

Shwitra (Vitiligo): An Integrative Review of Ayurvedic and Contemporary Perspectives

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ABSTRACT

Shwitra is a pigmentary disorder described in Ayurvedic classics under the spectrum of Kushta Roga. It is characterized by depigmented or hypopigmented patches resulting from Dosha vitiation and Dhatu Dushti, predominantly involving Rakta, Mamsa, and Meda Dhatus. Clinically, Shwitra closely resembles Vitiligo, an acquired depigmenting disorder caused by selective destruction of melanocytes. Vitiligo affects approximately 0.5–2% of the global population and has significant psychosocial implications due to cosmetic disfigurement and chronicity. Contemporary biomedical science attributes vitiligo primarily to autoimmune mechanisms, oxidative stress, genetic predisposition, neural factors, and melanocyte adhesion defects. Ayurveda explains Shwitra through Tridoshic imbalance, particularly Pitta-Kapha predominance, Bhrajaka Pitta dysfunction, Rakta Dushti, and Srotorodha.

Classical Ayurvedic texts including Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya provide detailed descriptions regarding Nidana, Samprapti, Lakshana, prognosis, and therapeutic approaches of Shwitra. Traditional management emphasizes Nidana Parivarjana, Shodhana procedures, Shamana therapies, Rasayana, and external applications of Varnya and Kushtaghna drugs such as Bakuchi. Modern management includes topical corticosteroids, calcineurin inhibitors, phototherapy, and surgical interventions; however, recurrence and incomplete repigmentation remain major therapeutic limitations.

This review critically evaluates the Ayurvedic and modern understanding of Shwitra/Vitiligo, including etiopathogenesis, classification, differential diagnosis, and therapeutic principles. Furthermore, the paper explores possible integrative mechanisms linking classical Ayurvedic concepts with contemporary immunological and oxidative stress theories. The review highlights the potential role of Ayurveda as an adjunctive and holistic approach in the long-term management of Vitiligo and identifies future directions for evidence-based integrative research.

Keywords: Shwitra, Vitiligo, Kushta, Ayurveda, Autoimmune disorder, Depigmentation, Bhrajaka Pitta, Integrative Dermatology.

INTRODUCTION

Skin disorders significantly affect physical appearance, social interaction, and psychological well-being. Among pigmentary disorders, Vitiligo is one of the most common acquired depigmenting conditions characterized by the progressive destruction of melanocytes leading to well-demarcated milky-white patches on the skin. The disease affects approximately 0.5–2% of the global population irrespective of gender, race, or ethnicity. It frequently manifests before the age of 30 years and is often associated with autoimmune diseases such as thyroid dysfunction, diabetes mellitus, alopecia areata, and pernicious anemia.

Despite being medically non-life-threatening, Vitiligo exerts profound psychosocial consequences including anxiety, depression, social stigma, low self-esteem, and impaired quality of life. Modern dermatology considers

Vitiligo a multifactorial disorder involving genetic susceptibility, autoimmune melanocyte destruction, oxidative stress, neural dysregulation, and environmental triggers.

Ayurveda describes depigmentary disorders under the broad category of Kushta Roga. Shwitra is specifically mentioned as a type of Kushta characterized by non-exudative white discoloration of the skin. Classical Ayurvedic literature attributes the disease to vitiation of Tridosha with predominance of Pitta and Kapha along with Rakta Dushti and involvement of deeper Dhatus such as Mamsa and Meda. Etiological factors described in Ayurvedic texts include Viruddha Ahara (incompatible diet), suppression of natural urges, faulty lifestyle practices, psychological disturbances, and sinful acts (Papa Karma).

The Charaka Samhita, Sushruta Samhita, and Ashtanga Hridaya provide comprehensive explanations regarding the Nidana, Samprapti, Lakshana, and Chikitsa of Shwitra. These texts emphasize a multidimensional therapeutic strategy including Nidana Parivarjana, Deepana-Pachana, Shodhana procedures such as Vamana and Virechana, Shamana therapy, Rasayana, and external applications of photosensitizing drugs like Bakuchi.

