishment. As the process progresses, dhatu vaishamya develops, resulting in qualitative and functional disturbances across the sapta dhatu. Since sukra is considered the final dhatu in the process of dhatu formation, prolonged impairment of preceding dhatus may ultimately affect sukra dhatu. At the same time, a pre-existing or acquired khavaiguṇya in the sukravaha srotas may provide a susceptible site for disease manifestation. The interaction between aggravated doṣas and susceptible tissues can then be described as doṣa–duṣya saṃmurchana. In this process, disturbed doṣas interact with duṣya, particularly sukra dhatu and producing functional impairment of the sukravaha srotas.

Vata involvement may contribute to impaired sexual function, erection, ejaculation, or coordination of reproductive functions, while pitta involvement may contribute to inflammatory or degenerative changes. Kapha disturbance may contribute to impaired metabolic and tissue-level functioning. Impairment of ojas or ojas kṣhaya may be considered to represent reduced systemic resilience and altered capacity to maintain physiological homeostasis. Also produce the symptoms like dourbalyata (general debility), vyadhi kshamatva hani(reduced resistance to disease), alpa-sukrata (reduced quantity), klaibya (sexual weakness/erectile

dysfunction), Apraharṣa (diminished sexual desire/pleasure), Delayed or impaired ejaculation/semen-related dysfunction.

Vajikarana tantra is one among the eight branches of Ayurveda, which is also a super specialty for Aphrodisiac and male reproductive medicine. This branch of science is not only focused on attaining sexual satiety, but also obtain a healthy progeny for the society. Along with this, some cautions like- the person who has control over his sense organs, are only indicated for Vajikarana therapy. Such restrictions are also put forward, to maintain the dignity of the society while explaining this science. The Sanskrit word 'Vaji' refers to stallion (matured male horse), karana is the process and tantra refers to science. So, in general, Vajikarana tantra, is the process of achieving sexual potency like a stallion for sexual act. But being a medical science this particular science elaborately explains about healthy pre copulation, during copulation and post copulation directions along with required eligibilities, its benefits, importance, contraindications, mental status, environment, life styles, diet, activities and treatment protocol for different types of sexual dysfunction along with seminal defects in detail. This special concept along with samanya shukravaha sroto dushti chikitsa and Klaibya chikitsa may also provide a potential therapeutic approach for autoimmune-mediated male sexual dysfunction.

In majority of autoimmune pathologies persistent disturbance of agni result in the formation and accumulation of ama. This may contribute to doṣa prakopa, along with dhatu vaishamya leading to kshaya of the dhatu. Purified form of beeja/ Shukra dhatu is responsible for ideal progeny. But vitiated form of shukra is responsible for different types of sexual dysfunctions in men, less sexual satiety and either there is no conception or repeated miscarriages in the partner. Progeny could be sick, sterile or with congenital anomalies. Thus, the vitiated shukra brings misery for the individual as well as to his sexual partner and progeny. Hence purification therapies like vamana (emesis), virechana (purgation), basti(enema) chikitsa are best to tackle this autoimmune pathophysiology specially in endocrine disruptions like hormonal imbalance. Also this purification therapies advised before vajikarana therapy.

After fitness approval from physician based on digestion power, physical ability, mental stability and present season person is allowed for purification therapies. Sankalpa (proper sexual desire) is considered as the initial sexual provocation and further proceedings are based on it. So proper sex education in terms of natural and unnatural sexual desires, sexuality, proper hygiene, physical fitness, healthy discussions in peer groups, self-control, respect for the partner and about the purity of sexual act are directed in this phase. This education clarifies the myths about the act and generate the healthy environment. In case of different types of male sexual dysfunctions like sexual desire related problems (ex: low libido etc.), erectile dysfunctions can be identified by the qualified super specialists. Proper sexual counseling sessions along with different types of diets, yogasana postures, lifestyle changes and medication are directed based on diagnosis of the disease.

For relieving the copulation related dysfunctions Vajikarana tantra specifies, based upon the Indian calendar proper day is selected for the act to get an ideal progeny . Interval between the acts is based on physical fitness, mental stability and seasonal influences. Some of pre copulation advices like- holistic rituals, prayers are advice for strengths the mind and body. Hence Erectile dysfunction, Premature ejaculation, Delayed ejaculation, Low libido, Painful intercourse kind of challenges are addressed in the natural approach. Medicated nasal drops for female partner are considered for safe guarding the forth coming progeny.

External therapies like medicated oleation, fomentation, fumigations especially for genital area are advised to both the partners based on their prakruti etc. Specific diet is advised to get instant results during the act. Proper sexual postures and knowledge about the act are guided by qualified physician based on the need of the couple. An elevated mood is created by the soothing environment. Proper treatments are advised in the cases of physical and psychological impotency, penetration related issues, pain during the act, pathological dysfunction and anatomical defects. For autoimmune induced vascular damage created by chronic inflammation and neurological impairment sneha virechana, asthapana basti prepared by palasha, eranda and musta are ideal. Also ksheera yapana basti prayoga, ksheera sarpi prayoga, vrushya uttara basti have the ability to repair the inflammatory pathologies and neurologic deficits. Rasayana like Shilajatu rasayana, shatavari, Kapikacchu can re-rejuvenate the shukravaha srotas and improvise the immunity too.

As a part of preparation for next course of the act and also regaining the physical and mental strength, proper classical diet plan and relaxation therapies are advised in the post coitual phase. Different types of seminal deformities are also diagnosed by proper history taking and examination like- alpa retas (oligozoospermia), dushta retas (Leucospermia), ksheena retas (Asthenozoospermia), vishushka retas (Azoospermia) etc. Proper treatment modalities are planed according to the cause like Apyayana chikitsa (Nourishment therapy), Prasada chikitsa (Purification therapy), Upachaya chikita (Enhancement of growth), Janana chikitsa (generating) and Praharsha chikitsa (Arousal).

Conclusion: Vajikarana tantra is a branch of medical science, a complete package of Aphrodisiacs, Male reproductive medicine. Vajikarana tantra includes male sexual dysfunctions, its causes, pathophysiology, diagnosis and its managements. Intention of this science is not only give sexual pleasure but to give Shreyasi praja (ideal progeny) to the society. After consulting qualified Ayurveda superspecialists like Vajikarana specialists-common social myths related to sexual act, Proper sexual counseling sessions, proper diet plan, yoganasa postures, diagnosing male sexual dysfunctions and proper line of managements can be clarified and lead the sexual life with dignity.

Spectrum of Ano-Rectal Manifestations in Immune-Mediated Inflammatory Bowel Disease: An Evidence-Based Review and the Scope of Ayurveda in Management

Dr. Sree R. Nair

Assistant Professor, Department of Shalya Tantra, SDM College of Ayurveda, Hospital and Research Centre, Kuthpady, Udupi

Abstract

Background:

Inflammatory Bowel Disease (IBD), including Crohn's disease (CD) and ulcerative colitis (UC), is a chronic immune-mediated condition marked by an abnormal mucosal immune response in genetically susceptible individuals. Ongoing colonic inflammation may involve the anorectal region and produce a wide range of clinical manifestations, adding considerably to patient morbidity, reduced quality of life, and healthcare burden. Perianal disease is especially important because it is common, difficult to treat, and may be one of the earliest presentations of IBD.

Methods:

A narrative literature review was conducted using PubMed, Scopus, Web of Science, and Google Scholar. Peer-reviewed articles, systematic reviews, meta-analyses, and key studies published in high-impact journals were examined to summarize current evidence on the pathogenesis, diagnosis, and management of anorectal manifestations in IBD. In addition, three documented clinical cases were included to illustrate how treatment decisions may vary according to the presenting clinical features.

Results:

Immune dysregulation, cytokine imbalance, epithelial barrier dysfunction, and altered gut microbiota play important roles in the development of anorectal lesions in IBD. Diagnosis depends on careful clinical assessment supported, when indicated, by digital rectal examination, proctoscopy, endoanal ultrasonography, colonoscopy, and histopathological evaluation. Judicious use of these investigations helps guide timely selection of conservative Ayurvedic care or surgical management according to clinical need. Ano-rectal manifestations occur in approximately 20–40% of patients with ulcerative colitis and up to 50% of patients with Crohn's disease. Common presentations include bleeding, fissures, fistulae, abscesses, skin tags, strictures, proctitis, anal pain, urgency, tenesmus, and faecal incontinence. From an Ayurvedic perspective, these features broadly correspond with *Pittatisara*, *Raktatisara*, and *Grahani* associated with *Agnimandya* and *Rakta Dushti*. Conservative Ayurvedic measures emphasizing *Deepana, Pachana, Grahi, Vrana-Ropana, Basti*, and *Pathya* may complement modern medical therapy in selected patients.

Conclusion:

A multidisciplinary, patient-centred approach that integrates medical care, surgical expertise, and appropriate supportive therapies is essential for improving healing, preserving anorectal function, and enhancing long-term quality of life.

Keywords:

Inflammatory bowel disease; immune-mediated inflammatory disease; ano-rectal manifestations; Crohn's disease; ulcerative colitis; Ayurveda

Introduction

Inflammatory bowel disease (IBD) includes two chronic immune-mediated disorders: Crohn's disease (CD) and ulcerative colitis (UC). Its incidence has risen markedly over recent decades, including in developing countries such as India, where urbanization, dietary change, and environmental exposures may contribute to the growing burden. Persistent mucosal inflammation leads to repeated tissue injury and repair, producing both intestinal and extraintestinal manifestations. Ano-rectal involvement is clinically important because it may cause pain, discharge, bleeding, impaired continence, and considerable psychosocial distress. In Crohn's disease, perianal disease may precede intestinal symptoms and is often associated with a more aggressive disease course.

Immunopathogenesis of Ano-Rectal Disease

Ano-rectal lesions develop through the combined effects of genetic susceptibility, dysregulated innate and adaptive immunity, gut microbial dysbiosis, impaired epithelial barrier function, and persistent cytokine-driven inflammation. Disruption of epithelial tight junctions allows bacterial translocation into deeper tissues, which activates macrophages, dendritic cells, and T-helper lymphocytes. Increased production of TNF-α, IL-1β, IL-6, IL-17, IL-23, and IFN-γ sustains chronic inflammation, tissue damage, and fistula formation. In Crohn's disease, transmural inflammation predisposes to sinus tracts, abscesses, and fistulae, whereas ulcerative colitis is usually limited to the mucosa and more commonly presents with bleeding, ulceration, and proctitis.

Ano-Rectal Manifestations of Inflammatory Bowel Disease

Ano-rectal manifestations are frequent in IBD, especially in Crohn's disease, though some also occur in ulcerative colitis. These lesions can markedly reduce quality of life and often require coordinated care from gastroenterologists, colorectal surgeons, radiologists, and wound-care teams. The main manifestations are outlined below.

Rectal Bleeding
Rectal bleeding is often among the earliest symptoms of ulcerative colitis. It usually reflects active rectal inflammation, mucosal ulceration, and friability. The amount of bleeding varies with disease activity, ranging from occasional streaks of blood on stool to more significant haemorrhage.

Proctitis
Proctitis refers to inflammation limited to the rectum and is commonly seen in ulcerative colitis. Patients may present with urgency, tenesmus, increased stool frequency, mucus discharge, rectal pain, and fresh bleeding. When persistent, proctitis can interfere substantially with daily activities and bowel control.

Anal Fissures
Anal fissures are more strongly associated with Crohn's disease than with ulcerative colitis. Compared with idiopathic fissures, Crohn's-related fissures may be multiple, laterally placed, less painful, and slow to heal because of ongoing transmural inflammation. Their presence, especially when atypical, should raise suspicion of underlying Crohn's disease.

Perianal Abscess
Perianal abscesses usually result from infection of obstructed anal glands and are frequently linked with penetrating Crohn's disease. Typical features include severe perianal pain, swelling, fever, erythema, and purulent discharge. Prompt drainage, supported by appropriate antimicrobial therapy and control of the underlying disease, is important to reduce the risk of fistula formation and systemic infection.

Anal Fistula
Perianal fistula is a characteristic feature of Crohn's disease and results from transmural inflammation. Fistulas are described according to their relation to the sphincter complex as inter-sphincteric, trans-sphincteric, supra-sphincteric, or extra-sphincteric. Complex fistulas often require pelvic MRI for accurate mapping and are usually treated with a combination of biologic therapy, immunomodulators, seton drainage, and selected surgical procedures.

Perianal Skin Tags
Perianal skin tags are common in Crohn's disease and may appear before intestinal symptoms. They are often large, oedematous, and bluish, reflecting chronic lymphatic obstruction and inflammation. Although usually asymptomatic, they may provide an early clinical clue to Crohn's disease.

Anal Strictures
Repeated inflammation, ulceration, and healing may produce fibrosis and narrowing of the anal canal. Patients can present with constipation, obstructed defecation, painful evacuation, or faecal impaction. Severe strictures may need endoscopic dilatation or surgery.

Faecal Incontinence
Faecal incontinence in IBD may occur because of chronic diarrhoea, inflammation-related sphincter dysfunction, obstetric or surgical injury, or repeated anorectal procedures. It has a major effect on physical, psychological, and social well-being and should be assessed with attention to both sphincter integrity and bowel function.

Haemorrhoids
Haemorrhoids are not considered a direct manifestation of inflammatory bowel disease; however, chronic diarrhoea, increased bowel frequency, prolonged straining, and persistent anorectal inflammation may aggravate pre-existing haemorrhoidal disease. Management should be individualized, with definitive surgical treatment generally avoided during periods of active disease because of impaired wound healing.

Table 1. Major Ano-Rectal Manifestations of Inflammatory Bowel Disease

Manifestation	Predominant IBD Type	Key Clinical Features
Rectal bleeding	Ulcerative colitis	Fresh bleeding per rectum, mucosal ulceration
Proctitis	Ulcerative colitis	Tenesmus, urgency, mucus discharge, rectal pain
Anal fissure	Crohn's disease	Multiple, lateral, painless, chronic fissures
Perianal abscess	Crohn's disease	Pain, fever, swelling, purulent discharge
Anal fistula	Crohn's disease	Persistent discharge, recurrent abscess
Perianal skin tags	Crohn's disease	Large oedematous tags
Anal stricture	Crohn's disease > UC	Constipation, painful bowel evacuation
Faecal incontinence	Both	Leakage due to sphincter dysfunction or diarrhoea
Haemorrhoids	Both (secondary)	Bleeding, prolapse, discomfort

Diagnostic Evaluation of Ano-Rectal Manifestations in Inflammatory Bowel Disease

Diagnosis of Ano-rectal disease in IBD depends on careful clinical assessment supported by endoscopy, imaging, laboratory markers, and histopathology. History should include the onset, duration, severity, and pattern of rectal bleeding, pain, discharge, tenesmus, faecal incontinence, and any previous anorectal procedures. Examination begins with inspection of the perianal region for fissures, fistulae, abscesses, skin tags, and external openings, followed by digital rectal examination to assess sphincter tone, tenderness, strictures, and palpable lesions when tolerated.

Endoscopy remains central to diagnosis. Proctoscopy allows direct assessment of distal rectal lesions, while colonoscopy with targeted biopsy is the standard method for defining disease extent, assessing activity, and obtaining histopathological confirmation. Biopsy findings such as crypt architectural distortion, crypt abscesses, granulomas, and transmural inflammation help distinguish ulcerative colitis from Crohn's disease.

Imaging is particularly useful in perianal Crohn's disease. Pelvic MRI is the preferred investigation for fistulas and abscesses because it clearly shows fistulous tracts, secondary extensions, and associated collections. Endoanal ultrasonography may be useful for assessing sphincter integrity and simple fistulous disease. Laboratory markers such as C-reactive protein (CRP) provide non-invasive information about systemic and intestinal inflammation. Used together, clinical examination, endoscopy, imaging, biomarkers, and histopathology support accurate diagnosis, disease classification, and treatment planning.

Contemporary Management of Ano-Rectal Manifestations in Inflammatory Bowel Disease

Management of Ano-rectal manifestations in IBD should be individualized. The main aims are to control intestinal inflammation, promote healing of perianal lesions, prevent complications, and improve quality of life. Treatment depends on the type and severity of anorectal involvement, overall disease activity, and patient-related factors.

