

Similarities And Differences, Relevance, Treatment Modalities and Prognosis of Twak Vikaras by Acharya Charak Wrt Modern Dermatological Diseases and Correlation with Plasma SCFA Levels

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Abstract—The skin, as the body’s largest organ and first line of defense, reflects systemic health through its physiological and pathological states. Classical Ayurvedic texts, particularly the *Charaka Samhita*, conceptualize cutaneous disorders under the umbrella of *Twak Vikaras*, attributing them to disturbances of the *Tridosha* equilibrium and impaired digestive fire (*Agni*). Among these, *Kitibha*, *Eka-Kushtha*, and *Vicharchika* are strikingly analogous to psoriasis, chronic plaque disease, and atopic dermatitis in modern dermatology. While Ayurveda interprets these conditions through the lens of *Dosha*, *Ama* (toxic residue), and lifestyle imbalances, contemporary science emphasizes immune dysregulation, microbial imbalance, and genetic susceptibility. A compelling convergence arises in the recognition of the gut-skin axis, with short-chain fatty acids (SCFAs)—notably butyrate, propionate, and acetate—emerging as pivotal immunomodulators that reduce inflammation, reinforce barrier function, and regulate T-cell responses. Diminished plasma SCFA levels in chronic dermatoses resonate with Charaka’s assertion that impaired digestion and systemic toxicity precipitate skin disease. Therapeutically, Ayurveda prescribes *Shodhana* (purificatory therapies such as *Virechana* and *Raktamokshana*) and *Shamana* (palliative measures with herbal formulations and dietary regimens), which parallel modern interventions including immunosuppressants, biologics, and SCFA-focused therapies. Prognostically, Ayurveda stratifies conditions as *Sadhya*, *Yapya*, or *Asadhya*, depending on chronicity and systemic strength—principles echoed by modern biomarker-based risk assessments, including

plasma SCFA profiling. This comparative study underscores the complementarity of Ayurvedic and biomedical frameworks, highlighting SCFAs as a unifying molecular correlate to Ayurvedic doctrine. An integrative model may thus inform personalized dermatological care, bridging ancient insight with contemporary immunometabolic science.

Index Terms—Ayurveda, Twak Vikaras, Charaka Samhita, Kitibha, Eka-Kushtha, Vicharchika, Psoriasis, Atopic dermatitis, Gut-skin axis, Short-chain fatty acids (SCFAs), Butyrate, Integrative dermatology.

I. INTRODUCTION

The integumentary system, most expansively manifesting as the skin, serves not merely as the corporeal boundary but as a vital physiological and immunological sentinel. From antiquity to the present era, diseases afflicting the dermal tissues have captivated the scrutiny of physicians across traditions. In the venerable compendium of Ayurvedic wisdom—the *Charaka Samhita*—cutaneous maladies are enshrined under the collective nomenclature of *Twak Vikaras*, embodying both corporeal and constitutional disharmony. This classical doctrine promulgates that dermatological afflictions arise from perturbations within the *Tridosha* equilibrium—*Vata*, *Pitta*, and *Kapha*—inextricably influenced by one’s conduct, sustenance, mental state, and environmental milieu.

Acharya Charaka, with remarkable clinical prescience, delineated myriad dermatoses under categories such as *Kustha* (encompassing leprosy and recalcitrant dermopathies), *Kitibha* (akin to psoriatic lesions), and *Vicharchika* (bearing strong resemblance to eczematous eruptions). These afflictions were not conceived merely as disorders of the dermis but as systemic disturbances, intricately linked with *Agni* (digestive fire) and *Srotas* (bodily channels), thereby advocating a comprehensive purview of internal derangement and external manifestation.

Contrariwise, the modern discipline of dermatology, steeped in histopathological and molecular taxonomy, regards cutaneous diseases through a prism of cellular, microbial, and immune dysregulation. Recent decades have borne witness to the ascension of microbiome science, wherein the gut-skin axis has emerged as a pivotal concept. Central to this discourse are the short-chain fatty acids (SCFAs)—notably butyrate, propionate, and acetate—which are microbial metabolites with potent immunomodulatory properties. Accumulating evidence reveals that these metabolites may attenuate cutaneous inflammation, promote barrier integrity, and influence the T-helper cell milieu, particularly in ailments such as psoriasis and atopic dermatitis (Chen et al., 2024; Zhang et al., 2024).

