International Research Journal of Ayurveda & Yoga Vol. 9(1), pp. 1-3, Feb , 2026
Available online at http://irjay.com
ISSN: 2581-785X
DOI: **10.48165/IRJAY.2026.90101**

A CASE STUDY

Mandala Kushta in Ayurveda and Its Correlation with Plaque Psoriasis: A Conceptual Study

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Article Info

Article history:
Received on: 12-11-2025
Accepted on: 10-01-2026

Keywords: *Mandala Kushta, Dosha Dushya*, *Agnimandya,* Plaque psoriasis

ABSTRACT

Mandala Kushta, classified under *Mahakushta* by Acarya Charaka and Vagbhata, is predominantly a *Kapha-Dosha* dominant disorder involving *Tvak*, *Rakta*, *Maṃsa*, and *Lasika* as principal *Duṣhya*. Its etiopathogenesis begins with *Nidana Sevana* (*Aharaja*, *Viharaja*, *Manasika*, and *Bijadoṣa*), leading to *Agnimandya*, *Ama* formation, *Dosha Dushya Sammurchana*, and *Srotodushti* of *Rasavaha*, *Raktavaha*, *Maṃsavaha*, and *Svedavaha Srotas*, culminating in characteristic lesions such as *Shvetarakta*, *Utsannamandala*, *Sthira*, *Snigdha*, and *Anyonyasamsakta* patches. Plaque psoriasis, the most common form of psoriasis (80–90%), is a chronic immune-mediated inflammatory disorder characterized by erythematous, well-demarcated plaques with silvery-white scales. This study aims to explore the conceptual and pathophysiological correlation between *Mandala Kushta*and Plaque psoriasis. **Methods:** A classical textual review of Charaka Samhita, Sushruta Samhita, and Aṣhtanga Hridaya was undertaken and compared with contemporary biomedical literature on plaque psoriasis pathophysiology. **Results:** The *Nidana* induced *Agnimandya*, *Ama* formation, and *Dosha Dushya Sammurchana*, as described in *Mandala Kushta*, correlate conceptually with immune dysregulation involving the IL-23/IL-17 axis and TNF-α pathways in Psoriasis. Clinical features such as raised, erythematous plaques correspond to *Utsannamandala* and *Shvetarakta lakshana. Srotodusti* parallels vascular and inflammatory changes observed in psoriasis. **Discussion:** The comparative analysis suggests a substantial conceptual and clinicopathological overlap between *Mandala Kushta* and Plaque Psoriasis. The immune keratinocyte inflammatory loop in Psoriasis can be interpreted through the Ayurvedic framework of *Dosha Dushya Srotas* interplay initiated by *Agnimandya* and *Ama* formation. This correlation strengthens the integrative understanding of Psoriasis within the Ayurvedic paradigm and supports the rationale for applying *Kushta chikitsa* principles in its management.

INTRODUCTION

Kuṣhṭa is one of the major disease entities described in Ayurveda, characterized by chronicity, involvement of multiple *Dosha* and *Dushya*, and significant impact on the quality of life. Among its classifications, *Mandala Kushta* is a *Kapha-Pradhana Tridoshaja* condition involving *Tvak*, *Rakta*, *Mamsa*, and *Lasika* as the principal *Dushya*. Acharya Charaka defines the clinical features of *Mandal Kushta* as *Shwetarakta* (faint reddish white), *Utsannamandalam* (raised patches), *Sthiram* (stable), *Snigdham* (unctuous), *Annyonya sansaktm* (patches joined with each other). Plaque psoriasis is a chronic, immune-mediated inflammatory skin disorder characterized by well-demarcated erythematous plaques covered with silvery-white scales. The pathophysiology involves complex interactions between antigen-presenting

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cells and T lymphocytes, with a central role played by the IL-23/IL-17 axis and TNF-α–mediated inflammatory pathways, leading to keratinocyte hyperproliferation, abnormal differentiation, and vascular alterations. The striking similarities in clinical presentation, chronicity, recurrence, and underlying inflammatory processes suggest a possible correlation between *Mandala Kushta*and Plaque Psoriasis.

MATERIALS AND METHODS

This study was designed as a classical textual and narrative review. References related to *Maṇḍala Kushta* were collected from Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya. Relevant details regarding *Nidana*, *Samprapti*, *Dosha Dushya* involvement, *Lakshana*, and *Chikitsa* were compiled. Modern literature related to Plaque Psoriasis pathophysiology, immunological mechanisms, cytokine pathways, and histopathology was reviewed from standard dermatology references and peer-reviewed articles.