Medical Management

Medical treatment is directed mainly at controlling intestinal inflammation. Amino salicylates, including 5-aminosalicylic acid preparations, are used in mild-to-moderate ulcerative colitis. Corticosteroids are useful for inducing remission in moderate-to-severe disease but are avoided for long-term maintenance because of adverse effects. Thiopurines, 6-mercaptopurine, and methotrexate are used as maintenance and steroid-sparing agents. Biologic therapy has improved outcomes in moderate-to-severe IBD, especially in fistulizing Crohn's disease. Anti-tumour necrosis factor agents such as infliximab and adalimumab are commonly used for complex perianal fistulas. Vedolizumab and ustekinumab may be considered when response to anti-TNF therapy is inadequate or when intolerance occurs. Janus kinase inhibitors are newer oral targeted agents, particularly useful in moderate-to-severe ulcerative colitis.

Surgical Management

Surgery is considered for abscesses, complex fistulas, refractory strictures, and disease that does not respond adequately to medical treatment. Perianal abscesses require incision and drainage to prevent sepsis and fistula formation. Haemorrhoidectomy or Trans fixation and ligation is followed in Haemorrhoids. Setons are commonly used in complex fistulas to maintain drainage while protecting sphincter function. Sphincter-preserving procedures, such as endorectal advancement flap and ligation of the inter-sphincteric fistula tract (LIFT), may be suitable when inflammation is controlled and anatomy is favourable.

Ayurvedic Perspective of Ano-Rectal Manifestations in Inflammatory Bowel Disease

Inflammatory bowel disease is not described as a single disease entity in the classical Ayurvedic texts. However, its clinical features show similarities with conditions described under *Atisara*, *Grahani*, and *Guda Roga*. Depending on symptom predominance and disease stage, IBD may be correlated with *Pittatisara*, *Raktatisara*, *Grahani*, *Pravahika*, and *Gudagata Vrana*. Perianal complications such as fissures, fistulae, abscesses, and chronic ulcers may be understood in relation to *Parikartika*, *Bhagandara*, *Vidradhi*, and *Vrana*, respectively.

According to Ayurveda, the disease process begins with *Agnimandya*, leading to the formation of *Ama*, a toxic intermediate metabolite that initiates systemic inflammation. Persistent *Ama* causes vitiation of *Pitta* and *Rakta*, followed by involvement of *Vata*, resulting in derangement of the *Purishavaha Srotas* (intestinal channels). This culminates in symptoms such as diarrhoea (*Atisara*), rectal bleeding (*Raktatisara*), tenesmus (*Pravahana*), burning sensation (*Daha*), abdominal pain (*Shoola*), and ulceration, which closely parallel the clinical manifestations of ulcerative colitis and Crohn's disease. Chronic disease progression may lead to tissue depletion (*Dhatu Kshaya*), fibrosis, and recurrent ano-rectal complications, indicating the need for comprehensive systemic and local therapeutic interventions.

Scope of Ayurveda in the Management of Ano-Rectal Manifestations of IBD

Ayurvedic management focuses on restoring gastrointestinal balance, reducing inflammation, supporting mucosal healing, preventing relapse, and improving quality of life. Treatment is planned according to disease stage, *Dosha* predominance, digestive strength (*Agni*), and the nature of the Ano-rectal complication.

Management During the Active Inflammatory Phase

During active disease, treatment is aimed at digesting *Ama*, restoring *Agni*, pacifying aggravated *Pitta* and *Rakta*, controlling diarrhoea, and reducing intestinal inflammation. The main approaches include:

- *Deepana* – Enhancement of digestive fire.
- *Pachana* – Digestion and elimination of *Ama*.
- *Grahi Chikitsa* – Reduction of excessive bowel frequency and improvement of stool consistency.
- *Stambhana* – Control of excessive fluid loss and rectal bleeding after adequate *Ama Pachana*.
- *Pittahara Chikitsa* – Pacification of aggravated *Pitta* and reduction of mucosal inflammation.

Several classical formulations have traditionally been employed owing to their *Deepana*, *Grahi*, *Pittashamaka*, and wound-healing properties. Commonly used formulations include *Dadimashtaka Churna*, *Kutajaghana Vati*, *Musta* (Cyperus rotundus), *Bilva* (Aegle marmelos), *Nagakesara* (Mesua ferrea), and *Yashtimadhu* (Glycyrrhiza glabra). These drugs are described as improving digestive function, reducing intestinal inflammation, controlling diarrhoea, and promoting mucosal healing.

Management During Remission

The primary objective during remission is maintenance of long-term disease control and prevention of relapse. Therapeutic strategies focus on:

- Restoration of Agni and normal digestive function.
- Rasayana therapy to improve tissue regeneration and enhance immunity.
- Promotion of intestinal homeostasis and restoration of the gut microbial environment.
- Dietary regulation (*Pathya Ahara*) and lifestyle modification to prevent recurrence.

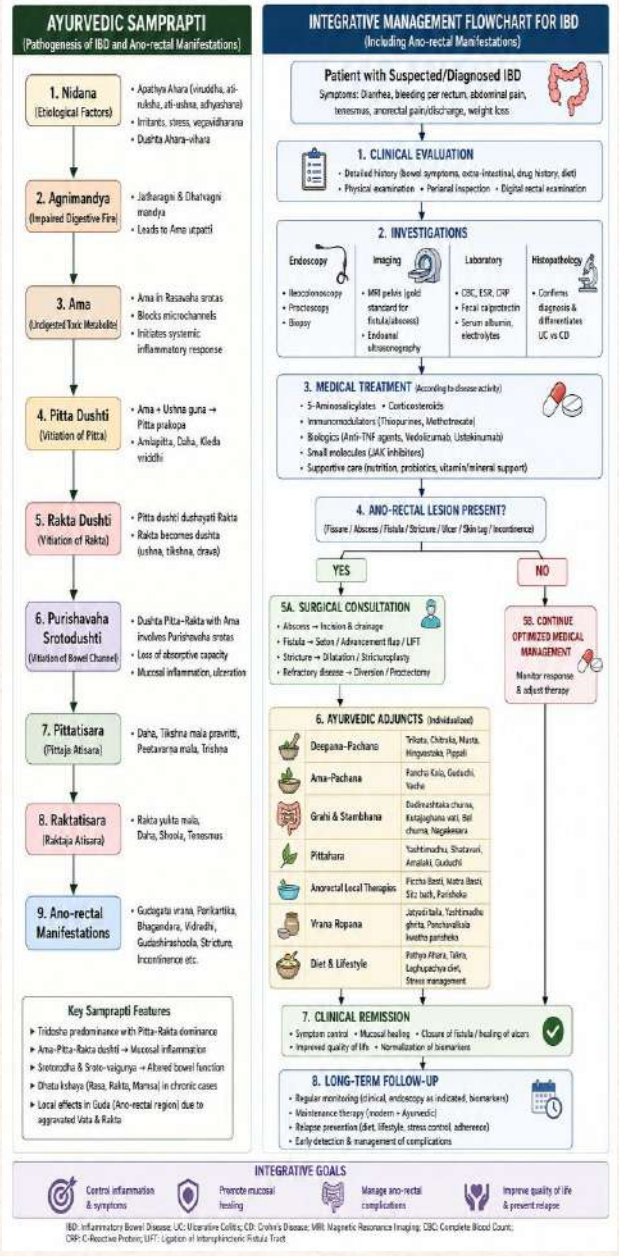
Long-term care also includes individualized dietary advice, stress reduction, adequate sleep, and avoidance of known food triggers to support remission and overall well-being.

Local Management of Ano-Rectal Manifestations: Local Ayurvedic therapies may be useful as adjuncts in selected anorectal complications of IBD. The choice of procedure depends on the lesion and its severity. Commonly used procedures include:

- *Piccha Basti,* which provides local mucosal protection and promotes healing of inflamed rectal mucosa.
- *Matra Basti,* administered to pacify aggravated *Vata*, improve anorectal function, and facilitate tissue repair.
- *Avagaha Sweda* (Sitz Bath) for reduction of pain, sphincter spasm, and local inflammation.
- *Vrana Ropana Chikitsa* using wound-healing formulations for chronic fissures, ulcers, and postoperative wounds.
- Appropriate local wound care for perianal abscesses, fistulae, and chronic ulcers, based on classical principles.

In selected patients, these local measures may support symptom relief and wound healing alongside contemporary medical care.

Fig. 1. Samprapti and Samprapti Vighatana of anorectal manifestations



The following cases show the range of Ano-rectal presentations seen in patients with suspected IBD and highlight how Ayurvedic treatment may be used as an adjunct to standard surgical care when clinically appropriate. All the three diseases were of surgical importance. But the associated condition made the clinician to take the decision of Conservative management to give initial symptomatic relief to patients.

Case 1: Chronic Diarrhoea with Haemorrhoids

A 38-year-old male with a known history of diabetes mellitus presented with involuntary passage of loose stools for three years. The symptoms were aggravated by the intake of spicy food and were associated with only temporary relief following

conventional medication. On Ano-rectal examination, haemorrhoidal masses were observed at the 6 and 9 o'clock positions. The patient received internal Ayurvedic medications including *Dhanwantharam Gulika*, *Mustharishta*, and *Triphala Churna*, along with *Anuvasana Basti* using *Dadimadi Ghrita*, followed by *Piccha Basti*. The treatment aimed at correcting *Agnimandya*, improving bowel function, and reducing anorectal symptoms.

Case 2: Acute Anal Fissure with Rectal Bleeding

A 44-year-old female presented with painful defecation, irregular bowel habits, and bleeding per rectum. Clinical examination revealed an acute anal fissure at the 6 o'clock position, while digital rectal examination could not be performed because of severe pain. The patient underwent fissurectomy followed by postoperative Topical anal instillation of oil. Adjunctive Ayurvedic therapy included *Dadimashtaka Churna*, *Triphala Guggulu*, *Gandhaka Rasayana*, and *Anuloma DS*. This integrative approach was directed toward pain relief, promotion of wound healing, regulation of bowel habits, and prevention of recurrence.

Case 3: Chronic Anal Fissure with Sentinel Tag

A 39-year-old female complained of painful defecation associated with irregular bowel habits. Inspection of site revealed a sentinel skin tag at the 12 o'clock position and an active fissure at the 5 o'clock position with mild hyperaemia. Digital rectal examination demonstrated marked tenderness and increased sphincter tone, suggestive of chronic fissure-in-ano. The patient was treated with *Dadimashtaka Churna* and local *Murivenna* Topical anal instillation. The treatment focused on relieving sphincter spasm, promoting fissure healing, and correcting the underlying gastrointestinal dysfunction.

Discussion

This review brings together current evidence on ano-rectal manifestations of inflammatory bowel disease and discusses the possible adjunctive role of Ayurveda. Relevant peer-reviewed literature was searched in PubMed/MEDLINE, Scopus, Web of Science, and Google Scholar up to June 2026. The search included terms such as *Inflammatory Bowel Disease*, *Ulcerative Colitis*, *Crohn's Disease*, *Perianal Disease*, *Ano-rectal Manifestations*, *Anal Fissure*, *Perianal Fistula*, *Perianal Abscess*, *Rectal Bleeding*, *Ayurveda*, *Pittatisara*, *Raktatisara*, *Pravahika*, and *Grahani*. Original research articles, clinical trials, systematic reviews, meta-analyses, consensus guidelines, and key studies were reviewed. Classical Ayurvedic texts, including the *Charaka Samhita*, *Sushruta Samhita*, and *Ashtanga Hridaya*, were consulted for disease correlations and therapeutic principles. The material was grouped under epidemiology, immunopathogenesis, clinical features, diagnosis, medical and surgical management, Ayurvedic concepts, and integrative approaches. Three clinical cases managed are included to illustrate variation in presentation and treatment planning. They are presented as clinical observations and should not be interpreted as evidence of treatment efficacy.The cases also underline the need to consider IBD in patients with persistent diarrhoea, fissures, rectal bleeding, or altered bowel habits. Treatment in these examples combined indicated surgical care with individualized Ayurvedic measures aimed at improving *Agni*, regulating bowel function, supporting wound healing (*Vrana Ropana*), and relieving anorectal symptoms. As isolated observations, the cases cannot prove efficacy, but they point to areas where prospective studies may be useful.

Emerging Clinical Evidence

Evidence from randomized controlled trials on Ayurvedic interventions in IBD is still limited. Some clinical reports describe improvement in symptoms and quality of life, but these findings remain preliminary. In one case previously reported by the authors, an individualized protocol using *Changeri* (Oxalis corniculata), *Takra* (medicated buttermilk), *Yashtimadhu Ksheerapaka*, *Piccha Basti*, dietary regulation, and lifestyle counselling was associated with reduced bowel frequency, rectal bleeding, abdominal discomfort, and better overall well-being. Larger controlled studies are needed before firm conclusions can be drawn.

Conclusion

Ano-rectal manifestations contribute significantly to morbidity in inflammatory bowel disease. Early recognition, multidisciplinary assessment, and individualized management are important for preventing complications and preserving function. Although biologic therapy has improved outcomes, recurrence, chronic wounds, and disability remain challenging. Ayurveda may have a supportive role through approaches directed at digestion, *Dosha* balance, mucosal healing, and relapse prevention. Further well-designed integrative studies are required to define its role in IBD-associated Ano-rectal disease.

References

1. Torres J, Mehandru S, Colombel JF, Peyrin-Biroulet L. Crohn's disease. Lancet. 2017;389(10080):1741-1755. doi: https://doi.org/10.1016/S0140-6736(16)31711-1
2. Ordás I, Eckmann L, Talamini M, Baumgart DC, Sandborn WJ. Ulcerative colitis. Lancet. 2012;380(9853):1606-1619. doi: https://doi.org/10.1016/S0140-6736(12)60150-0
3. Feuerstein JD, Moss AC, Farraye FA. Ulcerative colitis. Mayo Clin Proc. 2019;94(7):1357-1373. doi: https://doi.org/10.1016/j.mayocp.2019.01.018
4. Gecse KB, Bemelman W, Kamm MA, et al. ECCO Guidelines on Therapeutics in Crohn's Disease: Surgical Treatment. J Crohns Colitis. 2020;14(2):155-168. doi: https://doi.org/10.1093/ecco-jcc/jjz187
5. Panés J, Rimola J. Perianal fistulizing Crohn's disease: Pathogenesis, diagnosis and therapy. Nat Rev Gastroenterol Hepatol. 2017;14(11):652-664. doi: https://doi.org/10.1038/nrgastro.2017.104

6. McDowell C, Farooq U, Haseeb M. Inflammatory Bowel Disease. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; Updated August 4, 2023. Available from:https://www.ncbi.nlm.nih.gov/books/NBK470312/
7. Choi YS, Kim DS, Lee DH, Lee JB, Lee EJ, Lee SD, Song KH, Jung HJ. Clinical characteristics and incidence of perianal diseases in patients with ulcerative colitis. Ann Coloproctol. 2018;34(3):138-143. doi: https://doi.org/10.3393/ac.2017.06.08
8. Levine JS, Burakoff R. Extraintestinal manifestations of inflammatory bowel disease. Gastroenterol Hepatol (N Y). 2011;7(4):235-241.
9. Shen YH, Zhu H, Zhou L, Zheng YQ, Zhang Z, Xie Y, Liu ZQ, Peng CY, Wang L, Zhao C, Zhang XQ. Inflammatory bowel disease and extraintestinal manifestations: What role does microbiome play? Engineered Regeneration. 2023;4:337-348. doi: https://doi.org/10.1016/j.engreg.2023.04.005
10. Sushruta. Sushruta Samhita of Sushruta, with Nibandha Sangraha Commentary of Dalhanacharya. Edited by Vaidya Jadavaji Trikamji Acharya. Reprint ed. Varanasi: Chaukhambha Surbharati Prakashan; 2023. Uttara Tantra 40/167
11. Agnivesha. Charaka Samhita of Agnivesha, revised by Charaka and Dridhabala, with Ayurveda Dipika Commentary of Chakrapanidatta. Edited by Vaidya Jadavaji Trikamji Acharya. Reprint ed. Varanasi: Chaukhambha Surbharati Prakashan; 2023. Chikitsa Sthana 19/69–70.
12. Vagbhata. Ashtanga Hridaya of Vagbhata, with Sarvangasundara Commentary of Arunadatta and Ayurveda Rasayana Commentary of Hemadri. Edited by Pt. Hari Sadashiva Shastri Paradakara. Reprint ed. Varanasi: Chaukhambha Surbharati Prakashan; 2022. 8/25–32

Understanding Dermatomyositis through Ayurveda

Dr. Srinivasa S., Dr. Shreyas D.