In this light, a concordance between ancient Ayurvedic postulates and modern immunometabolic findings becomes evident. The Ayurvedic construct of *Ama* (toxic residue) may well mirror the concept of microbial dysbiosis and aberrant metabolite circulation. Pertinently, patients suffering from chronic dermatoses exhibit diminished levels of SCFA-producing gut flora, with concomitant changes in plasma SCFA concentrations, thereby echoing the Ayurvedic maxim that disease springs from within the *Koshthagani* or *Kayagni*. (Stec et al., 2023; Chen et al., 2024).

This exposition endeavours to scrutinise the epistemological parallels and clinical divergences between *Acharya Charaka's* dermal nosology and contemporary dermatological doctrines. Further, it seeks to elucidate the therapeutic trajectories prescribed within each paradigm, and to assay the prognostic implications therein. Of particular interest is the emergent role of plasma SCFAs as biomarkers and mediators in skin pathology—a phenomenon that may serve as a modern analogue to Ayurvedic

constructs of systemic purity and *Dosha* balance. Through this synthesis of Ayurvedic antiquity and biomedical modernity, we aspire to cultivate a holistic and temporally transcendental understanding of skin disease and its management.

II. COMPARATIVE NOSOLOGY: TWAK VIKARAS AND MODERN DERMATOLOGICAL ENTITIES

Nosology, the venerable science of disease classification, finds striking articulation both in the ancient doctrines of Ayurveda and in the rigour of contemporary clinical dermatology. The compendium of *Charaka Samhita* delineates eighteen primary forms of *Kustha*, each marked by a distinct configuration of doshic imbalance and dermal manifestation. Among these, the afflictions *Kitibha*, *Eka-Kushtha*, and *Vicharchika* bear uncanny resemblance to well-defined modern dermatological conditions such as psoriasis, lichen simplex chronicus, and atopic dermatitis, respectively.

Kitibha Kustha, described by Charaka as a rough, dry, and pigmented lesion exhibiting intense pruritus and silvery scaling, parallels the plaque psoriasis phenotype—a chronic immune-mediated dermatosis characterised by hyperproliferation of keratinocytes and T-cell infiltration. Similarly, *Eka-Kushtha*, devoid of exudation yet bearing extensive involvement, maps closely to ichthyosis, which presents with well-demarcated erythematous plaques and systemic associations.

The Ayurvedic *Vicharchika*, manifesting with oozing, itching, and blackish discolouration, finds its analogue in atopic eczema, particularly in its exudative phase. *Acharya Charaka's* emphasis on the internal accumulation of *Doshas*, aggravated by faulty digestion (*Mandagni*) and incompatible diet (*Viruddha Ahara*), aligns intriguingly with modern paradigms of gut-derived systemic inflammation, wherein microbial metabolites—including diminished levels of plasma SCFAs—play a pivotal role in cutaneous dysregulation.

In terms of diagnostic orientation, *Ayurveda* privileges *Darshana* (inspection), *Sparshana* (palpation), and *Prashna* (interrogation), integrating pulse analysis, dietary history, and psychological temperament to discern the root cause. This stands in both contrast and

complement to the contemporary algorithmic diagnostic schema, which incorporates histopathology, serological markers, and increasingly, microbiome profiling. Yet, both systems converge on the principle that cutaneous disease reflects deeper systemic derangement.

Moreover, *Acharya Charaka's* nosology inherently includes mental disposition (*Manas*) and emotional disturbances, recognizing them as precipitants of doshic derangement—an insight now echoed by psychodermatology, which acknowledges the bidirectional axis between stress, inflammation, and dermatoses. The emerging literature on SCFA-induced modulation of the hypothalamic–pituitary–

adrenal axis further fortifies this ancient linkage, suggesting that gut-derived metabolites may mediate both inflammatory and neurocutaneous pathways. (Schwarz et al., 2017).