Mandal Kushta

Mandal Kushta has been described in *Maha Kushta* according to Charaka and Vagbhata. In *Mandal Kushta* vitiated *Dosha* is *Kapha* and *Dushya* is *Twak*, *Shonita*, *Mamsa*, *Lasika*. Its pathogenesis starts with *Nidana Sevana,* of which *Aharaja*, *Viharaja,* and *Manasika Nidana* have been told along with *Bijadosha* (According to *Acharya Sushruta*). These *Nidana* lead to *Agnimnadya,* which causes *Kapha Pradhana Tridosha Prakopa* and *Dhatu Shaithilyata*. *Agnimandya* leads to the formation of *Ama*; this *Ama* and *Rasa Dhatu* mix up. The *Dushit Rasa Dhatu* circulates all over the body by *Vyana Vayu* through its *Rasa Vikshepana* function by *Dasha Dhamani*. It leads to *Dushti* of the *Twak*, *Rakta*, *Mamsa* & *Medodhatu*. *Acharya Charak* has collectively called them '*Sapta Dravya Sangraha*', which includes *Kapha Pradhana Tridoshas & Twak, Ambu, Mamsa, Meda Dhatu*. This all leads to *Sammurchana* of *Dosha* and *Dushya*, as well as *Srotodushti* of *Rasavaha, Raktavaha, Mamsavaha, and Swedavaha Srotas.* This finally results in the manifestation of *Mandala Kushta*.

Plaque psoriasis

Plaque psoriasis, also known as Psoriasis Vulgaris, is a chronic, immune-mediated inflammatory skin disorder characterized by well-demarcated, erythematous plaques covered with silvery-white scales. Plaque psoriasis is the most prevalent form of Psoriasis, accounting for approximately 80% to 90% of all psoriasis cases. This disorder is typically a lifelong relapsing-remitting condition, with flares often triggered by infections, stress, medications, or trauma. Some patients may experience stable disease with minimal symptoms, whereas others develop severe, widespread plaques that significantly impair their quality of life. Plaque psoriasis most commonly affects the extensor surfaces of the elbows and knees, the scalp, the trunk, and the lumbosacral region; it can also appear on the nails and intertriginous areas. In some cases, it may progress to involve the joints, manifesting as psoriatic arthritis, or be associated with systemic inflammatory comorbidities such as metabolic syndrome, cardiovascular disease, and depression. Early recognition and comprehensive management are crucial to mitigate disease burden and long-term complications.

Table no 1: **Correlation of Symptoms of *Mandal Kushtha* and Plaque Psoriasis**

S. N.	*Mandal Kushtha*	Plaque Psoriasis
1.	*Shwetam Raktam*	Silvery-white and erythematous Plaques
2.	*Utsannam*	Distinct indurated lesions
3.	*Mandalam*	Round or coin-shaped lesion
4.	*Kandu*	Itching
5.	*Krichham*	Hard to treat with a tendency to relapse
6.	*Anyonasansaktam*	Confluent/Merging lesions
7.	*Styanam*	Dense and extensive lesions
8.	*Snigdham* and *Shlakshana*	Unctuous and surrounded by smooth region
9.	*Shruti* and *Pitabh*	Secretory and yellowish lesions

Pathophysiology of Plaque Psoriasis

Plaque psoriasis is an immune-mediated inflammatory disorder characterized by hyperproliferation and abnormal differentiation of keratinocytes, driven by dysregulated interactions between the innate and adaptive immune systems. The process begins with antigen-presenting cells, such as Langerhans cells, activating T cells in regional lymph nodes. These T cells return to the skin, where they secrete pro-inflammatory cytokines, centered around the interleukin (IL)-23/IL-17 axis and tumor necrosis factor (TNF) pathways, particularly the TNF-α pathway, promoting a chronic inflammatory response. This inflammation results in the recruitment of additional immune cells, such as dendritic cells, neutrophils, and macrophages, to the dermis and epidermis, amplifying the cycle.

Keratinocytes respond to these cytokines with rapid proliferation, resulting in epidermal thickening (i.e., acanthosis), parakeratosis (i.e., retention of nuclei in the stratum corneum), and impaired differentiation. The accelerated cell turnover (3-5 days versus 28-30 days in normal skin) and decreased lipid secretion lead to characteristic scaly plaques. Vascular changes, including superficial blood vessel dilation and neovascularization, also contribute to the lesion's appearance. The chronicity of plaque psoriasis is maintained by ongoing crosstalk between immune cells and keratinocytes, sustaining a vicious cycle of inflammation and

skin remodelling. Persistent resident memory T cells explain the recurrence of plaques at the same sites.

