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Critical analysis of Vitiligo (*Shwitra*) : An Ayurvedic Perspective

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ABSTRACT

Vitiligo is one of the stigmatizing dermatological disorders found with a worldwide preponderance. It is a condition in which white patches develop on the skin caused mainly by the loss of melanin pigment in the skin. It can affect any area of the skin and causes discolouration and ugliness. It causes cosmetic imbalance body which ultimately leads to many socialized psychological stigma in life of the patient. Āyurveda has incorporated this condition into the broad heading of *Shwitra* or *Kilāsa* which is described under the term called *Kushtha* (dermatosis). Here, an attempt has been made to compile the knowledge of ancient Āyurvedic science so as to present it systematically and critically analyze the Āyurvedic concept and management of *Shwitra* (Vitiligo).

Key words: *Shwitra, Kilāsa, Kushtha, Vitiligo, Leucoderma.*

INTRODUCTION

Vitiligo is one of the common stigmatizing dermatosis found with a worldwide preponderance. It is a commonly acquired, idiopathic, heritable, depigmentation disorder of the skin and or mucous membrane. It does not affect physical health but it can be stressful. It can leads to serious psychological, social and emotional difficulties and significantly impacting the quality of life.^[1] It is neither infectious nor contagious disease. However, the condition is not life-threatening and the life expectancy is unaffected.^[2]

The real prevalence of vitiligo still remains unknown

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as there is no epidemiological survey has been conducted so far. However, it affects approximately 0.5% to 2% of the worldwide population with an overall prevalence of 1%.^[3] The incidence ranges from 0.1 to >8.8% across the country and other parts of the world.^[4] It appears to be equal between men and women.^[3] It can occur at any age but it has been most frequently observed in young and middle-aged people. However, a disease onset during adulthood is a common condition.^[5]

Āyurveda incorporated this condition into the broad heading of *Shwetakushta* or *Shwitra* or *Kilāsa*, a variety of skin disease (*twak rogas*). In the doctrines of Āyurveda, all the diseases of the skin have been described under the term called *Kushtha* (dermatosis) which literally means disfigurement of skin (*twak vaivarnyatā*). *Kushtha* is further sub divided into seven *Mahā Kushtha* (major dermatosis) and eleven *Kshudra Kushtha* (minor dermatosis). However, *Shwitra* has not been included under sub types of *Kushtha* by various Āyurvedic Physicians but it has been separately explained in detail with its management in the chapters of *Kushtha*. It is because there are some peculiarities in *Nidāna, Rupa, Chikitsā* and *Sādhyāsādhyatā* which make the disease distinct than *Kushtha*.

Here, an attempt has been made to compile the knowledge of ancient Āyurvedic science about *Shwitra* which is scattered in Āyurvedic texts so as to present it systematically and critically analyze the Āyurvedic concept and management of *Shwitra* (Vitiligo).

ETYMOLOGY (NIRUKTI)

The term *Shwitra* is combination of *Shweta* and *Rak*. *Shweta* means whiteness and *Rak* is suffix of '*Shweta*' *Dhātu*. Shabdakalpdruma defined the term *Shwitra* for white coloured object. The Nirukti of the term reveals white colour or changes toward white colour.

1. Amarakosha said "*Shwetate shwitā varne*" which means that which produces morbid whiteness.^[6]
2. Shabda Kalpa Dhurma stated "*Shwetate twaganena Shwitram*" which means by which the colour of skin turns to white.^[7]
3. Kāshyap said "*Shwetabhavamichchanti Shwitram*" which means any changes of the skin colour towards white is called as *Shwitra*.^[8]
4. Shabda Kalpa Dhurma stated the term *Kilāsa* as "*Kila varnam yasyati ksheeyati vikruti karoti iti yat*" means that which gives *vikruta varna* (abnormal colour) to the skin. The term '*Kila*' means discolouration i.e. white and '*Asa*' is suffix which means to vitiate or to carry. Thus *Kilāsa* means white coloured pigment vitiated in skin.^[7]

All these references support the meaning of *Shwitra* as whitish discolouration (*Shweta vaivarnyata*) of the skin (*twak*) and white patches on the skin as its cardinal symptom perfectly.