Thus, the nosological correlation is not merely symbolic but functional: both *Acharya Charaka* and contemporary dermatologists perceive the skin as a mirror of internal milieu, albeit through different epistemologies. In this section, we have illustrated the semantic, pathological, and phenomenological parallels and dissonances that render *Twak Vikaras* and modern skin diseases as two faces of the same clinical coin, separated only by the scrolls of time and the scaffold of language.

Table: 1

Ayurvedic Term (<i>Twak Vikara</i>)	Modern Equivalent	Charaka's Description	Modern Clinical Features	Etiological Basis	SCFA Relevance
<i>Kitibha Kustha</i>	Psoriasis (Plaque Type)	Dry, rough, pigmented skin with intense itching and scaling	Well-demarcated erythematous plaques with silvery-white scales	<i>Vata-Kapha</i> vitiation; <i>Mandagni</i> ; <i>accumulation of Ama</i>	Butyrate reduces IL-17 and keratinocyte hyperproliferation (Chen et al., 2024)
<i>Eka-Kushtha</i>	Chronic Psoriasis	Non-exudative, extensive lesion without significant pain or discharge	Persistent thick plaques, nail involvement, scalp and elbow lesions	<i>Vata-Kapha</i> aggravation, <i>Shodhana failure</i>	Reduced SCFA-producing gut flora in psoriatic patients (Zhang et al., 2024)
<i>Vicharchika</i>	Atopic Dermatitis / Eczema	Itchy, oozing lesions with discoloration; often worsens with stress and diet	Erythematous, exudative vesicles with chronic lichenification	<i>Pitta-Kapha</i> vitiation; <i>Viruddha Ahara</i> , <i>emotional triggers</i>	SCFAs modulate immune response and skin barrier integrity (Fang et al., 2021)
General <i>Kustha</i> (various forms)	Mixed Dermatoses, Lichen Planus, Fungal Infections	Extensive classification of 18 skin disorders; includes dry, wet, infectious, autoimmune types	Clinical variability; may involve autoimmunity, infection, or barrier disruption	<i>Tri-dosha</i> vitiation with emphasis on dietary and lifestyle causatives	SCFAs impact systemic inflammation and microbial balance (Stec et al., 2023)

Table:2 Comparative Pathogenesis: Samprapti of Kushtha vs Modern Etiology of Skin Disorders

Aspect	Ayurvedic View (Samprapti of Kushtha)	Modern Dermatological Etiology
Causative Factors (Nidana)	<i>Ahita Ahara-Vihara</i> (unwholesome diet and lifestyle), <i>Viruddha Ahara</i> (incompatible foods), <i>Vega Dharana</i> (suppression of natural urges), <i>Manasika Bhava</i> (mental stress), <i>Mithya Achara</i> (immoral conduct)	Genetic predisposition, environmental allergens, poor hygiene, diet, psychological stress, drug reactions, and UV exposure

Aspect	Ayurvedic View (Samprapti of Kushtha)	Modern Dermatological Etiology
Primary Doshas Involved	Tridosha involvement (especially <i>Kapha-Pitta</i> predominant); vitiation begins in the gut (<i>Amashaya</i>) and spreads via <i>Rakta</i> (blood) and <i>Mamsa</i> (muscle tissue)	Involves dysregulation of immune system, inflammation, skin barrier dysfunction, and systemic factors (e.g., gut dysbiosis)
Dushyas (Affected Tissues)	<i>Rasa, Rakta, Mamsa, Lasika</i> —progressive tissue involvement depending on chronicity and strength of doshas	Epidermis, dermis, subcutaneous tissues; with immune cell infiltration (e.g., T-cells in psoriasis, eosinophils in eczema)
Pathogenesis Process (Samprapti)	Dosha–Dushya Sammurchana → accumulation in <i>Twak Srotas</i> → blockage and vitiation → manifestation of skin lesions; often accompanied by <i>Ama</i> (toxic undigested matter)	Antigen exposure → activation of innate/adaptive immunity → cytokine cascade → epidermal hyperplasia/inflammation
Role of Digestion & Metabolism	Central; <i>Mandagni</i> (weak digestive fire) leads to <i>Ama</i> formation, impaired immunity, and doshic imbalance	Emerging recognition via gut-skin axis; impaired digestion and microbial metabolism (esp. low SCFA levels) linked to skin disease
Mental and Emotional Factors	Significant; <i>Rajas</i> and <i>Tamas</i> gunas imbalance increases susceptibility; mind and skin considered interconnected	Stress-induced exacerbation well documented in psoriasis, eczema, urticaria; HPA axis dysregulation linked to flares
Exogenous Factors	<i>Krimi (microbes)</i> and environmental insults considered aggravating, not primary	Bacteria (e.g., <i>Staph. aureus</i> in eczema), fungi (e.g., <i>Malassezia</i>), viruses, allergens, pollutants are direct causes