Department of Kayachikitsa, SDM Institute of Ayurveda and Hospital, Bengaluru

Abstract

Background: Dermatomyositis is an uncommon autoimmune inflammatory disease that primarily affects the skin and skeletal muscles, resulting in progressive muscle weakness and characteristic skin lesions. Although modern immunosuppressive therapies have improved survival, many patients continue to experience relapses, long-term complications, and treatment-related adverse effects. Ayurveda does not describe Dermatomyositis as a separate disease entity; however, its clinical features can be understood through the concepts of *Santata Jwara, Mamsagata Vata, Uttana Vatarakta, Ama*, and *Rasa-Rakta-Mamsa Dhatu Dushti.*

Objective: This review aims to present a comprehensive overview of Dermatomyositis from both modern and Ayurvedic perspectives, with special emphasis on its pathogenesis, diagnosis, and integrative management.

Methods: Relevant information was collected from published scientific literature and classical Ayurvedic texts. Modern concepts related to epidemiology, etiopathogenesis, clinical manifestations, diagnosis, and treatment were reviewed alongside Ayurvedic principles of disease understanding and management. The role of *Shodhana, Shamana, and Rasayana Chikitsa* in the management of Dermatomyositis was critically discussed.

Results: Modern management primarily focuses on immunosuppression using corticosteroids and steroid-sparing agents to control disease activity. From the Ayurvedic perspective, treatment begins with *Nidana Parivarjana, Agnideepana, and Ama Pachana, followed by Virechana, Basti, Shamana Chikitsa,* and *Rasayana* therapy according to the patient's condition. *Rasayana* drugs such as *Guduchi, Ashwagandha, Bala,* and *Yashtimadhu* may help improve tissue nourishment, muscle strength, immune regulation, and overall functional recovery. An integrative approach combining conventional treatment with evidence-based Ayurvedic interventions may offer additional benefits in long-term disease management and rehabilitation.

Conclusion: Dermatomyositis is a chronic multisystem autoimmune disorder that requires comprehensive and individualized management. Ayurvedic principles provide a holistic framework for understanding the disease and may complement conventional therapy by improving tissue regeneration, reducing disease recurrence, and enhancing quality of life. However, well-designed clinical studies are essential to establish the efficacy and safety of these interventions in patients with dermatomyositis.

Keywords: Dermatomyositis, Ayurveda, Autoimmune disease*, Mamsagata Vata, Santata Jwara, Rasayana Chikitsa, Panchakarma*, Integrative medicine.

Introduction

Dermatomyositis (DM) is a rare, chronic, immune-mediated inflammatory disorder primarily affecting the skin and skeletal muscles. It belongs to the group of idiopathic inflammatory myopathies (IIMs), a heterogeneous spectrum of autoimmune diseases characterized by varying degrees of muscle inflammation, weakness, and distinctive histopathological features[1]. Although considerable progress has been made in understanding the immunological mechanisms involved, the precise etiopathogenesis of dermatomyositis remains incompletely understood. Current evidence suggests that a complex interaction between genetic susceptibility, environmental triggers, immune dysregulation, and vascular injury contributes to disease development.

The hallmark clinical presentation of Dermatomyositis consists of characteristic cutaneous manifestations accompanied by symmetrical proximal muscle weakness. Typical skin lesions include Gottron's papules over the extensor surfaces of the metacarpophalangeal and interphalangeal joints, heliotrope rash involving the periorbital region, periungual telangiectasia, dystrophic cuticles, and erythematous lesions over the elbows, knees, chest (V-sign), upper back (shawl sign), and lateral thighs (holster sign)[2]. Additional dermatological features such as mechanic's hands and calcinosis cutis may also be observed in selected patients. Muscle involvement usually develops gradually over weeks to months and predominantly affects the proximal muscles of the shoulder and pelvic girdles, resulting in difficulty climbing stairs, rising from a seated position, lifting objects, combing hair, or raising the head from a pillow. Myalgia and muscle tenderness may accompany weakness but are not universally present. An amyopathic variant of Dermatomyositis has also been recognized, wherein patients exhibit classical cutaneous manifestations with little or no clinically apparent muscle involvement.

Dermatomyositis can occur at any age but most frequently affects adults between 40 and 60 years of age[3]. Women are affected nearly twice as often as men. The estimated annual incidence is approximately 9–10 cases per million population, while juvenile Dermatomyositis occurs in nearly three children per million each year. Despite its rarity, Dermatomyositis is associated with significant morbidity due to progressive muscle dysfunction and multisystem involvement.

Beyond skeletal muscle and skin manifestations, Dermatomyositis is increasingly recognized as a systemic disease. Interstitial lung disease (ILD) represents one of the most important extramuscular complications and is a major determinant of morbidity and mortality. Furthermore, adult-onset Dermatomyositis demonstrates a well-established association with internal malignancies, necessitating comprehensive cancer screening during diagnosis and follow-up. Other systemic manifestations may include dysphagia, cardiac involvement, arthritis, and gastrointestinal complications, emphasizing the need for multidisciplinary evaluation and long-term surveillance[4].

The diagnosis of Dermatomyositis is established through a combination of clinical findings, laboratory investigations, imaging, electrophysiological studies, autoantibody profiling, and histopathological examination. The classical diagnostic criteria proposed by Bohan and Peter remain clinically relevant and include symmetrical proximal muscle weakness, elevated serum muscle enzymes, characteristic electromyographic abnormalities, muscle biopsy findings demonstrating inflammatory myopathy, and typical cutaneous manifestations. Laboratory evaluation commonly reveals elevated levels of creatine kinase (CK), aldolase, lactate dehydrogenase (LDH), aspartate aminotransferase (AST), and alanine aminotransferase (ALT). Serological assessment for antinuclear antibodies (ANA) and myositis-specific autoantibodies (MSAs) further assists in disease classification, prognostication, and therapeutic decision-making[3]. However, in patients presenting with classical cutaneous lesions together with proximal muscle weakness and elevated muscle enzymes, invasive diagnostic procedures such as muscle biopsy may not always be necessary.

Although Dermatomyositis is not explicitly described in the classical Ayurvedic texts, its clinical manifestations and underlying pathological processes can be understood through the principles of Ayurvedic pathophysiology. The disease exhibits close resemblance to *Mamsagata Vata*, wherein vitiated *Vata* affects the muscle tissue, producing features such as *stambha* (stiffness), *shoola* (pain), *shosha* (muscle wasting), *mamsa vinasha* (muscle degeneration), and *sarvanga tudyata* (generalized body pain)[10]. The autoimmune nature of the disease may further be interpreted through the concepts of *Ama*, *Agnimandya*, *Srotorodha*, and *Avarana*, leading to progressive tissue dysfunction. Classical descriptions of *Santata Jwara* and *Punaravartaka Jwara*[8] by *Acharya Charaka* also provide an important conceptual framework for understanding chronic inflammatory disorders characterized by persistent dosha vitiation, dhatu involvement, and recurrent disease activity. Improperly managed doshas may enter the *Leena Avastha*, remaining dormant until favourable conditions trigger disease recurrence, a phenomenon that bears resemblance to the relapsing-remitting nature of autoimmune diseases.

Management from an Ayurvedic perspective focuses on correcting the underlying pathological processes rather than merely suppressing symptoms. Treatment principles include *Apatarpana, Amapachana, Agnideepana, and Jwarahara Chikitsa* during the active inflammatory phase, followed by *Brimhana, Rasayana*, and appropriate *Panchakarma* interventions to restore muscle strength, improve tissue nourishment, and prevent disease recurrence. Integrating these classical therapeutic principles with modern diagnostic approaches may provide a comprehensive strategy for improving functional outcomes and quality of life in patients with Dermatomyositis.

Given the rarity of Dermatomyositis, its heterogeneous clinical presentation, multisystem involvement, and potential for severe complications such as malignancy and interstitial lung disease, early recognition and timely intervention remain crucial. This review aims to comprehensively discuss the epidemiology, etiopathogenesis, clinical manifestations, diagnostic evaluation, contemporary management, and Ayurvedic interpretation of Dermatomyositis while exploring the scope of integrative therapeutic approaches and future research directions.

Aim

11. To comprehensively review Dermatomyositis from both modern medical and Ayurvedic perspectives, with emphasis on its epidemiology, etiopathogenesis, clinical features, diagnosis, and management.
12. To explore the Ayurvedic correlation of Dermatomyositis and evaluate the potential role of Ayurvedic principles and therapies in its integrative management.

Objectives

13. To summarize the current evidence regarding the epidemiology, pathophysiology, clinical manifestations, diagnostic criteria, investigations, and conventional management of Dermatomyositis.
14. To critically review the Ayurvedic concepts correlating with Dermatomyositis and assess the available evidence on Ayurvedic therapeutic approaches for improving clinical outcomes and quality of life.

Materials and methods

Dermatomyositis (DM) is a rare, acquired autoimmune inflammatory disorder affecting the skin and skeletal muscles and is classified under the idiopathic inflammatory myopathies (IIMs). It is characterized by symmetrical proximal muscle weakness and distinctive cutaneous manifestations, including Gottron's papules and heliotrope rash. In addition to skin and muscle involvement, DM may affect the lungs, heart, and gastrointestinal tract, and is associated with an increased risk of internal malignancies. Clinical variants include clinically amyopathic Dermatomyositis (CADM), in which characteristic skin lesions occur with minimal or no muscle involvement. CADM is further classified into hypomyopathic dermatomyositis, where subclinical muscle inflammation is detectable on investigations, and amyopathic Dermatomyositis, where both clinical and laboratory evidence of muscle involvement are absent[3].

Etiology and Risk Factors4

The exact etiology of Dermatomyositis remains unknown; however, its development is believed to result from a complex interaction of genetic, immunological, and environmental factors.

Genetic factors: Certain human leukocyte antigen (HLA) haplotypes, including HLA-DRB1, HLA-DQA1, and HLA-DQB1, have been associated with an increased susceptibility to Dermatomyositis and its complications, particularly interstitial lung disease.

Immunological factors: Dermatomyositis is an autoimmune disorder characterized by immune dysregulation and the presence of myositis-specific autoantibodies, although their precise role in disease pathogenesis remains uncertain.

Environmental factors: Viral infections such as Coxsackie B virus, enteroviruses, and parvovirus B19 are considered potential triggers through mechanisms including molecular mimicry and loss of immune tolerance. Certain medications, including hydroxyurea, cyclophosphamide, penicillin, sulfonamides, isoniazid, statins, and non-steroidal anti-inflammatory drugs, have also been implicated in disease onset. Additionally, prolonged exposure to ultraviolet (UV) radiation has been reported as a possible environmental risk factor, particularly among women.

Etiopathogenesis

The exact etiopathogenesis of Dermatomyositis (DM) remains incompletely understood. It is believed to result from a complex interplay between genetic susceptibility, immune dysregulation, and environmental triggers. Genetic studies have identified associations with specific HLA alleles and polymorphisms in genes regulating immune responses, which increase an individual's susceptibility to the disease.

The hallmark of DM is complement-mediated microangiopathy, in which activation of the complement system leads to deposition of the membrane attack complex (C5b-9) on endomysial capillaries, resulting in endothelial injury, capillary destruction, tissue ischemia, and subsequent muscle fiber damage. Immune dysregulation is further characterized by overproduction of type I and type II interferons, pro-inflammatory cytokines, and the presence of myositis-specific autoantibodies, which are detected in approximately 50–70% of patients and contribute to disease heterogeneity.

Environmental factors such as viral infections, certain medications (e.g., statins, hydroxyurea, phenytoin, and NSAIDs), ultraviolet radiation, and underlying malignancies are recognized as potential triggers in genetically predisposed individuals. These factors initiate autoimmune responses that target the skin and skeletal muscles, producing the characteristic cutaneous lesions and progressive symmetrical proximal muscle weakness seen in Dermatomyositis[3].

Treatment

Dermatomyositis is primarily treated with immunosuppressive therapy aimed at controlling inflammation, improving muscle strength, relieving skin manifestations, and preventing complications. High-dose corticosteroids, such as prednisolone (0.5–1 mg/kg/day), are the first-line treatment, while intravenous methylprednisolone is reserved for severe cases with marked muscle weakness, dysphagia, or respiratory involvement. Steroid-sparing immunosuppressive agents such as methotrexate, azathioprine, mycophenolate mofetil, or tacrolimus are commonly added to reduce long-term corticosteroid use and maintain remission. Patients with refractory disease may benefit from intravenous immunoglobulin (IVIG) or biologic therapy such as rituximab. Cutaneous manifestations are managed with sun protection, topical corticosteroids or calcineurin inhibitors, and hydroxychloroquine in selected cases. Supportive care, including physiotherapy, supervised exercise, nutritional support, and regular monitoring of muscle enzymes and organ involvement, plays a vital role in recovery. Because adult dermatomyositis is associated with an increased risk of malignancy, age-appropriate cancer screening should be performed at diagnosis and during follow-up. Early diagnosis and a multidisciplinary treatment approach significantly improve long-term outcomes and quality of life[1].

Ayurveda perspective

Although Dermatomyositis is not described as a distinct disease in the classical Ayurvedic texts, its clinical presentation and autoimmune nature can be understood through the concepts of *Jwara, Ama, Agnimandya, Avarana, and Mamsagata Vata*. Acharya Charaka describes *Santata Jwara* as a condition in which vitiated doshas circulate through the *Rasadi Srotas* and spread throughout the body, producing systemic manifestations. If inadequately treated, the doshas enter a *Leena Avastha* (latent stage) and may re-emerge as *Punaravartaka Jwara*[7] upon exposure to favourable causative factors, resembling the relapsing nature of autoimmune disorders.

Exposure to *Nidana* results in *Dhatu Paka*, leading to manifestations such as *Jwara, Shotha, Pandu, and Pidaka*, which closely resemble the inflammatory and multisystem features of Dermatomyositis. The associated muscle weakness, pain, stiffness, and muscle degeneration may further be correlated with *Mamsagata Vata*, while the cutaneous manifestations can be explained by *Uttana Vatarakta* involving *Twak* and *Mamsa Dhatu*.

The Ayurvedic management of Dermatomyositis is based on the principles of *Santata Jwara Chikitsa*, beginning with *Apatarpana, Amapachana, Agnideepana, and Jwarahara Chikitsa* during the active inflammatory phase, followed by *Brimhana* and *Rasayana* therapies to restore muscle strength, nourish the tissues, and prevent recurrence.