DEFINITION (PARIBHĀSHĀ)

Most of the Āyurvedic descriptions of *Shwitra* and *Kilāsa* are synonymous. However, some authors consider these two as subtypes. Āyurvedic authors have described *Shwitra* in different ways but all the etymology and definitions revealed whitish discolouration of the skin is called as *Shwitra*. Hence, the term is defined as "*Shwitra* is a variety of *Kushtha* in which the non-exudative (*Aparisrāvi*) white coloured macules or patches are developed on the

skin."^[9] It can be co-related with Vitiligo (also called as Leucoderma) to certain extent in biomedicine based on the similarities of signs and symptoms. Vitiligo is an autoimmune acquired cutaneous disorder of depigmentation in which well-demarcated, pale or milky-white macules or patches of varying size and distribution develop on the skin on any part of the body. It may also affect hair and inside of the mouth. The extent and rate of colour loss from vitiligo is unpredictable.

SYNONYMS (PARYĀYA)

1. *Kilāsam, Pālitam* (*Atharvaveda*)
 2. *Kilāsi* (*Rigveda*); *Alasa* (*Atreya Bhāraman – Vi-33/5*)
 3. *Dārūna, Arūna, Shwitra* (*Charaka Samhitā*)
 4. *Dārūna, Varūna* (*Bhaluki Samhitā*)
 5. *Pāndura Kustha* (*Hārīta Samhitā – 40/50,59*)
 6. *Pāda Sphota, Twak Puspi, Kilāsa, Sidhmali, Shweta kushtam* (*Amarkosha*)
- Leucoderma, White Leprosy, Achromoderma, Hypomelanosis, Leukopathia and Leukopathy are pathological synonyms of Vitiligo.

HISTORICAL REVIEW

The disease *Shwitra* is reported in ancient literature under the terms *Kilāsam, Shweta kushtam* and *Pālitam*. In *Atharvaveda*, the remedy for *Kilāsam* (diseases where normal colour of skin is destroyed) and *Pālitam* (meant particularly for whiteness of the scalp hair) appears for the first time in the commentary of Darila on *Kau Sutra* 26.22-24. References to *Kilāsa* are also found in *Atharvaveda* in two hymns (A.V.1.23 & 1.24), in *Rigveda* (V.53.1) as well as in *Vajaseneji Samhitā, Kathaka Samhitā; Taittiriya Brāhmana* and *Tandya Mahābrāhmana*. The disease is described in *Pānini Vyākaraṇa* (5/12/129) also. Manu abhors marriage to the son or daughter of a *Shweta Kushtha rogi* (*Manu Samhitā – 3/7*). The important classical texts of Āyurveda such as *Charaka Samhitā, Sushruta Samhitā, Ashtānga Hridaya, Ashtānga Samgraha* have clearly mentioned the

treatment of *Shwitra* along with its classification and prognosis. Most of them use *Shwitra* and *Kilāsa* as Synonyms. Medieval authors like Mādhavakara, Bhāvamishrā, Shārangadhara, Chakradatta, Yoga Ratnākara, Vangasena and Kāshyapa also enumerated certain additional information regarding *Shwitra*. References to this disease are also available in *Agni Purāna*, *Guruda Purāna* and *Mahābhārata* (Mahābhārata Shānti Parva – 3/3/6).