In recent years, there has been growing interest in integrative dermatology due to the limitations of conventional therapies, including incomplete repigmentation, relapse, and long treatment duration. Ayurvedic interventions have shown potential immunomodulatory, antioxidant, and melanocyte-stimulating effects that may complement modern therapeutic approaches.

The present review aims to critically analyze Shwitra from both Ayurvedic and modern biomedical perspectives and explore the scope of integrative therapeutic strategies for improved disease management.

AIMS AND OBJECTIVES

1. To review the classical Ayurvedic description of Shwitra.
2. To analyze the contemporary biomedical understanding of Vitiligo.
3. To correlate Ayurvedic and modern pathogenetic concepts.
4. To evaluate diagnostic and therapeutic principles from an integrative perspective.
5. To identify future research directions in integrative management of Vitiligo.

MATERIALS AND METHODS

The present review is based on a comprehensive literary analysis of classical Ayurvedic texts and contemporary biomedical literature.

Ayurvedic Sources

- Charaka Samhita
- Sushruta Samhita
- Ashtanga Hridaya
- Bhavaprakasha
- Yogaratnakara
- Ayurveda Dipika commentary

Modern Sources

Peer-reviewed articles indexed in PubMed, Scopus, Google Scholar, and standard dermatology textbooks were reviewed using keywords such as “Vitiligo,” “Shwitra,” “autoimmune depigmentation,” “Ayurveda and Vitiligo,” “oxidative stress,” and “integrative dermatology.”

AYURVEDIC CONCEPT OF SHWITRA

In Ayurveda, Shwitra is classified under Kushta Roga. Although all Kushta disorders involve Tridosha, Shwitra is considered predominantly Pitta-Kapha dominant with Rakta Dushti. Classical Acharyas have described Shwitra as a disorder characterized by white discoloration of the skin without discharge.

Definition

Charaka describes Shwitra as:

“Shweta varna yukta twak vikara without srava.”

The disease manifests as depigmented patches due to vitiation of Doshas and Dhatus.

Nidana (Etiological Factors)

The major causative factors described in Ayurveda include:

Dietary Factors

- Viruddha Ahara (incompatible food combinations)
- Excessive intake of Guru, Snigdha, and Abhishyandi Ahara
- Fish with milk
- Excessive curd consumption
- Improper digestion and Agnimandya

Lifestyle Factors

- Day sleep (Divaswapna)
- Suppression of natural urges
- Excessive physical exertion
- Irregular dietary habits

Psychological Factors

- Stress
- Anxiety
- Emotional disturbances

Ethical and Behavioral Causes

- Papa Karma
- Improper conduct

SAMPRAPTI (PATHOGENESIS) OF SHWITRA

According to Ayurveda, repeated exposure to Nidana leads to Dosha vitiation, especially Pitta and Kapha. This further causes impairment of Agni and formation of Ama. Subsequently, Dosha–Dushya Sammurchana occurs involving Rakta, Mamsa, and Meda Dhatus. Bhrajaka Pitta becomes impaired, resulting in abnormal skin pigmentation.

Samprapti Ghataka

Component	Involvement
Dosha	Pitta-Kapha predominant with Vata association
Dushya	Rakta, Mamsa, Meda
Agni	Jatharagni and Dhatwagni Mandya
Srotas	Rasavaha, Raktavaha, Mamsavaha
Srotodushti	Sanga and Vimarga Gamana
Udbhava Sthana	Amashaya
Adhithana	Twak
Roga Marga	Bahya

The pathogenesis ultimately manifests as Twak Vaivarnya due to impairment of pigmentation mechanisms.

MODERN PATHOGENESIS OF VITILIGO

Vitiligo is an acquired depigmentary disorder characterized by progressive melanocyte destruction. The disease is multifactorial and involves interactions between genetic, autoimmune, oxidative, neural, and environmental factors.