Understanding the Pathophysiology of Dermatomyositis According to Ayurveda (Samprapti)12

Nidana Sevana (Exposure to etiological factors)
↓
Santata Jwara develops
↓
If left untreated for more than 12 days
↓
Breakdown of cellular tolerance and alteration of cellular proteins (autoimmune initiation)
↓
Involvement of *Rasa, Rakta, and Mamsa Dhatu*
↓
Doshas remain in the *Dhatus in Avyakta* (latent) form
↓
On exposure to favourable conditions (*Nidana Sevana), Dhatu Paka* occurs
↓
Humoral immune attack on muscle capillaries and endothelium of arterioles
(*Rasavaha Srotodushti* causing impairment of *Preenana Karma)*
↓
Formation of Membrane Attack Complex (MAC)
↓
Deposition of MAC on vascular walls leading to inflammation
↓
Srotorodha (Lakshana of Rasavaha Srotodushti)
+
Shwayathu (Edema) *(Lakshana of Punaravartaka Jwara)*
↓
Raktavaha Srotodushti
↓
Hypoxic injury to muscle fibers
(*Preenana and Jeevana Karma* are impaired)
↓
Persistent *Raktavaha Srotodushti* leads to defective nourishment of *Mamsa Dhatu*
↓
Muscle fiber degeneration and necrosis
(with perifascicular degeneration and regeneration on histopathology)
↓
"Na Ati Shuddhyanti Na Va Shuddhyanti Sarvashah"
(persistent pathological state)
↓
Pootimamsa (Necrosis of Muscle Tissue)

Samprapti Ghataka	
Dosha	*Vata Pradhana Tridosha*
Dushya	*Rasa, Rakta, Mamsa*
Agni	*Jatharagni, Dhatvagni*

Samprapti Ghataka	
Agni Dushti	*Mandagni*
Srotas	*Rasavaha, Raktavaha, Mamsavaha*
Srotodushti	*Sanga*
Udbhavasthana	*Amashaya*
Sancharasthana	*Sarva Shareera*
Vyaktasthana	*Sarva Shareera*
Rogamarga	*Madhyama, Bahya*
Sadhyasadhyata	*Yapya*

Ayurvedic Management

Although the direct correlation of Dermatomyositis cannot be made through ayurveda, through its *samprapti* and *lakshanas* it can be correlated with *Santata jwara, Utthana vatarakta, Mamsagata vata* etc.

The management includes *Agnideepana, Ama pachana, Srotoshodhana, Shodhana, Shamana and Rasayana* therapies. The chikitsa can be planned based on *Avasta* of both Rogi and *Roga*

Nidana parivarjana

The first step in treatment is the avoidance of factors that aggravate *Vata, Pitta, and Ama,* such as incompatible foods (*Viruddhahara*), excessive intake of *Laghu, Ushna, Tikshna, Vishyandana* and processed foods, irregular dietary habits, overexertion, sleep deprivation, psychological stress, and exposure to excessive sunlight. A proper *Dinacharya, Ritucharya* and a *laghu*, easily digestible diet are recommended.

Agnideepana and Amapachana

Acharya Sushruta mentions the existence of *tiryak dhamani* that spread throughout the body and open through *romakupa.* Through these openings, the drugs, which have been administered in the form of *abhyanga, seka* etc, enter the body by virtue of their *Veerya,* undergo *paka* by the help of *bhrajakagni* and nourish the *rasa.*

According to *Acharya Sushruta, Dashamula* is *tridoshashamaka, Ama pachaka* and *Sarva jwarahara* and can be considered as best for rookshana[4].

Shamana aushadhi's includes *Chitrakadi vati, Panchakola churna, Amrutottara Kashaya* can be used for *Deepana* and *Pachana*.

Shashtika shali pinda sweda: Once the patient is relieved from the *Ama lakshana, Brumhana* line of management should be adopted. *Acharya Charaka*, while explaining the drugs used for *pinda sweda*, he has mentioned *odana as swedana dravya* especially in the *vata pradhana avastha*. As *Shashtika shali* said to be *sthiratmaka*, it was used for the process of swedana here.

Shashtika Shali Pinda Sweda can be considered a therapeutic procedure that combines the beneficial effects of moist heat, gentle massage, and herbal therapy. The continuous application of warm medicated rice boluses improves local blood circulation, allowing better delivery of oxygen and nutrients to the affected tissues while facilitating the removal of inflammatory metabolites. The warmth helps relax muscles, reduces pain and stiffness, and increases the elasticity of soft tissues, thereby improving joint mobility and overall function. At the same time, the rhythmic massage stimulates cutaneous nerve endings and lymphatic drainage, contributing to pain relief and reduction of local swelling. The herbal decoction and milk used during the procedure provide a soothing medium and supply natural bioactive compounds with antioxidant and anti-inflammatory properties that support tissue repair.The rice serves as an excellent heat-retaining medium that maintains uniform warmth and provides a protective, moisturizing effect over the skin.

Shodhana

Cleansing therapies help eliminate the aggravated *doṣhas* through their natural routes:

1. ***Virechana***[14]**:** Autoimmunity is closely associated with the involvement of *tridoshas (Vata Pitta Pradhana)* so, *Virechana* acts as best line of management to alleviate aggravated pitta and bring about *Vatanulomana.*

The beneficial effects of *Virechana* may be explained by Reduction of systemic inflammatory mediators, Improvement in gastrointestinal function and the gut–immune axis, Modulation of immune responses and oxidative stress, Enhancement of metabolic homeostasis, Improved bioavailability and therapeutic response to subsequent medications.

2. ***Basti*****:** *Basti* considered as *Ardha chikitsa* helps in balancing the aggravated *pitta* by controlling *Vata dosha as Vata* being the driving force disrupting *pitta and kapha* in Autoimmunity. From a mechanistic perspective, *Basti* is believed to restore the normal movement of *Vata,* improve *Agni*, clear obstructed *Srotas*, enhance tissue nutrition, and support the formation of healthy *Rasa, Rakta, and Mamsa Dhatus*. It also prepares the body for effective *Rasayana* therapy, thereby improving *Bala* (strength), *Vyadhikshamatva* (immunity), and *Ojas*. From a modern perspective, the therapeutic effects of *Basti* may be attributed to its potential immunomodulatory, anti-inflammatory, antioxidant, neuromuscular supportive, and gut-immune axis modulating actions, which may help reduce systemic inflammation, improve muscle function, and enhance quality of life.

Importance of *Sneha basti:* *Anuvasana Basti*, due to its longer retention time, enhances the probability of absorption. Particularly, short-chain fatty acids present in the *Sneha* used in *Anuvasana Basti* may absorb from the colon and large intestine, potentially alleviating pathological conditions.

Shamana chikitsa (palliative therapy)

It plays a crucial role in the management of Dermatomyositis, particularly in patients who are not suitable for *Shodhana*, those with debilitated strength (*Alpa Bala*), or after completion of *Shodhana Karma* to maintain remission and prevent recurrence. Since Dermatomyositis can be correlated with a condition involving *Vata-Pitta* predominance, *Ama, Maṃsa Dhatu Dushti, Srotorodha, and Ojakṣaya, Shamana therapy* aims to pacify the vitiated *Doshas,* digest residual *Ama*, reduce inflammation, nourish the affected *Dhatus*, improve muscle strength, and enhance *Vyadhikṣamatva* (immune resilience).

The principles of *Shamana Chikitsa* include *Dipana, Pacana, Vata-Pitta Shamana, Srotoshodhana, Bṛuṃhaṇa, Balya, and Rasayana.* By restoring *Agni*, eliminating residual metabolic toxins, and improving tissue metabolism, Shamana medicines help reduce muscle weakness, fatigue, myalgia, skin inflammation, and stiffness while promoting regeneration of *Rasa, Rakta, and Maṃsa Dhatus*.

Rasayana: *Rasayana* therapy aims at Suppression of pro-inflammatory cytokines (TNF-α, IL-1β, IL-6), Reduction of oxidative stress through increased antioxidant enzyme activity, Protection of skeletal muscle from inflammatory damage, Enhancement of mitochondrial function and muscle endurance, Modulation of T-cell and macrophage activity and Promotion of muscle regeneration and repair.

Rasayana dravyas[11] *like Guduchi, Ashwagandha, Bala, Yashtimadhu* can be used for restoring the *Ojas* and strength.

Discussion

Dermatomyositis is a chronic autoimmune inflammatory disease that affects both the skin and skeletal muscles, often resulting in significant functional impairment and reduced quality of life. Although immunosuppressive therapy remains the mainstay of treatment, long-term use is associated with adverse effects and does not always prevent disease relapse. Therefore, supportive and integrative treatment approaches are increasingly being explored.

From an Ayurvedic perspective, Dermatomyositis can be interpreted through the concepts of *Santata Jwara, Mamsagata Vata, Uttana Vatarakta, Ama, and Rasa-Rakta-Mamsa Dhatu Dushti.* Based on these principles, management focuses on correcting *Agni*, eliminating *Ama*, restoring the balance of Doshas, and nourishing the affected tissues. Therapies such as *Virechana, Basti, Shamana Chikitsa, and Rasayana* may help improve muscle strength, reduce inflammation, and enhance overall well-being. Among these, *Rasayana* therapy is particularly important in the rehabilitation phase because it promotes tissue regeneration, improves immunity (*Vyadhikshamatva*), and restores Ojas. However, the available evidence is largely based on classical Ayurvedic principles and a limited number of clinical reports. Well-designed clinical studies are needed to establish its effectiveness in Dermatomyositis.

Conclusion

Dermatomyositis is a complex autoimmune disorder requiring long-term multidisciplinary management. Ayurvedic principles provide a holistic approach by addressing the underlying disturbances in *Agni, Ama, Doshas, and Dhatus*, while emphasizing tissue rejuvenation through *Rasayana* Chikitsa. Although *Ayurveda* cannot currently be considered a replacement for conventional therapy, it may serve as a valuable complementary approach to improve muscle function, quality of life, and long-term recovery. Further scientific research and controlled clinical trials are required to validate these therapeutic concepts and establish their role in the integrative management of dermatomyositis.

References

1. Dermatomyositis Part 2: Diagnosis and Treatment Reid Waldman, M.D., Madeline E. DeWane, B.A., Jun Lu, M.D. Journal of the American Academy of Dermatology S0190-9622(19)32308-4
2. Dermatomyositis Part I: Clinical Features and Pathogenesis Madeline E. De Wane, B.A., Reid Waldman, M.D., Jun Lu, M.D. Journal of the American Academy of Dermatology S0190-9622(19)32309-6
3. Davidson, Principle, and practice of medicine, edited by Haslett Chilvers Edwin R. et al. Nineteenth Edition, 2002, 866.
4. Qudsiya Z, Waseem M. Dermatomyositis. [Updated 2023 Aug 7]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK558917/
5. Kristina Bundra, Pharm. D, NORD Editorial Intern, and Chester V. Oddis, MD, Professor of Medicine, University of Pittsburgh School of Medicine https://rarediseases.org/rare diseases/dermatomyositis
6. Qudsiya Z, Waseem M. Dermatomyositis. [Updated 2023 Aug 7]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK558917/
7. Acharya YT, ed., Charaka Samhita of Agnivesha elaborated by Charaka and Drdhabala with Ayurveda Dipika commentary by Sri Chakrapanidatta, Chikitsasthana, 3rd chapter, 53-6th verse, Varanasi: Chaukhamba Surbharati Prakashan, 2015, p 403
8. Acharya YT, ed., Charaka Samhita of Agnivesha elaborated by Charaka and Drdhabala with Ayurveda Dipika commentary by Sri Chakrapanidatta, Chikitsasthana, 3rd chapter, 334-7th verse, Varanasi: Chaukhamba Surbharati Prakashan, 2015, p 427
9. Acharya YT, ed., Sushruta Samhita of Sushruta with the Nibandhasangraha Commentary of Sri Dalhanacharya and the Nyayachandrika Panjika of Sri Gayadasacharya on Nidanasthana, Sharirasthana, 9th chapter, 9th Verse, Varanasi: Chaukhamba Surbharati Prakashan, 2017, p 385
10. Acharya YT, ed., Sushruta Samhita of Sushruta with the Nibandhasangraha Commentary of Sri Dalhanacharya and the Nyayachandrika Panjika of Sri Gayadasacharya on Nidanasthana, Sutrasthana, 38th chapter, 70-1st Verse, Varanasi: Chaukhamba Surbharati Prakashan, 2017, p 169
11. Acharya YT, ed., Charaka Samhita of Agnivesha elaborated by Charaka and Drdhabala with Ayurveda Dipika commentary by Sri Chakrapanidatta, Sutrasthana, 14th chapter, 25-7th verse, Varanasi: Chaukhamba Surbharati Prakashan, 2015, p 89
12. Megha B and Ananta S Desai. Enhancing the quality of life in Dermatomyositis through Panchakarma: A Case Study. Int. J. Res. Ayurveda Pharm. 2025;16(5):15-20 DOI: http://dx.doi.org/10.7897/2277-4343.165161
13. Pt. Paradakara HSS, ed., Astangahrdaya of Vagbhata with the commentaries Sarvangasundara of Arunadatta and Ayurvedarasayana of Hemadri, Chikitsasthana 21st Chapter 58-61st verse, Varanasi: Chaukhamba Sanskrit Sansthan, 2016, p 726-7
14. Kure VN, Vinay Kumar KN, Bharadwaj T. Ayurvedic management of scleroderma and dermatomyositis – A case study. World J Pharm Life Sci. 2024;10(4):138-142.
15. Dongre N, Shambharkar N. Ayurvedic treatment of Mansagatavata – A case study. *International Journal of Ayurveda and Pharmaceutical Chemistry*. 2017;7(2):326–332

Potential Role of Rasauṣadhi in Autoimmune and Immune-Mediated Disorders

Dr. Sushma Shenoy

SDM College of Ayurveda, Hospital and Research Centre, Kuthpady, Udupi

Autoimmune diseases constitute a heterogeneous group of chronic disorders characterized by impaired self-tolerance, dysregulated immune responses, persistent inflammation, and progressive tissue injury. Rheumatoid arthritis, psoriasis, systemic lupus erythematosus, autoimmune thyroid disorders, and inflammatory bowel disease are among the important clinical examples.

The therapeutic approach may therefore begin with correction of Agnimāndya to restore normal digestive and metabolic functions, followed by measures aimed at reducing Āma. Correction of Dhātvagni-māndya may subsequently be directed towards restoration of Dhātu homeostasis through appropriate Bṛṃhaṇa and Rasāyana measures. In chronic disorders associated with compromised Ojas, appropriately selected Ojo-vardhaka Rasāyana may be considered to support Bala and Vyādhikṣamatva.

Within this therapeutic framework, Rasauṣadhi occupies a distinctive position owing to its characteristic properties such as Sūkṣma, Tīkṣṇa, Vyavāyi, Yogavāhi, and Rasāyana activity. Preparations containing Parada-based combinations, Suvarṇa preparations, Abhraka Bhasma, Tamra Bhasma, Vajra Bhasma and other processed mineral preparations, administered through dosage forms such as Pottali Kalpa, Parpaṭi Kalpa, Kupipākva Rasāyana and Kharalīya Rasāyana, have traditionally been explored for their therapeutic and rejuvenative potential. Their possible immunomodulatory and restorative effects provide a rationale for further scientific investigation in autoimmune and immune-mediated disorders.

System-wise Action and Potential Impact of Rasauṣadhi in Autoimmune Diseases

A system-wise approach provides a useful framework for understanding the potential contribution of Rasauṣadhi in autoimmune disorders. Rasauṣadhi should not be regarded as uniformly immunosuppressive. Depending upon the formulation, pharmaceutical processing, dosage, route of administration, and disease context, its proposed actions may include immunomodulation, anti-inflammatory activity, antioxidant protection, tissue protection, tissue repair and Rasāyana effects.

1. Immune System: A Primary Therapeutic Target

Considering Agni-bala and Vyādhi-avasthā, optimization of Vyādhikṣamatva may be regarded as an important therapeutic objective. Selected Rasauṣadhi preparations may have potential relevance in this context.

Preparations such as Suvarṇa Bhasma, Abhraka Bhasma, Makaradhvaja, and selected Vāsanta Kalpas including Vasantakusumākara Rasa, Madhumalinī Vasantha and Suvarṇamālinī Vasantha, along with specialized Rasāyana preparations such as Hemagarbha Pottali, Tamragarbha Pottali and Rasagarbha Pottali, may be explored for their potential immunomodulatory effects.

From a contemporary research perspective, these effects may be investigated through their possible influence on macrophage activity, T-cell responses, Th1/Th2 and Th17/Treg balance, cytokine regulation, and oxidative stress pathways. Such mechanisms provide a potential rationale for investigating these formulations in immune-mediated conditions including juvenile diabetes, rheumatoid arthritis, systemic lupus erythematosus, scleroderma, psoriasis, autoimmune alopecia and autoimmune thyroid disorders, multiple sclerosis etc,

2. Musculoskeletal disorders

Rasauṣadhi and Rasāyana formulations may have potential therapeutic relevance in chronic inflammatory and autoimmune musculoskeletal disorders such as rheumatoid arthritis, psoriatic arthritis, systemic lupus erythematosus and other inflammatory arthropathies.