Vitiligo has been described since ancient history. Descriptions of a disease believed to be vitiligo date back to a passage in the medical text Ebers Papyrus circa 1500 BCE in ancient Egypt. Medical sources in the ancient world such as Hippocrates often did not differentiate between vitiligo and leprosy, often grouping these diseases together. The name "vitiligo" was first used by the Roman physician Aulus Cornelius Celsus in his classic medical text *De Medicina*.^[10]

ETIOLOGY (NIDĀNA)

The exact aetiology is still obscure. But the ancient classical Ayurvedic texts have recognized that the occurrence of *Shwitra* is due to the same causes as that of *Kushtha*. Hence, all the aetiological factors of *Kushtha* are to be considered as the common etiological factors (*Sāmānya Nidāna*) of *Shwitra* and may become direct or indirect reasons for *Shwitra*.

Table 1: Common etiological factors of *Shwitra* (*Kushtha*) acc. to different *Āyurvedic* texts

No	Etiological Factors (<i>Nidānās</i>)	CS	SS	AS	AH	MN
Food (<i>Āhāraja</i>)						
1	Intake of incongruous (<i>Viruddha</i>) and unwholesome (<i>Mityā</i> or <i>Ahitakāri</i>) foods and drinks.	+	+	+	+	+
2	Excessive intake of foods that are heavy (<i>Guru</i>) to digest in contradictory and dis-order manner (<i>Viruddha</i>).	+	+	-	-	-
3	Intake of foods that are liquid	+	-	-	-	+

	(<i>drava</i>), unctuous or fatty (<i>snigdha</i>) and heavy (<i>guru</i>) in contradictory and disorder manner (<i>Viruddha</i>).					
4	Overeating (<i>Atibhuktva</i>), excessive intake of uncooked or half cooked foods or toxic food (<i>Ajirnādhyashana</i>)	+	+	-	-	+
5	Excessive intake of recently harvested rice, grains or pulses (<i>Navānna</i>), curd (<i>Dadhi</i>), fish (<i>Matsya</i>), salt (<i>Lavana</i>) and sour (<i>Āmla</i>) foods, blackgram (<i>Māsha</i>), radish (<i>Mulaka</i>), starchy food (<i>Pishtānna</i>), sesame (<i>Tila</i>), milk (<i>Kshira</i>) and jiggery (<i>Guda</i>).	+	-	-	-	+
6	Intake of meat of <i>Grāmya</i> , <i>Ānupa</i> , and <i>Jaliya</i> along with milk (<i>Payasā</i>)	+	+	-	-	-
Activities (<i>Vihāraja</i>)						
7	Suppression of natural urges like vomiting (<i>Vega dhāraṇa</i>) and others.	+	+	-	-	+
8	Insensible behaviours like insulting Saints (<i>Sādhu nindā</i>), Teachers (<i>Guru nindā</i>), Brahmin, God etc.	+	-	+	+	+
9	Sinful acts (<i>Pāpa karma</i>) or Bad deeds performed in the present life or past life. (<i>Pāpmabhi</i> , <i>Karmabhi Sadhyah</i>)	+	-	+	+	+
10	Physical exercise (<i>Vyāyāma</i>) in excessive heat (<i>Ati santāpam</i>) & after taking heavy meal. (<i>Ati bhuktva</i>)	+	+	-	-	+
11	Use of cold water (<i>Sitāmbhupāna</i>) immediately after exposure to scorching sun heat (<i>Ushma</i>), fire, exertion or exposure to frightening situations such as fear (<i>Bhaya</i>), exhaustion (<i>Shrama</i>) & grief etc.	+	+	-	-	+

12	Improper administration (complication) of <i>Panchakarma</i> therapies.	+	+	-	-	+
13	Excessive sexual indulgence (<i>Vyavāya</i>) while suffering with indigestion (<i>Ajirne Anne</i>).	+	+	-	-	+
14	Excessive sleeping during day (<i>Divā nidrā</i>).	-	-	-	-	+

CS = Charaka Samhitā^[11]; SS = Sushruta Samhitā^[12]; AS = Astānga Samgraha^[13]; AH = Astānga Hridaya^[14]; MN = Mādhava Nidāna.^[15]