Autoimmune Hypothesis

The autoimmune hypothesis is currently the most accepted mechanism. Cytotoxic CD8+ T lymphocytes selectively destroy melanocytes. Increased interferon-gamma and activation of the JAK-STAT pathway play important roles in melanocyte destruction.

Oxidative Stress Hypothesis

Excess production of reactive oxygen species causes oxidative damage to melanocytes, leading to apoptosis and cellular dysfunction.

Genetic Susceptibility

Genome-wide association studies have identified susceptibility genes related to immune regulation and melanocyte function.

Neural Hypothesis

Neurochemical mediators released from nerve endings may disrupt melanocyte activity, especially in segmental Vitiligo.

Melanocytorrhagy Theory

Defective melanocyte adhesion leads to detachment and loss of melanocytes, especially in friction-prone areas.

CLASSIFICATION OF VITILIGO

Segmental Vitiligo (SV)

- Unilateral distribution
- Early onset

- Rapid progression followed by stabilization
- Less association with autoimmune diseases

Non-Segmental Vitiligo (NSV)

Most common form characterized by bilateral symmetrical lesions.

Subtypes

- Generalized Vitiligo
- Acrofacial Vitiligo
- Mucosal Vitiligo
- Universal Vitiligo
- Mixed Vitiligo

Unclassified Vitiligo

- Focal Vitiligo
 - Isolated mucosal lesions
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CLINICAL FEATURES

Features of Shwitra in Ayurveda

- Shweta patches over skin
- Non-exudative lesions
- Variable discoloration depending upon Dhatu involvement
- Dryness or roughness
- Chronic progressive nature

Clinical Features of Vitiligo

- Well-defined depigmented macules
 - Symmetrical or unilateral distribution
 - Leukotrichia
 - Koebner phenomenon
 - Progressive spread
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DIFFERENTIAL DIAGNOSIS

Condition	Distinguishing Features
Vitiligo	Chalk-white depigmented patches without scaling
Pityriasis Versicolor	Fine scaling with fungal infection
Pityriasis Alba	Ill-defined hypopigmented patches in children
Tinea Corporis	Annular lesions with itching and scaling
Leprosy	Sensory loss over lesions
Chemical Leukoderma	History of chemical exposure
Nevus Depigmentosus	Congenital and non-progressive

AYURVEDIC CLASSIFICATION OF SHWITRA

Sushruta classifies Shwitra based on Dhatu involvement:

Type	Dhatu Involved	Clinical Appearance
Raktaja	Rakta	Reddish discoloration
Mamsaja	Mamsa	Coppery discoloration
Medoja	Meda	White discoloration

The prognosis becomes poorer with deeper Dhatu involvement.

DIAGNOSIS

Modern Diagnostic Methods

- Clinical examination
- Wood's lamp examination
- Skin biopsy
- Autoimmune screening
- Thyroid profile

Ayurvedic Diagnostic Principles

- Darshana (inspection)
- Sparshana (palpation)
- Prashna (history taking)
- Dosha and Dhatu assessment
- Agni assessment

TREATMENT OF SHWITRA IN AYURVEDA

Ayurvedic treatment aims at: 1. Elimination of causative factors 2. Dosha Shodhana 3. Restoration of Agni 4. Dhatu nourishment 5. Pigmentation restoration

Nidana Parivarjana

Avoidance of incompatible diet and unhealthy lifestyle is the primary step.

Deepana-Pachana

Drugs improving digestion and metabolism are administered to eliminate Ama.

Shodhana Therapy

Vamana

Indicated in Kapha predominance.

Virechana

Preferred in Pitta-dominant conditions.

Raktamokshana

Useful in Rakta Dushti.

Basti

Helpful in chronic and recurrent cases.

Shamana Therapy

Internal Medicines

- Bakuchi
- Khadira
- Aragwadha
- Manjishtha
- Guduchi
- Haridra

External Applications

- Bakuchi Lepa
- Avalgujadi preparations
- Photosensitizing herbal applications

Rasayana Therapy

Rasayana drugs are used for rejuvenation, immune modulation, and prevention of recurrence.