Formulations of interest include Guggulu-based preparations such as Yogarāja Guggulu and Siṃhanāda Guggulu, as well as Rasauṣadhi such as Vātavidhvaṃsa Rasa, Vātagañjākuśa Rasa, Yogendra Rasa, Vātakulāntaka Rasa and Amavatari Rasa.

From the Ayurvedic perspective, their therapeutic effects may be understood through the sequence of Āma-pācana, Vāta-śamana, Śothahara and Śūlahara actions. These effects may contribute to reduction of inflammation and pain while supporting joint mobility and functional capacity.

From a contemporary research perspective, their potential immunomodulatory and anti-inflammatory effects may be evaluated using biomarkers such as TNF-α, IL-1β, IL-6, CRP and ESR, together with validated clinical parameters including DAS28, pain and stiffness scores, joint mobility and functional capacity.

3. Skin and Immune-Barrier System disorders

The dermatological system represents an important area for investigating the potential role of Rasauṣadhi in autoimmune and immune-mediated disorders. Conditions such as psoriasis, vitiligo, scleroderma, systemic lupus erythematosus, dermatomyositis and other inflammatory dermatoses may involve complex interactions between immune dysregulation and tissue-barrier function.

Rasauṣadhi such as Laghu Sūtaśekhara Vaṭi, Gandhaka Rasāyana and Kuṣṭhakutāra Rasa are traditionally used in the management of various skin disorders. Other Rasāyana

preparations, including Tāla Sindūra, Śilā Sindūra, Rasamāṇikya, hashilekha vati, Tālagarbha Pottali and Yaśada Bhasma, may also provide better management in chronic skin conditions by modulation of inflammatory pathways, including pathways associated with IL-17, IL-23 and TNF-α, thereby potentially contributing to attenuation of inflammatory skin responses. From an Ayurvedic perspective, these effects may be interpreted in relation to Rakta-prasādana, Doṣaśamana and restoration of tissue health.

4. Gastrointestinal and Hepatobiliary diseases

The gastrointestinal system represents another potential area for the contribution of Rasauṣadhi to autoimmune and immune-mediated disorders, particularly ulcerative colitis, Crohn's disease and other immune-mediated enteropathies. The hepatobiliary spectrum may include disorders such as autoimmune hepatitis, primary biliary cholangitis and primary sclerosing cholangitis.

Selected Rasauṣadhi formulations traditionally indicated for correction of Agni, mitigation of Āma, and management of Doṣa involvement in the Āmapakvāśaya may provide a conceptual basis for further research.

Potential areas include modulation of intestinal inflammation, preservation of intestinal barrier integrity and interaction with the gut microbial ecosystem. These effects may subsequently influence mucosal immune responses and disease activity.

Formulations such as Agnitundī Vaṭi, Sūtaśekhara Rasa, Śaṅkhavaṭī, Ānandabhairava Rasa, Grahaṇīkapaṭa Rasa, Agnikumāra Rasa, Arśakutāra Rasa and Lokanātha Rasa may be explored in this context. Similarly, Parpaṭi preparations such as Pañcāmṛta Parpaṭi, Rasa Parpaṭi and Prāṇadā Parpaṭi may exhibit its potentiality in inflammatory and functional intestinal disorders.

Preparations such as Ārogyavardhinī Vaṭī, Lokanātha Rasa, Jalodarāri Rasa and Gulmakālānala Rasa may also be effective for their potential hepatoprotective effects. Preservation of hepatocyte integrity and maintenance of hepatic function may be relevant in chronic hepatobiliary inflammation, while potential antifibrotic effects may be of interest in limiting progression towards hepatic fibrosis.

5. Nervous and Neuromuscular disorders

Autoimmune neurological disorders comprise a diverse group of conditions in which aberrant immune responses are directed against components of the central or peripheral nervous system. Loss of immune tolerance may result in autoreactive T-cell and B-cell responses and autoantibody production, leading to inflammation and injury involving neurons, myelin, synapses, neuromuscular junctions or peripheral nerves.

The clinical spectrum includes multiple sclerosis, myasthenia gravis, autoimmune encephalitis, neuromyelitis optica spectrum disorder, autoimmune neuropathies and autoimmune cerebellar disorders.

Formulations such as Bṛhat Vātacintāmaṇi Rasa, Vātakulāntaka Rasa, Vātagañjākuśa Rasa and Samīrapannaga Rasa may be explored for their possible anti-inflammatory effects and their potential influence on neuroinflammatory pathways.

The antioxidant properties of selected Rasauṣadhi may potentially contribute to reduction of oxidative stress and protection of neural tissues against free-radical-mediated injury. Their proposed neuroprotective effects may be relevant to preservation of neurons, myelin and supporting neural cells from inflammatory and oxidative damage.

Rasāyana preparations such as Ekāṅgavīra Rasa, Hemagarbha Pottali, Yogendra Rasa, Smṛtisāgara Rasa, Malla Sindūra and Rājarāja Rasa may also be explored for potential neuroprotective and anti-apoptotic effects. Their possible influence on mitochondrial function may be relevant to neuronal energy metabolism and cellular survival.

The integrity of the blood–brain barrier represents another important area for investigation, particularly because alterations in barrier function may influence immune-cell migration into the central nervous system. Selected Rasāyana preparations may also warrant investigation for their potential restorative and neuro-regenerative effects, including support for neuronal repair and functional recovery.

Medhya-Rasāyana concept provides a traditional rationale for supporting cognitive function, neurological performance, tissue nourishment and resilience.

Discussion

The integration of Ayurvedic principles with contemporary biomedical research methodologies offers an opportunity to investigate these traditional formulations through measurable endpoints such as cytokine profiles, inflammatory and oxidative-stress biomarkers, immune-cell responses, tissue-protective mechanisms and validated clinical outcomes. However, the proposed mechanisms should be regarded as potential therapeutic hypotheses rather than established pharmacological effects. Rigorous standardization, quality control, pharmacological and toxicological evaluation, mechanistic studies and well-designed clinical trials are essential to establish their efficacy, safety and reproducibility.

Thus, Rasauṣadhi represents a promising area for translational research in autoimmune and immune-mediated disorders, with the potential to bridge classical Ayurvedic therapeutic knowledge and modern immunological science. A scientifically rigorous, evidence-based and safety-oriented research approach may help define its appropriate therapeutic role and contribute to the development of integrative, personalized and mechanism-informed strategies for the management of autoimmune diseases.

Conclusion

Autoimmune diseases remain a major therapeutic challenge because many patients experience chronic symptoms, relapses,

treatment-related adverse effects or incomplete responses despite long-term conventional therapy. In this context, Rasaushadhis may have an important complementary role in Ayurvedic management. Traditionally, carefully processed Rasaushadhis are considered potent medicines that may help modulate aggravated Doshas, support Agni and Dhatu functions and address chronic inflammatory manifestations. Formulations such as Pottali kalpas, Vasanta kalpas, potent Bhasmas, Swarna kalpas and other appropriately selected herbo-mineral preparations have been used traditionally in chronic and difficult-to-manage conditions. Their potential advantages include administration in small doses and their use as part of individualized Ayurvedic treatment protocols. Thus, rather than viewing Rasaushadhis merely as alternatives to conventional medicines, they may be explored as an important complementary therapeutic approach, particularly in patients with inadequate symptom control or intolerance to conventional treatment. However, their use should be individualized and undertaken under qualified supervision, with appropriate attention to pharmaceutical quality, metal toxicity, drug interactions, and clinical monitoring. Further well-designed clinical research is needed to establish their efficacy and safety in specific autoimmune diseases

Authors :

Dr. Ashok Kumar B N

Professor

Department of Rasashastra and Bhaishajya Kalpana

SDM College of Ayurveda Hospital and Research Centre Kuthpady Udupi

Dr Sushma Shenoy U

Assistant professor

Department of Rasashastra and Bhaishajya Kalpana

SDM College of Ayurveda Hospital and Research Centre Kuthpady Udupi

Therapeutic Effects of Yoga in Autoimmune Disorders: A Review of Immunomodulatory, Neuroendocrine and Psychophysiological Mechanisms

Dr. Vijay B. Negalur

Professor and Head, Department of PG Studies in Swasthavritta and Yoga, SDM College of Ayurveda, Hospital and Research Centre, Udupi

Abstract

Autoimmune disorders are not merely diseases of the immune system but complex conditions involving dynamic interactions between the immune, nervous, endocrine, and psychological systems. They are characterized by dysregulated immune responses, chronic inflammation, and tissue injury, with patients frequently experiencing fatigue, pain, psychological stress, sleep disturbances, and reduced quality of life. Yoga is a multifaceted mind-body practice comprising asana, pranayama, meditation, relaxation, and related contemplative practices. Emerging evidence suggests that yoga may improve fatigue, stress, mood, physical function, and quality of life in selected autoimmune disorders. Potential biological mechanisms include modulation of autonomic nervous system activity, hypothalamic-pituitary-adrenal axis regulation, improved stress resilience, and possible effects on inflammatory and immune pathways. However, evidence for direct immunomodulatory or disease-modifying effects remains inconclusive and is limited by heterogeneity in yoga interventions, small sample sizes, methodological limitations, and differences in outcome measures. This narrative review examines the potential therapeutic role of yoga in autoimmune disorders, with particular emphasis on psychoneuroimmunological mechanisms linking psychological stress, neuroendocrine regulation, autonomic function, and immune responses. Yoga may therefore be considered a safe and potentially valuable complementary intervention alongside standard medical treatment, while further high-quality, adequately powered clinical trials with objective immunological biomarkers are required.

Keywords: Yoga, autoimmune disorders, inflammation, immunomodulation, stress, HPA axis, cytokines, quality of life, psychoneuroimmunology.

1. Introduction

Autoimmune disorders represent a heterogeneous group of chronic diseases in which the immune system loses tolerance to self-antigens, resulting in immune-mediated tissue injury. They include systemic diseases such as rheumatoid arthritis (RA) and systemic lupus erythematosus (SLE), neurological disorders such as multiple sclerosis (MS), gastrointestinal diseases such as inflammatory bowel disease (IBD), and several organ-specific autoimmune conditions. Although these disorders differ in their clinical manifestations and immunopathogenesis, they share common features of chronic inflammation, immune dysregulation, functional disability, and substantial psychosocial burden.

The clinical course of autoimmune disease is influenced not only by genetic susceptibility and immune mechanisms but also by environmental, behavioural, psychological, and neuroendocrine factors. Chronic psychological stress can influence autonomic nervous system activity and hypothalamic-pituitary-adrenal (HPA) axis function, potentially affecting inflammatory and immune processes. This bidirectional communication between the brain, endocrine system, and immune system forms the conceptual basis of psychoneuroimmunology.

Patients with autoimmune disorders frequently report fatigue, chronic pain, anxiety, depression, sleep disturbances, impaired physical function, and reduced health-related quality of life. These symptoms may persist even when conventional pharmacological treatment effectively controls disease activity. Consequently, there is increasing interest in complementary interventions that address both physical and psychological dimensions of chronic illness.

Yoga represents a multimodal mind-body intervention that combines physical postures (asana), breathing practices (pranayama), meditation, relaxation, and contemplative techniques. Unlike conventional exercise, yoga simultaneously targets physical function, respiratory regulation, attention, emotional regulation, and stress responses. This multidimensional nature makes yoga particularly relevant to chronic diseases in which psychological and physiological processes interact.

Recent evidence has begun to examine yoga specifically in autoimmune diseases. A systematic review of randomized controlled trials published in 2025 evaluated yoga interventions in commonly studied autoimmune diseases, including MS, RA, ankylosing spondylitis, IBD, and autoimmune periodontitis, highlighting the growing scientific interest in this field. [illegible]

The present review discusses the potential therapeutic effects of yoga in autoimmune disorders and explores the possible mechanisms involving autonomic regulation, HPA-axis activity, inflammatory pathways, stress reduction, and psychophysiological adaptation.

2. Autoimmune Disorders: A Mind-Body Perspective

The conventional understanding of autoimmune diseases emphasizes genetic predisposition, breakdown of self-tolerance, aberrant activation of innate and adaptive immunity, autoantibody production, and inflammatory tissue damage. However, the clinical expression of autoimmune disease is influenced by a much broader network of biological and psychosocial factors.

The immune system is closely connected with the central nervous system and endocrine system. Immune cells express receptors for neurotransmitters, neuropeptides, and hormones,

while the brain receives information from immune and inflammatory pathways. The HPA axis and sympathetic nervous system are important components of this bidirectional communication.

Psychological stress may activate the sympathetic-adrenal-medullary system and HPA axis. Acute stress responses are generally adaptive, whereas persistent or poorly regulated stress may contribute to altered neuroendocrine and immune regulation. The relationship is complex, however, and cannot be interpreted as a simple linear pathway in which stress directly causes autoimmune disease.

Thus, autoimmune disorders may be conceptualized as conditions in which immune dysregulation occurs within a broader mind-body network, making interventions that influence stress, autonomic balance, sleep, physical activity, and emotional regulation potentially relevant as adjunctive therapies.

3. Yoga as a Multidimensional Therapeutic Intervention

Yoga is not a single standardized intervention. It may include:

Asana: physical postures that influence flexibility, strength, balance, and body awareness.

Pranayama: regulated breathing techniques that may influence respiratory, autonomic, and emotional regulation.

Dhyana/Meditation: practices involving attention regulation, awareness, and cognitive-emotional modulation.

Relaxation practices: techniques intended to reduce physiological arousal and promote recovery.

Mindfulness and contemplative practices: strategies that may improve emotional regulation and stress resilience.

The therapeutic effects of yoga are therefore likely to arise through multiple interacting pathways rather than a single biological mechanism.

A useful conceptual framework is:

Yoga practice → improved autonomic regulation → reduced stress reactivity → HPA-axis modulation → improved sleep and emotional regulation → altered inflammatory signalling → improved symptoms and quality of life

This pathway should be considered a proposed mechanistic model, rather than a conclusively established causal sequence.

4. Evidence for Yoga in Selected Autoimmune Disorders

4.1 Rheumatoid Arthritis

RA is a chronic systemic autoimmune inflammatory disorder characterized by synovial inflammation, joint destruction, pain, stiffness, and functional impairment. Psychological stress, fatigue, and depression frequently coexist with RA and may adversely affect disease-related quality of life.

Evidence suggests that yoga may improve selected clinical outcomes in RA. A systematic review and meta-analysis of 10 randomized trials involving 840 patients reported significant improvements in physical function, disease activity, and grip strength among participants receiving yoga interventions. However, significant effects were not consistently observed for pain, tender or swollen joint counts, or inflammatory biomarkers such as C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), interleukin-6 (IL-6), and tumor necrosis factor-alpha (TNF-α). The authors also emphasized methodological limitations and the need for larger, high-quality trials. [illegible]

A randomized controlled trial involving 72 patients with RA receiving routine disease-modifying antirheumatic drugs found that an 8-week yoga-based mind-body intervention was associated with reductions in disease activity, functional disability, depressive symptoms, and selected systemic inflammatory markers. These findings provide preliminary support for a potential psychoneuroimmunological role of yoga, although replication in larger studies is necessary. [illegible]

Overall, the evidence suggests that yoga may be particularly useful for improving functional status, psychological well-being, and selected disease-related outcomes, while evidence for consistent suppression of systemic inflammation remains uncertain.

4.2 Multiple Sclerosis

MS is a chronic immune-mediated disease of the central nervous system associated with neurological disability, fatigue, mood disturbances, cognitive symptoms, and impaired quality of life.