Comparative Pathophysiological Analysis of *Mandala Kushta* and Plaque Psoriasis

Mandala Kushta is a *Kapha Dosha* predominance involving *Tvak, Rakta, Mamsa*, and *Lasika* as the principal *Duṣhya*. The activation of antigen-presenting cells and T-cells in plaque psoriasis parallels the *Doṣha Prakopa* initiated by *Nidana Sevana*, leading to *Dosha Dushya Sammurchana*. The IL-23/IL-17 axis and TNF-α–mediated inflammatory cascade observed in plaque psoriasis can be conceptually correlated with *Pitta Rakta Dushti* in *Mandala Kushta*, as these cytokines drive inflammation, erythema, and vascular changes similar to *Raga* and *Rakta* involvement described in Ayurveda. Keratinocyte hyperproliferation, acanthosis, parakeratosis, and impaired differentiation observed in plaque psoriasis can be conceptually correlated with *Tvak Vikrti*, producing *Shvetarakta* (faint reddish white), *Utsannamandalam* (raised patches), *Annyonya Sansaktm* (patches joined with each other), described in *Mandala Kushta*. The rapid epidermal turnover and scaling correspond to *Agni Vikrti* at the *Dhatu* level, particularly *Rasa* and *Rakta Dhatvagni*.

Vascular dilation and neovascularization in psoriasis reflect *Srotodushti* of *Raktavaha* and *Svedavaha Srotas*. The chronic relapsing nature of plaque psoriasis, maintained by resident memory T cells, aligns with the Ayurvedic concept of *Chirakari* and *Punaravartaka Kuṣhṭa*, where persistent *Doṣha* remain lodged in the skin. Thus, the immune-keratinocyte inflammatory loop of plaque psoriasis can be conceptually mapped to the *Dosha Dushya Srotas* interplay described in *Mandala Kushta*, supporting their valid clinical and pathophysiological correlation.

DISCUSSION

The present comparative analysis demonstrates a substantial conceptual and clinicopathological overlap between *Mandala Kushta* described in Ayurveda, and plaque psoriasis recognized in contemporary dermatology. *Mandala Kushta*, classified under *Mahakushta*, is predominantly a *Kapha Pradhana Tridoṣhaja* disorder involving *Tvak*, *Rakta*, *Mamsa*, and *Lasika* as the principal *Dushya*. The *Samprapti* begins with *Nidana Sevana,* encompassing *Aharaja*, *Viharaja*, *Manasika* factors, and *Bijadoṣha* leading to *Agnimandya* and subsequent *Ama* formation. This *Ama*, in association with vitiated *Dosha*, particularly *Kapha*, results in *Dosha Dushya Sammurchana* and *Srotodusti* of *Rasavaha*, *Raktavaha*, *Mamsavaha*, and *Svedavaha Srotas*, culminating in the manifestation of characteristic lesions such as *Svetarakta*, *Utsannamaṇḍala*, *Sthira*, *Snigdha*, and *Anyonyasamsakta* patches. These features closely resemble the well-demarcated, erythematous, raised plaques with silvery-white scales observed in plaque psoriasis. From a modern perspective, plaque psoriasis is driven by immune dysregulation involving antigen-presenting cells, T-cell activation, and pro-inflammatory cytokines centred around the IL-23/IL-17 axis and TNF-α pathways. This chronic inflammatory cascade promotes keratinocyte hyperproliferation, abnormal differentiation, acanthosis, parakeratosis, and increased epidermal turnover, along with vascular dilation and neovascularization. Conceptually, this immune keratinocyte inflammatory loop parallels the Ayurvedic understanding of *Kapha Pradhana Dosha Prakopa*, *Dhatu Agni* impairment, and persistent *Srotodushti*. The rapid epidermal turnover and scaling can be correlated with *Agni Vikrti* at the *Dhatu* level, particularly involving *Rasa* and *Rakta Dhatus*, while vascular changes correspond to *Raktavaha* and *Svedavaha Srotas* involvement. Furthermore, the chronic relapsing-remitting course of plaque psoriasis aligns with the Ayurvedic description of *Chirakari* and *Punaravartaka Kushta*, wherein vitiated *Dosha* remain lodged in the skin, predisposing to recurrence. Although the explanatory frameworks differ, both systems recognize a multi-factorial etiology, chronic inflammatory basis, tissue involvement, and recurrence pattern. Therefore, the immune-mediated pathophysiology of plaque psoriasis can be meaningfully interpreted through the Ayurvedic concept of *Dosha Dushya Srotas* interplay initiated by *Agnimandya* and *Ama* formation. This correlation not only strengthens the diagnostic mapping of *Mandala Kushta* with Plaque Psoriasis but also provides a rational foundation for integrative therapeutic strategies grounded in *Kushta Chikitsa* principles.

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