III. THERAPEUTIC MODALITIES: AYURVEDIC PANCHAKARMA AND MODERN INTERVENTIONS

The path to palliation and ultimate remission in the realm of dermatological maladies has long been a matter of both empirical tradition and scientific refinement. In the classical Ayurvedic system, *Acharya Charaka* delineates a twofold therapeutic approach: *Shodhana* (purificatory therapy) and *Shamana* (palliative management), forming a sophisticated doctrine that aspires not merely to alleviate symptoms, but to expunge the morbid humours—the *vitiated Doshas*—from their corporeal loci.

Among the *Shodhana* interventions, the Panchakarma therapies—namely *Vamana* (therapeutic emesis), *Virechana* (purgation), *Raktamokshana* (bloodletting), *Basti* (medicated enemata), and *Nasya* (nasal insufflation)—assume paramount significance in disorders of the skin, especially the *Kushtha Roga* spectrum. These treatments aim to evacuate the doshic accumulations via natural orifices, thereby rectifying the metabolic fire (*Agni*), clearing *Srotorodha*

(channel obstruction), and restoring physiological equilibrium.

Acharya Charaka, in his sagacious advisories, emphasizes that *Kitibha and Eka-Kushtha* must be treated with *Virechana*, often preceded by *Snehapana* (internal oleation) and *Swedana* (fomentation), while *Vicharchika*, being of *Pitta-Kapha* predominance, is best managed with *Raktamokshana*, combined with decoctions of *Nimba, Triphala, and Khadir*. Adjunct therapies include *Lepa* (herbal pastes) and *Tarpana (nutritive applications)*, ensuring both detoxification and tissue rejuvenation.

In juxtaposition, modern dermatology prescribes interventions tailored to molecular pathology: topical corticosteroids, calcineurin inhibitors, biologics targeting TNF- α , IL-17, or IL-23, and systemic immunomodulators such as methotrexate or cyclosporine. While efficacious, these interventions often yield transient reprieve, carry considerable adverse-effect profiles, and seldom address the systemic undercurrents heralded in Ayurvedic theory. It is in this therapeutic landscape that short-chain fatty acids (SCFAs) emerge as a possible unifying axis. Butyrate and propionate, products of gut microbial fermentation, possess anti-inflammatory,

antimicrobial, and barrier-restorative effects, aligning with Ayurvedic aspirations of systemic detoxification and immune modulation. Topical and systemic administration of SCFAs has been shown to downregulate IL-6, IL-17, and enhance regulatory T-cell (Treg) function, thus mirroring *Shamana* principles (Schwarz et al., 2017; Zhang et al., 2024). Furthermore, emerging therapeutic paradigms such as probiotic supplementation, SCFA-enriched nutraceuticals, and postbiotics hold promise in rebalancing the gut-skin axis, a concept long understood albeit differently named in Ayurvedic thought. The Ayurvedic dictum “*Rogah Sarvepi Mandagnau*”—all diseases arise from impaired digestion—now finds molecular resonance in SCFA-mediated gut homeostasis and its influence on dermatological pathophysiology.

In sum, the therapeutic doctrines of *Acharya Charaka* and the pharmacological armamentarium of contemporary dermatology are not discordant, but parallel quests for equilibrium—one through the language of *Doshas* and *Dhatus*, the other via cytokines and microbial metabolites. A synthesis of these systems may indeed illuminate a more integrative path toward skin health and systemic well-being.