Yoga may be relevant to MS because of its potential effects on fatigue, mood, physical function, balance, and stress. An earlier systematic review and meta-analysis involving seven randomized controlled trials and 670 participants reported short-term benefits of yoga compared with usual care for fatigue and mood, although these findings were not robust against methodological bias. No clear benefits were demonstrated for health-related quality of life, muscle function, or cognitive function, and the authors concluded that the evidence was insufficient to recommend yoga as a routine intervention. [illegible]

A subsequent meta-analysis involving 10 randomized controlled trials and 693 participants reported that yoga significantly improved fatigue compared with usual MS care, although it did not demonstrate significant overall improvements in quality of life. [illegible]

These findings suggest that yoga may have a role in symptom management, particularly fatigue and psychological well-being, but should not be considered a substitute for disease-modifying treatment.

4.3 Systemic Lupus Erythematosus

SLE is a multisystem autoimmune disease characterized by immune dysregulation and fluctuating inflammatory activity. Patients may experience fatigue, musculoskeletal symptoms, psychological distress, and reduced quality of life.

The theoretical rationale for yoga in SLE includes stress reduction, improved physical function, enhanced coping, and potentially improved autonomic and neuroendocrine regulation. However, compared with RA and MS, the clinical evidence base for yoga in SLE remains relatively limited.

Consequently, yoga may be considered primarily as a supportive mind-body intervention for symptom burden, physical activity, stress management, and quality of life, while

evidence for direct effects on disease activity or immunological biomarkers remains insufficient.

4.4 Ankylosing Spondylitis and Other Inflammatory Rheumatic Disorders

Inflammatory rheumatic diseases are associated with pain, stiffness, reduced spinal mobility, physical inactivity, fatigue, and psychological distress. Yoga may provide benefits through stretching, strengthening, postural awareness, breathing practices, and relaxation.

The potential value of yoga in these disorders may be particularly relevant for improving mobility and physical function. However, disease-specific evidence remains heterogeneous, and standardized protocols are lacking.

4.5 Inflammatory Bowel Disease

IBD, including Crohn's disease and ulcerative colitis, is characterized by chronic intestinal inflammation and complex interactions between immune, neurological, psychological, and environmental factors.

Stress and psychological distress may influence symptom perception and disease-related quality of life. Yoga may potentially benefit individuals with IBD by reducing stress, improving sleep, enhancing psychological well-being, and supporting physical activity.

However, evidence for direct effects on intestinal inflammation and disease activity remains insufficient to establish yoga as a disease-modifying treatment. Its strongest potential role may therefore be as an adjunctive intervention addressing the psychological and functional dimensions of chronic disease.

5. Proposed Immunomodulatory Mechanisms of Yoga

5.1 Autonomic Nervous System RegulationAutonomic imbalance, particularly increased sympathetic activity and reduced parasympathetic regulation, has been associated with chronic stress and inflammatory states.

Yoga practices involving slow breathing, relaxation, meditation, and mindful movement may promote parasympathetic activity and improve autonomic flexibility. This may reduce physiological hyperarousal and contribute to improved stress regulation.

Heart rate variability (HRV) has been proposed as a useful marker of autonomic function. Changes in HRV following yoga may provide an objective means of evaluating autonomic mechanisms in autoimmune disease.

5.2 Hypothalamic-Pituitary-Adrenal Axis

The HPA axis is a central component of the body's response to stress. Psychological stress stimulates hypothalamic corticotropin-releasing hormone, followed by pituitary adrenocorticotropic hormone and adrenal cortisol secretion.

Chronic stress may be associated with alterations in HPA-axis regulation. Yoga may influence this system through relaxation, breathing, meditation, and reduction of perceived stress.

However, the relationship between yoga and cortisol is complex. Studies have reported variable findings, and changes in cortisol cannot automatically be interpreted as evidence of improved immune function. Future studies should therefore evaluate HPA-axis function alongside inflammatory biomarkers and clinical outcomes.

5.3 Inflammatory Cytokines

Inflammatory cytokines such as IL-6, TNF-α, and other immune mediators play important roles in autoimmune and inflammatory diseases.

Yoga has been hypothesized to influence inflammatory signalling through indirect pathways involving stress reduction, autonomic regulation, sleep improvement, and physical activity.

However, available evidence is inconsistent. In RA, for example, a meta-analysis did not find significant overall effects of yoga on CRP, ESR, IL-6, or TNF-α, despite improvements in physical function and disease activity. ◆

Thus, claims that yoga directly suppresses inflammatory cytokines should currently be regarded as promising but unproven.

5.4 Oxidative Stress

Oxidative stress and altered redox balance have been implicated in several chronic inflammatory and autoimmune conditions. Yoga may potentially influence oxidative stress through improved physical activity, stress reduction, sleep, and metabolic regulation.

Markers such as malondialdehyde, superoxide dismutase, catalase, and glutathione may be useful in future clinical trials. However, current evidence does not establish a consistent disease-specific antioxidant effect of yoga.

5.5 Psychoneuroimmunological Mechanisms

The psychoneuroimmunological model provides an integrated explanation for how yoga may influence autoimmune disease outcomes.

Psychological stress

↓

Sympathetic activation + HPA-axis stimulation

↓

Autonomic and neuroendocrine dysregulation

↓

Altered immune signalling and inflammatory responses

↓

Fatigue, pain, mood disturbance, sleep problems and reduced quality of life

Yoga may act at multiple points:

Asana + Pranayama + Meditation + Relaxation

↓

Improved body awareness and emotional regulation

↓

Reduced perceived stress

↓

Improved autonomic balance

↓

Potential HPA-axis regulation

↓

Potential modulation of inflammatory signalling

↓

Improved fatigue, mood, function and quality of life

This model emphasizes that the most established benefits of yoga may be symptom-related and psychophysiological, whereas direct disease modification remains an area requiring further research.

6. Evidence-Based Outcome Domains

Domain
Potential effect of yoga
Current level of evidence
Stress and anxiety
Reduction in perceived stress and psychological distress
Promising
Depression and mood
Possible improvement in selected populations
Moderate but heterogeneous
Fatigue
Benefit reported particularly in MS
Promising
Physical function
Improvement demonstrated in RA and selected disorders
Promising
Quality of life
Variable findings across autoimmune diseases
Inconsistent
Pain
Possible benefit, but inconsistent evidence
Inconclusive
Disease activity
Potential improvement in RA
Limited
CRP/ESR
No consistent evidence
Inconclusive
IL-6/TNF-α
Findings inconsistent
Inconclusive
HPA-axis regulation
Biologically plausible
Requires further research
Autonomic regulation
Potential improvement
Promising
Direct disease modification
Not established
Insufficient evidence

7. Proposed Biomarkers for Future Research

Future studies should evaluate yoga using a multidimensional framework rather than relying solely on subjective outcomes.

Table 2. Suggested Biomarkers and Outcome Measures
Mechanistic domain
Potential biomarkers/outcomes
Inflammation
CRP, ESR
Cytokines
IL-6, TNF-α, IL-1β, IL-10
HPA axis
Cortisol, ACTH
Autonomic function
HRV, resting heart rate
Oxidative stress
MDA, SOD, catalase, glutathione
Immune function
T-cell subsets, NK-cell activity
Clinical disease activity
DAS28, disease-specific activity indices
Psychological outcomes
Anxiety, depression, perceived stress
Functional outcomes
Physical function, mobility, fatigue
Patient-centred outcomes
Health-related quality of life, sleep

8. Limitations of Current Evidence

Several limitations must be considered when interpreting the literature.

First, yoga interventions differ considerably in terms of duration, intensity, frequency, and components. Some studies primarily use physical postures, whereas others incorporate pranayama, meditation, and relaxation.

Second, many studies have small sample sizes and relatively short follow-up periods. Autoimmune diseases are chronic and fluctuating conditions, and longer intervention periods may be necessary to determine whether yoga influences disease trajectory.

Third, blinding participants and yoga instructors is difficult, creating potential performance and expectation bias.

Fourth, many studies focus on subjective outcomes such as perceived stress, fatigue, and quality of life. These outcomes are clinically meaningful but should ideally be complemented by objective biomarkers and disease activity measures.

Finally, improvements in symptoms should not automatically be interpreted as evidence of immunological disease modification. The distinction between symptomatic benefit, functional improvement, psychological benefit, and direct immunomodulation is essential.

9. Future Research Directions

Future research should focus on well-designed, adequately powered randomized controlled trials with standardized reporting of yoga interventions.

Studies should:

Use clearly defined and reproducible yoga protocols.

Include appropriate active and usual-care control groups.

Assess long-term outcomes.

Combine clinical outcomes with objective immunological biomarkers.

Evaluate autonomic function using HRV and related measures.

Assess HPA-axis activity through cortisol and related biomarkers.

Investigate cytokine profiles and immune-cell phenotypes.

Examine the relationship between psychological stress and inflammatory activity.

Explore disease-specific yoga protocols.

Report adherence, safety, adverse events, and intervention fidelity.

An important research priority is to determine whether the benefits of yoga are mediated primarily through psychological stress reduction, autonomic regulation, physical activity, or direct immune modulation, or whether these mechanisms operate synergistically.

10. Conclusion

Autoimmune disorders are complex conditions arising from interactions among genetic, immunological, neuroendocrine, autonomic, psychological, and environmental factors. This complexity provides a strong rationale for exploring multidimensional interventions such as yoga.

Current evidence suggests that yoga may offer clinically meaningful benefits in selected autoimmune disorders, particularly in relation to fatigue, stress, mood, physical function, and quality of life. Evidence for improvement in disease activity is emerging, particularly in RA, while evidence for consistent changes in inflammatory cytokines and other immune biomarkers remains inconclusive. In MS, evidence suggests potential benefits for fatigue, although methodological limitations and heterogeneity remain important considerations.
PubMed +2

The most plausible model is that yoga may influence autoimmune disease through a psychoneuroimmunological pathway, involving improved autonomic regulation, modulation of stress responses, potential HPA-axis regulation, improved sleep and emotional well-being, and possible downstream effects on inflammatory signalling.

At present, yoga should be viewed as a complementary intervention rather than a replacement for evidence-based medical treatment. Future research integrating clinical outcomes with neuroendocrine, autonomic, and immunological biomarkers will be essential to determine the precise therapeutic role of yoga in autoimmune disorders.

References — Vancouver Style

Ye X, Chen Z, Shen Z, Chen G, Xu X. Yoga for treating rheumatoid arthritis: a systematic review and meta-analysis. Front Med (Lausanne). 2020;7:586665. doi:10.3389/fmed.2020.586665.

Cramer H, Lauche R, Azizi H, Dobos G, Langhorst J. Yoga for multiple sclerosis: a systematic review and meta-analysis. PLoS One. 2014;9(11):e112414. doi:10.1371/journal.pone.0112414.

Alphonsus KB, Su Y, D'Arcy C. The effect of exercise, yoga and physiotherapy on the quality of life of people with multiple sclerosis: systematic review and meta-analysis. Complement Ther Med. 2019;43:188-195. doi:10.1016/j.ctim.2019.02.010.

Shohani M, Kazemi F, Rahmati S, Azami M. The effect of yoga on the quality of life and fatigue in patients with multiple sclerosis: a systematic review and meta-analysis of randomized clinical trials. Complement Ther Clin Pract. 2020;39:101087. doi:10.1016/j.ctcp.2020.101087.

Gautam S, Tolahunase M, Kumar U, Dada R. Impact of yoga based mind-body intervention on systemic inflammatory markers and co-morbid depression in active rheumatoid arthritis patients: a randomized controlled trial. Restor Neurol Neurosci. 2019;37(1):41-52. doi:10.3233/RNN-180868.

Yang J, Li H, Zhang Y, Hu S, Yu Z. Effects of exercise on fatigue and quality of life in multiple sclerosis: a network meta-analysis and systematic review. J Neurol. 2025;272(9):621. doi:10.1007/s00415-025-13368-7.

Rooney S, Moffat F, Wood L, Paul L. Effectiveness of fatigue management interventions in reducing severity and impact of fatigue in people with progressive multiple sclerosis: a systematic review. Int J MS Care. 2019;21(1):35-46. doi:10.7224/1537-2073.2018-019.

Abou L, et al. Fear of falling and common symptoms of multiple sclerosis: physical function, cognition, fatigue, depression, and sleep—a systematic review. Mult Scler Relat Disord. 2024;82:105506. doi:10.1016/j.msard.2024.105506.

Naser Moghadasi A, Rastkar M, Mohammadifar M, Mohammadi A, Ghajarzadeh M. Effects of robotic rehabilitation on fatigue experience, disability, and quality of life in patients with multiple sclerosis: a systematic review and meta-analysis. Caspian J Intern Med. 2024;15(4):589-600. doi:10.22088/cjim.15.4.589.

Santamaría G, Jiménez-Callejo E, Rodríguez López N, Cacharro LM, Gutiérrez-Abejón E, Sánchez-Valdeón L, et al. Effects of aquatic therapy on fatigue, mobility, physical function, and quality of life in people with multiple sclerosis: a systematic review and meta-analysis. J Funct Morphol Kinesiol. 2026;11(2):219. doi:10.3390/jfmk11020219.

Kazemi Pakdel F, Kazemi Pakdel A, Zarei H, Brian A. Combined training improves functional capacity, fatigue, and quality of life in individuals with multiple sclerosis: a systematic review and meta-analysis. BMC Neurol. 2025;26(1):17. doi:10.1186/s12883-025-04548-z.

Yoga in autoimmune disorders: a systematic review of randomized controlled trials. Ann Behav Med. 2025. doi:10.1093/abm/kaaf049.

Note: The above is a strong journal-style narrative review draft, but I would recommend a final reference verification pass before submission. In particular, the reference list should ideally be expanded to 30–50 fully verified PubMed-indexed references with DOI links, covering RA, SLE, MS, IBD, ankylosing spondylitis, autoimmune thyroid disease, psychoneuroimmunology, HPA-axis physiology, HRV, cytokines, and yoga mechanisms. The current evidence supports the cautious wording in your original abstract that yoga's direct immunomodulatory and disease-modifying effects remain inconclusive.

॥ Om Śrī Mañjunāthāya Namaḥ ॥ ॥ Om Śrī Dhanvantaraye Namaḥ ॥

आ नो भद्राः क्रतवो यन्तु विश्वतः - "Let noble thoughts come to us from all directions"

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6th International Conference

KSHAMATVAM 2026

29TH SEPTEMBER – 1ST OCTOBER 2026

THEME: Translational Ayurveda in Autoimmune Disorders : Bridging Classical Wisdom with Global Healthcare

INAUGURAL CEREMONY

30TH SEPTEMBER 2026 | 10:00 AM

Bhavaprakasha Auditorium
Sri Dharmasthala Manjunatheshwara College of Ayurveda, Udupi

Presided over by

Padma Vibhushan Dr. D. Veerendra Heggade Ji
Dharmadhikari, Sri Kshetra Dharmasthala
Hon'ble Chancellor, Sri Dharmasthala Manjunatheshwara University, Dharwad
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VALEDICTORY CEREMONY

1ST OCTOBER 2026 | 04:00 PM

Venue

Bhavaprakasha Auditorium
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PRE-CONFERENCE WORKSHOP INAUGURATION

29TH SEPTEMBER 2026 | 09:00 AM

Venue

Classroom 1
Sri Dharmasthala Manjunatheshwara College of Ayurveda, Udupi

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cordially invite you to grace the ceremonies
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भद्रं भद्राभिलाषिणाम्
"May wellness be upon those who desire the well-being of all."

About the Host Institution

Sri Dharmasthala Manjunatheshwara (SDM) College of Ayurveda, Hospital & Research Centre, Udupi, **Established in 1958** and nurtured under the visionary leadership of Padma Vibhushana Dr. D. Veerendra Heggadeji, is one of India's leading institutions dedicated to Ayurveda education, healthcare, research, and innovation. It is affiliated with RGUHS, Bengaluru and recognized by NCISM. The institution has been accredited with **'A' Grade** by the Quality Council of India (QCI) and secured **2nd and 5th ranks** nationally in consecutive assessment cycles.