MODERN MANAGEMENT OF VITILIGO

Medical Therapy

- Topical corticosteroids
- Calcineurin inhibitors
- Vitamin D analogues
- Systemic immunomodulators

Phototherapy

- Narrowband UVB
- PUVA therapy
- Excimer laser

Surgical Therapy

- Punch grafting
- Melanocyte transplantation
- Split-thickness skin grafting

Psychological Support

Counseling and psychosocial support play a vital role in long-term management.

INTEGRATIVE PERSPECTIVE

Ayurveda and modern medicine share several conceptual parallels regarding Vitiligo pathogenesis.

Ayurvedic Concept	Modern Correlation
Rakta Dushti	Immune dysregulation
Bhrajaka Pitta dysfunction	Melanocyte dysfunction
Ama	Oxidative stress and inflammatory metabolites
Srotorodha	Microcirculatory and inflammatory obstruction
Dhatu Kshaya	Cellular degeneration

Ayurvedic formulations may exert:

- Antioxidant effects
- Immunomodulatory activity
- Anti-inflammatory actions
- Melanocyte stimulation

Bakuchi contains psoralens that stimulate melanogenesis upon ultraviolet exposure, similar to PUVA therapy.

DISCUSSION

Shwitra represents a unique dermatological entity in Ayurveda characterized by Twak Vaivarnya resulting from Dosha imbalance and Dhatu Dushti. Classical texts consistently emphasize the importance of systemic purification before local therapeutic interventions. This reflects a holistic understanding of the disease process.

Modern biomedical science identifies Vitiligo as a multifactorial autoimmune disorder involving oxidative stress, immune dysregulation, and melanocyte destruction. Interestingly, Ayurvedic concepts such as Rakta Dushti, Ama formation, Bhrajaka Pitta impairment, and Srotorodha show conceptual similarities with modern pathogenic theories.

Charaka emphasizes Nidana Parivarjana and Virechana as essential therapeutic principles, suggesting systemic correction before pigmentation restoration. Sushruta highlights Raktamokshana and external applications, indicating recognition of vascular and inflammatory pathology. Vagbhata integrates metabolic correction, purification, and rejuvenation therapies.

Contemporary research demonstrates that Ayurvedic drugs such as Bakuchi, Guduchi, Khadira, and Manjishtha possess antioxidant, anti-inflammatory, and immunomodulatory properties. Bakuchi particularly contains psoralen compounds capable of stimulating melanogenesis when combined with ultraviolet exposure.

An integrative approach combining Ayurvedic purification therapies, lifestyle modification, dietary correction, stress management, and modern phototherapy may provide better long-term outcomes with reduced relapse rates.

However, high-quality randomized controlled clinical trials and translational studies are still required to scientifically validate Ayurvedic interventions in Vitiligo management.

CONCLUSION

Shwitra is a chronic pigmentary disorder described in Ayurveda under Kushta Roga and closely resembles Vitiligo in modern dermatology. Classical Ayurvedic literature provides a comprehensive understanding of its etiology, pathogenesis, diagnosis, prognosis, and treatment. The disease is primarily caused by Tridoshic imbalance with predominance of Pitta and Kapha along with Rakta Dushti and Bhrajaka Pitta dysfunction.

Modern medicine recognizes Vitiligo as a multifactorial autoimmune disorder involving melanocyte destruction, oxidative stress, genetic susceptibility, and neural influences. Although conventional therapies provide symptomatic improvement, recurrence and incomplete repigmentation remain major concerns.

Ayurveda offers a holistic and individualized therapeutic approach emphasizing Nidana Parivarjana, Agni correction, Shodhana, Shamana, Rasayana, and external applications. Many Ayurvedic principles correlate conceptually with modern immunological and oxidative stress theories.

Integrative therapeutic strategies combining Ayurvedic and modern approaches may provide enhanced clinical outcomes, improved quality of life, and reduced recurrence rates. Further interdisciplinary research, standardization of Ayurvedic formulations, and evidence-based clinical trials are necessary to establish the role of Ayurveda in the comprehensive management of Vitiligo.

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