Prognosis and Longitudinal Trajectories: Ayurvedic Insight and Modern Predictive Paradigms

In the realm of dermatological afflictions, prognosis occupies a position of both clinical urgency and philosophical reflection. It denotes not only the physician’s estimation of the probable course and outcome but also the patient’s existential anticipation of relief, recurrence, or remission. Within the *Charaka Samhita*, prognosis (*Sadhyasadyata*) is categorically delineated, with skin diseases stratified into *Sadhya* (curable), *Yapya* (palliable), and *Asadhya* (incurable), contingent upon dosha predominance, chronicity, strength of digestion, mental constitution, and compliance to regimen.

Acharya Charaka posits that conditions dominated by single-*Dosha* involvement, those in their nascent stage, and in individuals possessing robust vitality (*Bala*) and digestion (*Agni*) portend a favourable prognosis. Conversely, diseases implicating *Tridosha* derangement, with chronicity, repeated suppression of

natural urges (*Vega Dharana*), and indulgence in *Viruddha Ahara* (incompatible diets), are designated as *Yapya/ Asadhya*, wherein only symptomatic management or spiritual mitigation may be attempted. *Kitibha* and *Eka-Kushtha*, when long-standing, often fall into the *Yapya* category, requiring continual internal purification (*Shodhana*) and external pacification (*Shamana*), akin to the modern notion of disease remission rather than cure. *Vicharchika*, if precipitated by transitory imbalances and managed early, may be classified as *Sadhya*, much like acute eczema responding to allergens or dietary correction. Modern dermatological science, equipped with immunological assays and biomarker analytics, similarly delineates prognostic variables—including serum cytokine profiles, genetic polymorphisms, and microbiome signatures. Notably, reduced plasma SCFA levels, particularly butyrate, have been linked with greater disease severity, impaired barrier function, and a pro-inflammatory milieu, suggesting their potential as predictive and therapeutic biomarkers. (Stec et al., 2023; Chen et al., 2024).

Furthermore, modern longitudinal studies affirm that gut dysbiosis and diminished SCFA production precede flares in psoriasis and atopic dermatitis, thereby validating *Acharya Charaka’s* axiom that disease arises long before visible manifestation - “*Vyadhi Purvarupa*”—and that therapeutic intervention must begin preclinically, a precept now echoed in preventive dermatology and probiotic prophylaxis.

Importantly, where modern medicine often regards certain dermatological afflictions as chronic and incurable, Ayurveda posits that even such disorders, though *Yapya*, may be managed with consistent purification, strict dietary adherence, mental discipline, and rejuvenative therapies (*Rasayana*). In this, prognosis transcends mere statistical foresight and becomes a function of will, regimen, and physician-patient symphony.

Thus, in harmonizing the Ayurvedic principles of *Sadhyasadyata* with modern biomolecular forecasting, one may envisage a new prognostic horizon—one that integrates constitutional insight, microbial balance, and systemic inflammation to guide therapy and sustain remission.

Table: 3

Condition	Ayurvedic Prognosis (Charaka)	Modern Prognostic View	Prognostic Determinants (Ayurveda)	Prognostic Biomarkers (Modern)
Kitibha / Plaque Psoriasis	Yapya (Palliable, chronic)	Chronic, remitting-relapsing course	Tridoshic involvement, chronicity, weak Agni	Low plasma butyrate, elevated IL-17, microbial dysbiosis
Eka-Kushtha / Chronic Psoriasis	Yapya (Palliable with strict regimen)	Chronic autoimmune, managed with biologics	Dosha severity, dietary noncompliance, Ojas depletion	High TNF- α , low SCFA-producing bacteria, genetic markers (HLA-Cw6)
Vicharchika / Atopic Dermatitis	Sadhya (Curable if acute, Yapya if chronic)	Often remits with age, flares with allergens/stress	Pitta-Kapha dominance, Viruddha Ahara, psychological stress	Low SCFA levels, IL-4/IL-13 elevation, skin barrier proteins (filaggrin)
Kustha (Severe Forms)	Asadhya (Incurable)	Systemic or infectious dermatoses; palliative approach	Chronicity, tridoshic imbalance, Vega Dharana, lifestyle neglect	Persistent inflammatory markers, chronic dysbiosis, poor SCFA response