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About KSHAMATVAM 2026

KSHAMATVAM 2026 – 6th International Conference on Translational Ayurveda in Autoimmune Disorders, organized by Sri Dharmasthala Manjunatheshwara College of Ayurveda, Hospital & Research Centre, Udupi, will be held from **29th September to 1st October 2026** under the theme **"Translational Ayurveda in Autoimmune Disorders: Bridging Classical Wisdom with Global Healthcare."**

Autoimmune disorders are emerging as one of the most challenging chronic diseases worldwide, demanding safe, holistic and evidence - based therapeutic approaches. KSHAMATVAM 2026 aims to explore the potential of Translational Ayurveda by integrating the classical concepts of Vyādhikṣamatva, Ojas, Agni, Rasāyana and personalized healthcare with contemporary advances in immunology, biomedical sciences and clinical research.

The conference will feature keynote lectures, invited scientific sessions, panel discussions, paper and poster presentations and hands-on pre-conference workshops by renowned national and international experts. An Ayurveda Expo with scientific and industrial exhibition stalls will showcase innovations in Ayurvedic pharmaceuticals, diagnostics, research, healthcare technologies, publications and wellness services, fostering academia – industry collaboration.
Expected to attract more than **2,000 delegates**, the conference will promote interdisciplinary research, international collaboration, evidence generation and the translation of classical Ayurvedic wisdom into globally relevant solutions for the prevention and management of autoimmune disorders.

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Speakers and Topics:

30/09/2026- Wednesday

Dr. Srinivasa Hejmadi Acharya
Professor Emeritus,
All India Institute of Ayurveda (AIIA)
New Delhi, India

Keynote Speaker

1st Scientific Session

Dr. Vishweshwaraiah Prakash

"Padma Shri", Bhatnagar and Rajyotsava Awardee,
Former Director of CFTRI and
Distinguished Scientist of CSIR-India, Mysore, India

Topic : The Science of Traditional Foods (Ahaara Vijnana) and Personalised Nutrition in Understanding Autoimmune Disorder Management

2nd Scientific Session

Dr. Bhushan Patwardhan

Distinguished Scientist & Former Vice Chairman,
UGC Pune, Maharashtra, India

Topic : "Bridging Contemporary Immunology and Ayurveda through Integrative Research."

3rd Scientific Session

Dr. Jorge Luis Berra

Physician & Director,
Fundacion de Salud Ayurveda Prema Argentina

Topic : The Microbiome as One Dimension of Agni: A Translational Model for Intestinal Permeability and Autoimmune Pathogenesis

4th Scientific Session

Dr. Rammanohar Puthiyedath

Director, Amrita Centre for Advanced Research in Ayurveda, Amrita School of Ayurveda, Clappana PO, Vallikkavu, Kollam, Kerala, India

Topic : Translational Research in Immunology and Ayurveda

5th Scientific Session

Dr. Prasanna N Mogasale

Professor,
Dept. of P.G Studies in Roganidana

Topic : Ayurvedic Insights into the Pathogenesis of Immune Dysregulation and Autoimmunity w.s.r to Rheumatology

Speakers and Topics:

01/10/2026- Thursday

6th Scientific Session

Dr. Shashikiran Umakanth MBBS, MD, FRCP Edin

Senior Consultant Physician and Medical Superintendent at Dr. TMA Pai Hospital Udupi, MAHE, Manipal Academy of Higher Education

Topic : When Tolerance Fails: Recent Advances in Diagnosing Autoimmune Disease, with a Live Decision Support Demonstration

7th Session (ONLINE)

Dr. Christian Kessler, MA, MSc

Department of Integrative Health Care and Prevention, University of Augsburg & University Hospital, Augsburg, Germany

Topic : Ayurveda and Autoimmunity: A European Academic Perspective

8th Session

Dr. Yogesh Bendale

Senior Ayurvedic Physician and Researcher
Pune, Maharashtra, India

Topic : "Autoimmune Disorders through the Lens of Rasashastra: Evidence-Based Innovative Rasayanas"

9th Session

Dr. Kishore Kumar

Senior Consultant
National Institute of Mental Health and Neurosciences (NIMHANS), Bengaluru, India

Topic : Integrative approaches in Neuroimmunological disorders: Perspectives from a tertiary Neuropsychiatry centre.

10th Scientific session (ONLINE)

Dr. Antonio Morandi

Scientific Director of the ICAM 2016,
Chairman & Director, Ayurvedic Point, Milan, Italy.
President, Italian Scientific Society for Ayurvedic Medicine.

Topic : Beyond Integration: A Collaborative Medicine and Science Approach to Autoimmune Disorders Through Ayurveda and Modern Medicine

11th Session

Dr. Anita Karilio Arkas

President of ARIA, Ayurveda Russia – India Association.

Topic : Scope of Ayurveda in the management of Crohn's disease

12th Session

Dr. Prashanth A S

Principal,
Ayurveda Mahavidyalaya Hubballi, Karnataka

Topic : Evidence - Based Evaluation of Ayurvedic Shodhana Therapies in Autoimmunity

Pre-Conference workshop

GROUP - A

COURSE - 1

RESEARCH MODELS IN AUTOIMMUNE DISORDERS

Speaker :

Dr. Ravishankar

Distinguished Professor,
All India Institute of Ayurveda,
New Delhi, India

COURSE - 2

DRUG SURVEY

Speaker :

Dr. Ajayan Sadanandan

President, Centre for Indian Medical Heritage (CIMH), a research wing under the Arya Vaidya Pharmacy (AVP) Coimbatore, Tamil Nadu, India

GROUP - B

COURSE - 1

MARMA CHIKITSA IN AUTOIMMUNE DISORDERS

Speaker :

Dr. N.V. Sreevaths

Chief Consultant Physician:
At Svasthyakshetram Ayurvedic Health Care Centre in Nallepilly, Palakkad, Kerala, India

COURSE - 2

OPD BASED PANCHAKARMA PROCEDURES

Speaker :

Dr. Niranjan Rao

Vice Principal [Clinical], Professor and Head, Dept. of P.G.Studies in Panchakarma, Sri Dharmasthala Manjunatheshwara college of Ayurveda, Hospital and Research centre, Udupi, Karnataka, India

ONLY CONFERENCE REGISTERED PARTICIPANTS CAN PARTICIPATE IN PRE - CONFERENCE WORKSHOP. DELEGATES CAN CHOOSE ANY ONE GROUP DURING REGISTRATION

Paper Presentation Themes:

Abstracts should align with the conference theme. Sub-themes include:

1. Conceptual Integration of Immunology with Ayurvedic Parameters: Prakṛti, Agni, Sātmya, Sattva and Kāla
2. Ayurvedic Foundations of Immunity: Anatomical and Physiological Perspectives on Dhātu Sāra, Ojas, Bala and Vyādhikṣamatva.
3. Immunomodulatory Potential of Medicinal Plants in Autoimmune Disorders.
4. Herbo-Mineral Formulations as Immunomodulators in Autoimmune Disorders.
5. Ayurvedic Diagnostic Perspectives in Autoimmune Disorders.
6. Assessment of Rogi Bala in the Context of Vyādhikṣamatva in Autoimmune Disorders.
7. Conceptual Integration of Asātmya and Viruddha Āhara in the Pathogenesis of Autoimmune Disorders.
8. Epigenetics, Immunology and Autoimmunity: Exploring Integrative Perspectives.
9. Ayurvedic Determinants of Immunity: Role of Āhāra, Vihāra and Ācāra.
10. Impact of Lifestyle and Environmental Toxins on manifestation of Autoimmune Disorders: Preventive Perspectives.
11. Integration of the Concept of Viṣa (Gara and Dūṣī) in the Pathogenesis of Autoimmune Disorders.
12. Śamana Auṣadha and Pañcakarma-Based Clinical Approaches in Autoimmune Disorders
13. Clinical Spectrum and Specialty-Specific Management of Autoimmune Disorders

Abstract Format :

Prepare your abstract strictly as per the format below :

- Title: Concise, maximum 20 words; use Title Case.
- Word Limit: 250 words, excluding title, author details, and keywords.
- Structure: Background & Objectives, Materials & Methods, Observations/Results, Conclusion.
- Keywords: 3–5 keywords provided below the abstract.
- Language: English only. Avoid abbreviations in the title. All Sanskrit terminologies should be presented in standard transliteration.

Author Details:

- Provide full names of all authors along with their affiliations.
- The first author should be the presenting author.
- Include email ID and mobile number of the corresponding author.
- A maximum of four authors is permitted per abstract.

Submission Process:

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PPT/Poster Presentation Details

- Only the official conference template available on the conference website should be used.
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Contact Details

ORGANISING SECRETARIES

Dr. Prasanna N. Mogasale
+91 98452 12813
pnmogasale73@sdmayurvedacollegeudupi.in

Dr. Arhanth Kumar A
+91 78297 01558
arhanth.kumar@sdmayurvedacollegeudupi.in

REGISTRATION COMMITTEE

Dr. Vidyalakshmi K
+91 94489 84482
drvidya_u@sdmayurvedacollegeudupi.in

Dr. Yogesh Acharya
+91 98860 55775
yogeeshadr@sdmayurvedacollegeudupi.in

SCIENTIFIC COMMITTEE

Dr. Padmakiran
+91 94489 53038
kiranasdm@sdmayurvedacollegeudupi.in

Dr. Ravikrishna
+91 86602 97175
drrkaithal@sdmayurvedacollegeudupi.in

STALL & EXHIBITION COMMITTEE

Dr. Vijay B Nagalur
+91 94800 46879
drvijaynegalur@sdmayurvedacollegeudupi.in

Dr. Shrinidhi Ballal
+91 9480649382
drshrinidhi3@sdmayurvedacollegeudupi.in

PRE - CONFERENCE WORKSHOP COMMITTEE

Dr. Prashanth K
+91 9448857560
drp235@sdmayurvedacollegeudupi.in

Dr. Rajalakshmi M.G
+91 9448951673
rajalaxmi_mg@sdmayurvedacollegeudupi.in

PROGRAMME SCHEDULE | 29th September – 1st October 2026

DAY 1 – 29th SEPTEMBER 2026 | PRE-CONFERENCE WORKSHOP	
08:00 AM - 09:00 AM	Registration, Breakfast & Networking
09:00 AM - 09:30 AM	Pre conference Workshop Inauguration
09:30 AM - 01:00 PM	GROUP A– Course 1: Research Models in Autoimmune Disorders. GROUP B – Course 1: Marma Chikitsa in Autoimmune Disorders Course 2: OPD Based External Panchakarma Procedures
11:00 AM - 11:15 AM	High Tea
01:00 PM - 02:00 PM	Lunch
02:00 PM - 05:00 PM	GROUP A – Course 2: Drug Survey GROUP B – Course 1: Marma Chikitsa in Autoimmune Disorders Course 2: OPD Based External Panchakarma Procedures
03:30 PM - 03:45 PM	High Tea
05:00 PM - 05:30 PM	Valedictory / Certificate distribution
Workshop faculty: Group A: Dr. Ravishankar and Dr. Ajayan Sadanandan Group B: Dr. N.V. Sreevaths and Dr. Niranjan Rao.	

DAY 2 – 30th SEPTEMBER 2026 - CONFERENCE	
08:00 AM - 09:00 AM	Registration & Breakfast
09:00 AM - 09:45 AM	Keynote Address – Dr. Srinivasa Hejmadi Acharya
10:00 AM - 11:15 AM	Inaugural Ceremony
11:15 AM - 11:30 AM	Tea Break
11:30 AM - 12:15 PM	1st Scientific Session – The Science of Traditional Foods (Ahaara Vijnana) and Personalised Nutrition in Understanding Autoimmune Disorder Management Dr. Vishweshwaraiah Prakash
12:15 PM - 01:00 PM	2nd Scientific Session – Bridging Contemporary Immunology and Ayurveda through Integrative Research. Dr. Bhushan Patwardhan
01:00 PM - 02:00 PM	Lunch
02:00 PM - 02:40 PM	3rd Scientific Session – The Microbiome as One Dimension of Agni: A Translational Model for Intestinal Permeability and Autoimmune Pathogenesis Dr. Jorge Luis Berra
02:40 PM - 03:20 PM	4th Scientific Session – Translational Research in Immunology and Ayurveda Dr. Rammanohar Puthiyedath
03:20 PM - 04:00 PM	5th Scientific Session – Ayurvedic Insights into the Pathogenesis of Immune Dysregulation and Autoimmunity Dr. Prasanna N Mogasale
04:00 PM - 04:15 PM	High Tea
04:15 PM - 06:00 PM	1st Parallel Scientific Session
06:00 PM - 06:30 PM	Networking
06:30 PM - 08:00 PM	S.D.M Kala Vaibhava
08:00 PM Onwards	Dinner

DAY 3 – 1st OCTOBER 2026 | CONFERENCE	
07:45 AM - 09:30 AM	2nd Parallel Scientific Session & Breakfast
09:30 AM - 10:10 AM	6th Scientific Session – When Tolerance Fails: Recent Advances in Diagnosing Autoimmune Disease, with a Live Decision Support Demonstration Dr. Shashikiran Umakanth
10:10 AM - 10:50 AM	7th Scientific Session (Online) – Ayurveda and Autoimmunity: A European Academic Perspective Dr. Christian Kessler
10:50 AM - 11:30 AM	8th Scientific Session – "Autoimmune Disorders through the Lens of Rasashastra: Evidence-Based Innovative Rasayanas" Dr. Yogesh Bendale
11:30 AM - 11:40 AM	High Tea
11:40 AM - 12:20 PM	9th Scientific Session – Integrative approaches in Neuroimmunological Disorders: Perspectives from a Tertiary Neuropsychiatry centre. Dr. Kishore Kumar
12:20 PM - 01:00 PM	10th Scientific Session – Scope of Ayurveda in the management of Crohn's disease Dr. Anita Karilio Arkas
01:00 PM - 02:00 PM	Lunch
02:00 PM - 02:40 PM	11th Scientific Session (Online) - Beyond Integration: A Collaborative Medicine and Science Approach to Autoimmune Disorders Through Ayurveda and Modern Medicine Dr. Antonio Morandi
02:40 PM - 03:20 PM	12th Scientific Session – Evidence-Based Evaluation of Ayurvedic Shodhana Therapies in Autoimmunity Dr. Prashanth A.S.
03:20 PM - 04:00 PM	Panel Discussion
04:00 PM - 05:00 PM	Valedictory
05:00 PM Onwards	Closure and Certification

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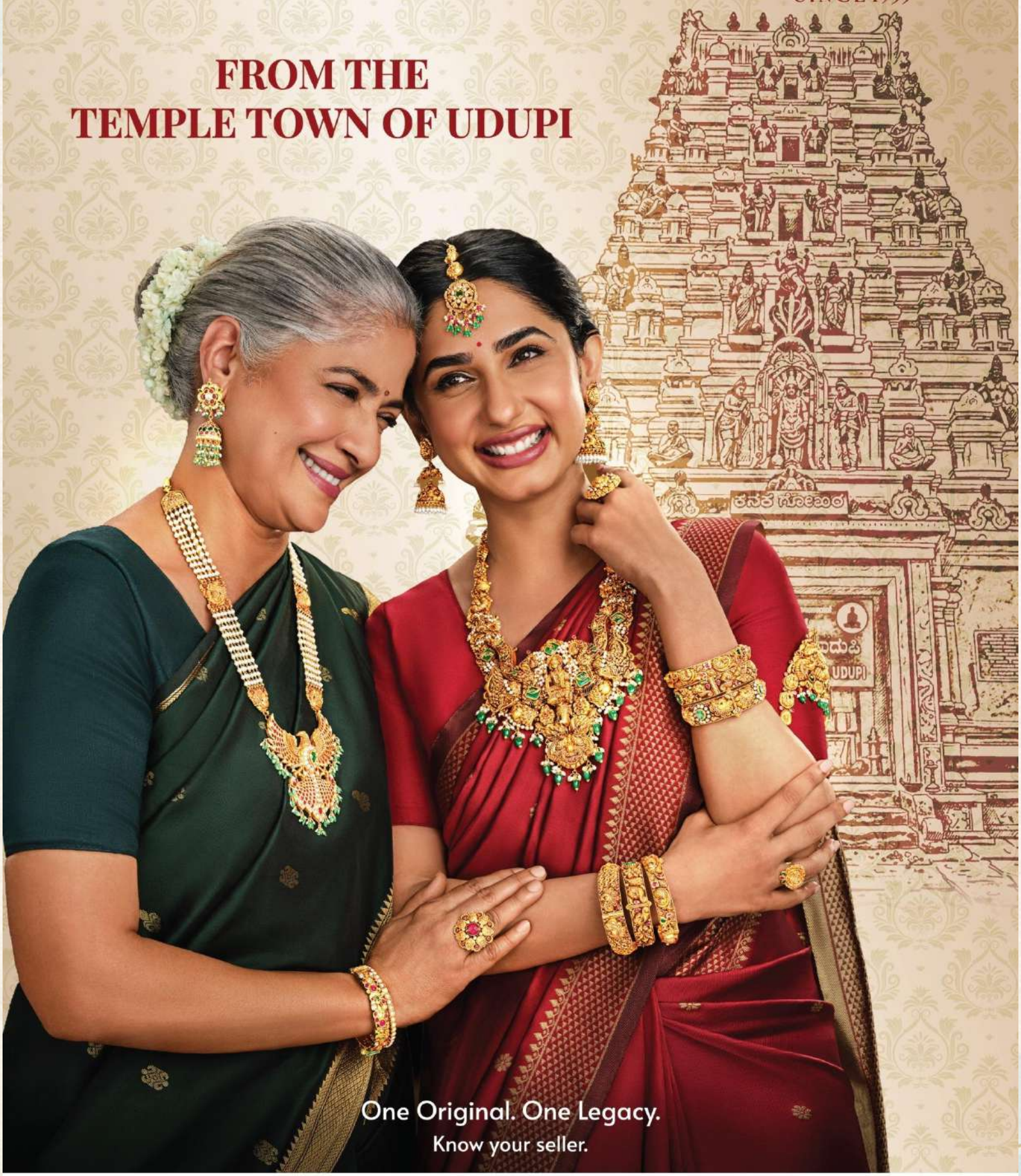