Table: 4 Treatment Modalities: Ayurvedic vs Modern Approaches in Skin Diseases

Condition	Ayurvedic Treatment (Charaka)	Modern Dermatological Treatment	Mechanism of Action	SCFA Role
Kitibha / Psoriasis	Virechana (purgation), Snehapana, decoctions of Triphala, Khadira, Manjistha, Takradhaara, lepas	Topical steroids, methotrexate, IL-17/IL-23 inhibitors, UVB phototherapy	Detoxification, doshic pacification, immunomodulation	Butyrate suppresses IL-17, regulates Treg cells (Chen et al., 2024)
Eka-Kushtha / Chronic Psoriasis	Repeated Shodhana cycles, Raktamokshana, internal Rasayana therapy (e.g., Guduchi, Amalaki)	Biologics (etanercept, secukinumab), immunosuppressants, PUVA therapy	Dosha-specific cleansing, rejuvenation of Dhatus	SCFAs reduce proinflammatory cytokines and improve microbial homeostasis
Vicharchika / Eczema	Raktamokshana, Lepa (neem, haridra), Pitta-pacifying diet, Tikta ghrita	Emollients, topical calcineurin inhibitors, antihistamines, lifestyle modulation	Anti-inflammatory, blood purification, barrier restoration	SCFAs enhance skin barrier proteins and reduce oxidative stress (Fang et al., 2021)
General Kustha (Severe Types)	Panchakarma, strict dietetics (Pathya-Apathya), long-term Rasayana, Jalaukavacharana (leech therapy)	Systemic antibiotics, antifungals, long-term immunotherapy for autoimmune skin conditions	Immune reconstitution, dosha evacuation, purification of channels	Restoration of gut flora leads to increased SCFA production and systemic immune modulation

IV. CONCLUSION

In the grand tapestry of medical thought, the afflictions of the skin—both as corporeal barrier and somatic mirror—have evoked manifold interpretations. The teachings of *Acharya Charaka*, with his doctrine of *Twak Vikaras*, afford a vision of dermatological disorders not merely as external lesions, but as symptomatic reverberations of internal disharmony—a doctrine strikingly resonant with modern immunodermatology and systemic inflammatory science.

The present inquiry has endeavoured to elucidate the correspondences and divergences between the Ayurvedic classification and management of *Kustha Roga* and the nosological frameworks of contemporary dermatology. It has demonstrated that many conditions—*Kitibha*, *Eka-Kushtha*, *Vicharchika*—may be cogently correlated with modern pathologies such as psoriasis, chronic plaque disease, and eczema, respectively. While Ayurveda identifies *Dosha* imbalances, digestive insufficiency, and mental disturbances as primary incitants, modern science invokes genetic susceptibility, immune dysregulation, and environmental triggers—yet both converge upon the notion of systemic etiology and cutaneous expression.

A particularly illuminating bridge between these paradigms is the emergent role of short-chain fatty acids (SCFAs). These microbial metabolites—produced through the fermentation of dietary fibres—have been shown to modulate inflammatory cytokines, enhance regulatory T-cell function, and restore epidermal integrity. Such findings imbue the Ayurvedic concepts of *Agni*, *Ama*, and *Srotas* with new biochemical clarity, suggesting that the ancient emphasis on gut health presaged the modern understanding of the gut-skin axis. The observed correlation between low plasma SCFA levels and exacerbation of psoriatic and eczematous lesions offers empirical substantiation for *Acharya Charaka*'s claim that “all disease begins in the digestive fire.”

Therapeutically, Ayurveda's *Panchakarma* and *Rasayana* regimens, aimed at purification and rejuvenation, find their counterparts in modern immunomodulators, biologics, and SCFA-centric interventions. The notion of *Shamana* and *Shodhana* thus transcends historical limitation, emerging anew as a template for integrative, personalised dermatology.

In conclusion, the juxtaposition of Charakian dermatology with contemporary biomedical science reveals not opposition, but complementarity. Each system, through its idiom and instrumentation, aspires toward the same therapeutic ideal: the restoration of harmony between the inner terrain and outer manifestation. The future of dermatological care may well lie in this synthesis—wherein Ayurveda's constitutional insight meets modern molecular precision, and where plasma SCFAs become both a biomarker and metaphor for the subtle interdependence of gut, mind, and skin.

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