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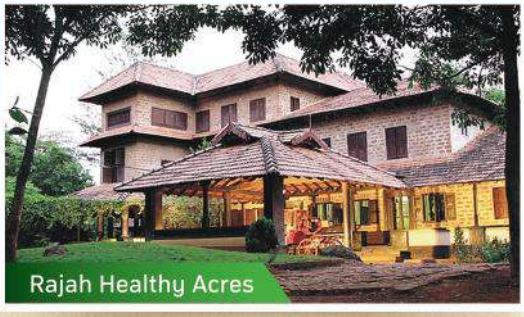
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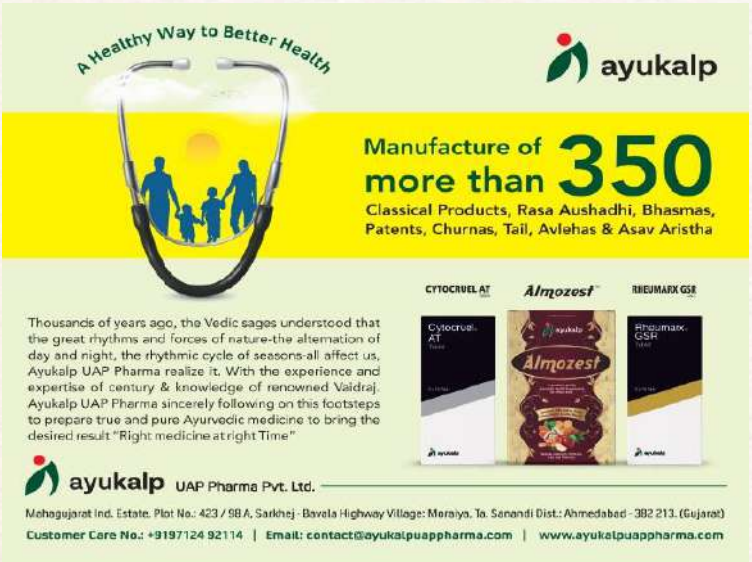
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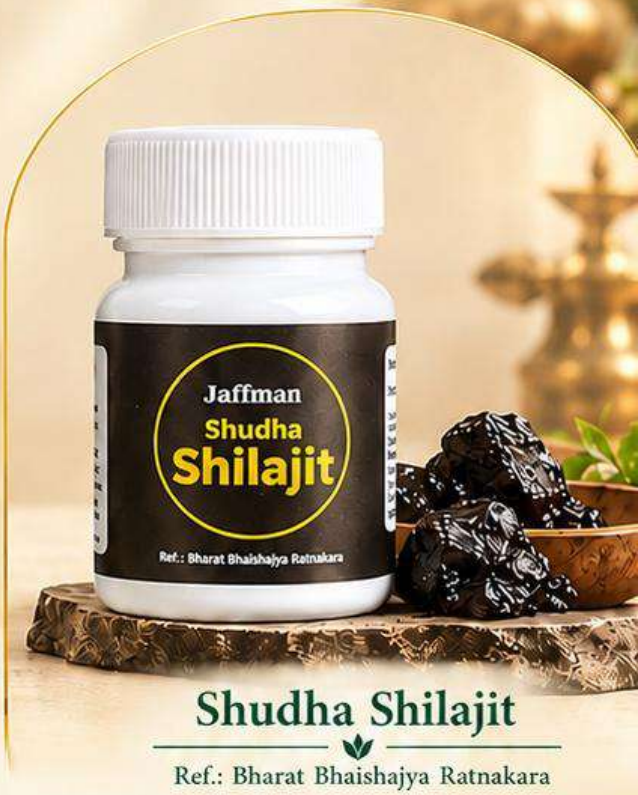
Ref.: Bharat Bhaishajya Ratnakara



Shudha Shilajit

Ref.: Bharat Bhaishajya Ratnakara

Mahanarayana Taila

Maharasnadi Kwath

Ashwagandha Taila

6 Avarthi

Ksheerabala Avartana Taila

7 Avarthi

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Kukutandtwak Bhasam	(Hens egg shell calx)	150 mg.

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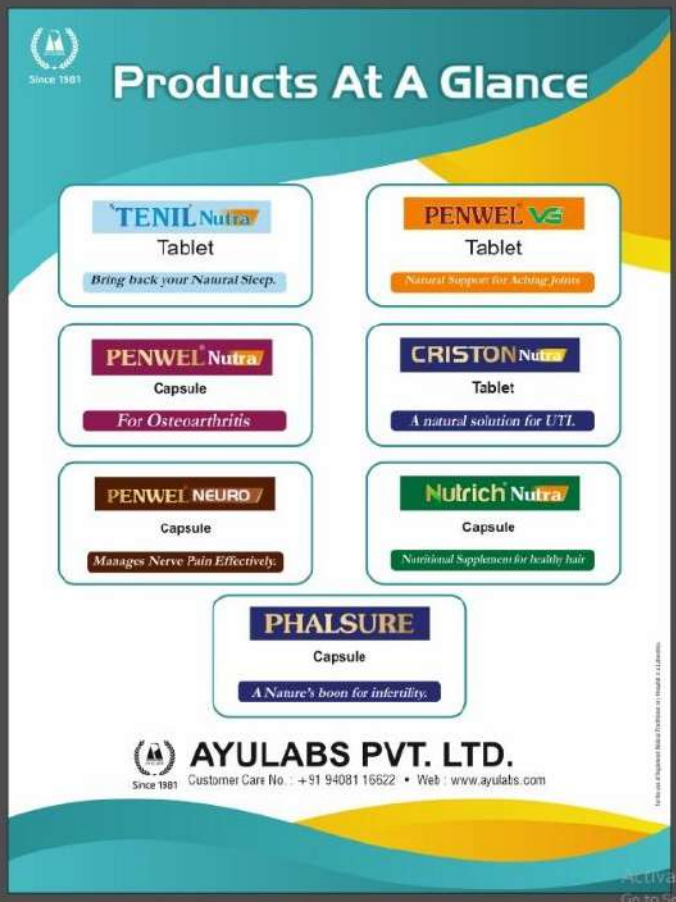
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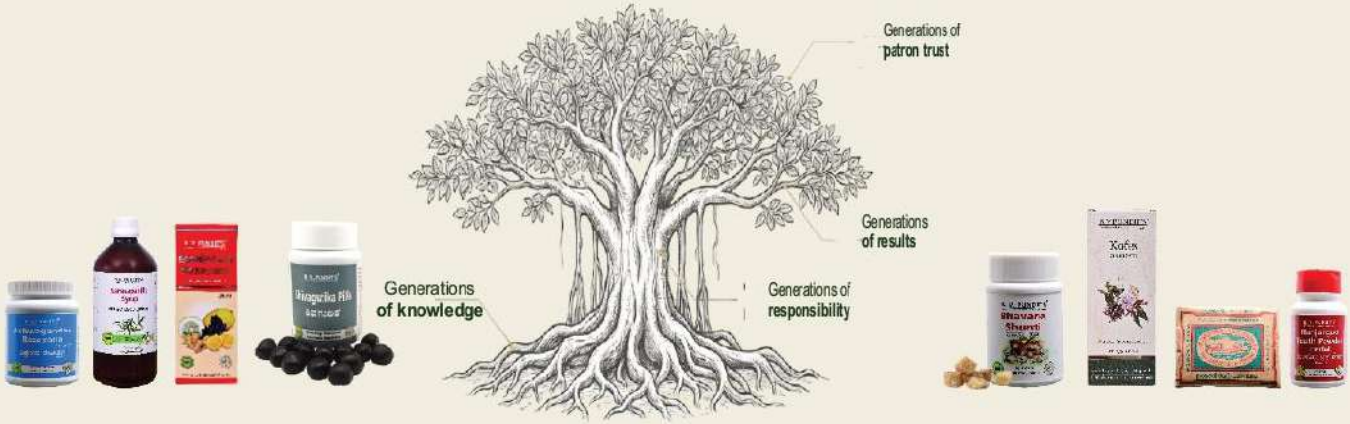

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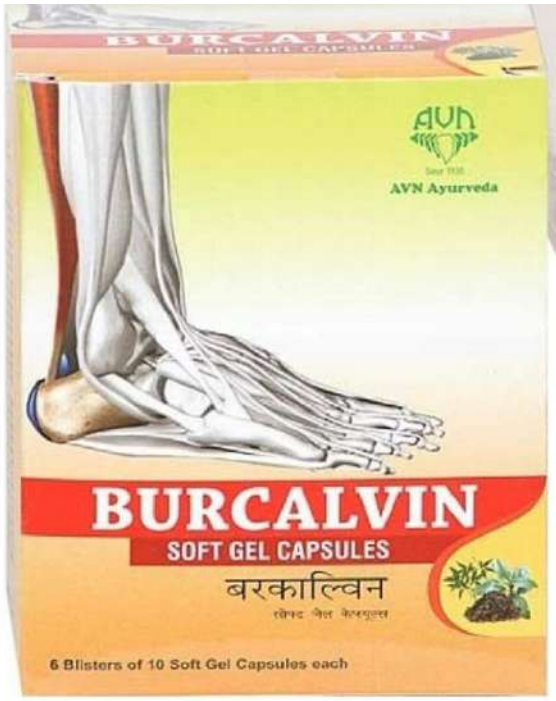

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- Reduces the inflammation and Constriction of the bronchi
- Reduces bronchial mucosal irritation
- Alleviates allergic respiratory disorders
- Clears the airways by promoting expectoration
- Helps to sooth irritation coughs
- Relieves in breathing difficulty
- Prevents (asthmatic) attack

Composition:

Each 500mg prepared out of

Kumkuma	Crocus sativus	0.10 mg
Lavangum	Syzygium aromaticum	0.50 mg
Vasa	Adhatoda vasica	0.50 mg
Karpura	Cinnamomum camphora	0.10 mg
Pippali	Piper longum	0.75 mg
Jathipathri	Myristica fragrans	0.50 mg
Mavaphala	Quercus infectorius	0.50 mg
Maricha	Piper nigrum	0.50 mg
Vibhitaki	Terminalia bellirica	0.50 mg
Athimadhuram	Glycyrrhiza glabra	0.50 mg
Kasthuri	Moschus Moschiferus	0.10 mg
Vatada	Prunus amygdalus	0.50 mg
Nvasadar	Ammonium chloride	0.10 mg
Shunti	Zingiber officinale	0.50 mg
Tulasi	Ocimum tenuiflorum	0.50 mg
Gorochana	Ox gall	0.10 mg
Nagkesara	Mesua ferrea	0.50 mg
Amalaki	Emblica officinalis	0.50 mg
Haritaki	Terminalia chebula	0.50 mg
Tvak	Cinnamomum zeylanicum	0.50 mg

Dosage

1 or 2 tablets twice or thrice a day, after food or as directed by the physician.

Indication

Bronchitis, Allergy, Sinusites, Eosinophilla Sneezing, Wheezing Cold, Cough, Running Nose

Packing : 10 x 10 blisters

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- Clears the airways by promoting expectoration
- Helps to sooth irritation coughs
- Relieves in breathing difficulty
- Prevents (asthmatic) attack

Composition:

Each ml. contains

Crocus sativus	(Kunkuma)	0.10 mg.
Syzygium aromatium	(Lavangam)	0.50 mg.
Adhatoda vasica	(Vasa)	0.50 mg.
Cinnamomum camphora	(Karpura)	0.10 mg.
Piper longum	(Pippali)	0.75 mg.
Myristica fragrans	(Jathipathri)	0.50 mg.
Quercus infectorius	(Mayaphala)	0.50 mg.
Piper nigrum	(Maricha)	0.50 mg.
Terminalia belerica	(Vibhitaki)	0.50 mg.
Glycyrrhiza glabra	(Athimadhuram)	0.50 mg.
Moschus moschiferus	(Kasthuri)	0.10 mg.
Prunus amygdalus	(Vatada)	0.50 mg.
Navasadar	(Navasadar)	0.10 mg.
Zingiber officinale	(Shunti)	0.50 mg.
Ocimum tenuiflorum	(Tulasi)	0.50 mg.
Gorochana	(Gorochana)	0.10 mg.
Mesua ferrea	(Nagakesara)	0.50 mg.
Terminalia chebula	(Amalaki)	0.50 mg.
Termnalia chebula	(Haritaki)	0.50 mg.
Cinnamomum zeylanicum	(Tvak)	0.50 mg.

Dosage

Once/Twice a day before food
Adult : 10 - 15ml.
Children : 3 - 5ml.
Available : 200ml.

Indication

Bronchitis, Allergy, Sinusites, Eosinophilla Sneezing, Wheezing Cold, Cough, Running Nose

Packing : 200 ml

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- Combats Early Fibrosis Progression

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- MMK & SDM Mahila Maha Vidyalaya, Mysuru

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- SDM Residential PU College, Ujire
- MMK & SDM Girls PU College, Mysuru

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- SDM Institute of Education, Ujire

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- SDM English Medium School , Ujire(CBSE)
- SDM English Medium School, Dharmasthala
- SDM English Medium School, Belthangady
- SDM School, Mangaluru

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Other Institutions & Facilities
- SDM Ayurveda Pharmacy, Udupi - Under SDM Bhaishajya Prathishtana
- Rathnashree Arogyadhama, Udupi - 120-bedded extension of Ayurveda hospital
- SDM Ayurveda Research Centre, Udupi
- Rathnamanasa, Ujire - Cultural center
- Sports Club, Ujire
- Nethravati Craft Centre, Ujire
- Manjuvani, Ujire - Publishing house
- Manjushri Printers, Ujire
- Pusthaka Prakashana Male, Ujire - Book publication

Sri Dharmasthala Manjunatheshwara College of Ayurveda, Hospital and Research Centre, Udupi

Sri Dharmasthala Manjunatheshwara College of Ayurveda Udupi

Sri Dharmasthala Manjunatheshwara Ayurveda Hospital

Rathnashree Arogyadhama

SDM Research Centre

SDM Ayurveda Pharmacy

Sri Dharmasthala Manjunatheshwara college of Ayurveda, Hospital and Research Centre, Udupi, Karnataka, India.

Mail ID : kshamatvam2026@sdmayurvedacollegeudupi.in

Website: www.sdmayurvedacollegeudupi.in