Generally, *Kilāsam* (*Shwitra*) is caused by *doshas* (basic energy principles) and is residing in three (body tissues) namely *Rakta* (blood tissue), *Māmsa* (muscle tissue) and *Meda Dhātus* (adipose or fat tissue). Accordingly, the factors which cause vitiation of all the three *doshas* and three *dhātus* are to be taken as etiological factors for *Shwitra*. Among all the etiological factors intake of *Viruddhāhāra* (incompatible foods) and *Mithyāhāra* (unwholesome foods) play most significant role. Apart from these, Charaka has been also specified some peculiar causes for *Kilāsam* and might cover the idiopathic aspects such as – *Vāchāmsi asathyāni* (telling lies), *Krutaghñabhāvo* (un-grateful), *Surānam nindā* (abusing Gods), *Guru gharshanam* (abusing and disrespecting the teachers and elders), *Pāpakriyā* (being involved in sinful acts), *Purvakruta karma* (sins done in previous birth) and *Virodhianna* (incompatible foods) etc., (Ch.Chi.8/177).

The exact cause of vitiligo is not known. There are many theories have emerged about what may be responsible for causing vitiligo such as genetic hypothesis, autoimmune hypothesis, defects of melanocyte adhesion, neurogenic damage and biochemical damage. However, none of these have been proven definitive and there are currently no data supporting that these factors cause vitiligo. There is often report that its onset was related to a specific triggering event such as injury, illness, sunburn, exposure to industrial chemicals, burns, inflammatory skin conditions, emotional distress or pregnancy.^[16]

Table 2: The Risk factors of Vitiligo

SN	Risk factors ^[16]
1.	Thyroid disorders (hyperthyroidism)
2.	Chronic or acute gastric diseases
3.	Inflammatory skin conditions
4.	Deficiency of calcium
5.	Poor nutrition, including vitamin D deficiency
6.	Genetic factors
7.	Psychosocial stress, emotional stress
8.	Pernicious anaemia
9.	Deep and Chronic ulcers or burning of skin
10.	Exposure to phenolic chemicals

PRE-CLINICAL SYMPTOMS (PŪRVARŪPA)

Though the specific *Pūrvarūpa* of *Shwitra* has not been mentioned specifically in the classical Ayurvedic texts, but in many diseases the symptoms are *Avyakta* (obscure) prior to complete manifestation of the disease. Here *Avyakta* can be taken as *ishat* or *alpa vyakta* or *asampurna lakshana* (Chakrapāni, Ch.Chi.11/12) which means mildness in the symptoms. Hence, the slight appearance of the manifestation or the mild symptoms in the initial stage of the disease can be taken as premonitory symptoms of that particular disease. So in *Shwitra*, dryness of skin, discolouration (lighter shade white patches) of skin without any pain, itching, etc. can be considered as the pre-clinical symptoms.

Vitiligo is usually considered as an asymptomatic dermatosis. It can be painless. So it is important to be aware of some of the common warning signs such as dry skin, patchy loss of skin colour, itchy skin, premature whitening or greying of the hair etc. According to a study by Levai, vitiligo affected patients, with or without the presence of irritated skin lesions, can suffer from itch prior to the appearance of depigmented patches.^[17]

CLINICAL SYMPTOMS (RŪPA)

Most of the Āyurvedic descriptions of *Shwitra* and *Kilāsa* are synonymous. However, some authors consider these two as subtypes.

Charaka says that *Kilāsa* has three subtypes which are caused by the vitiation of *doshas*.^[18]

1. *Dārūna* – It is red (*Raktam*) in colour and manifests when vitiated *doshas* enter at the level of *Rakta dhātu* (blood tissue).
2. *Aruna* – It is coppery red (*Tāmra*) in colour and occurs when vitiated *doshas* enter at the level of *Māmsa dhātu* (muscle tissue).
3. *Shwitra* – It is pure white (*Shweta*) in colour and produced when vitiated *doshas* enter at the level of *Medho dhātu* (adipose tissue or fat).

According to Charaka, *Shwitra* is a subtype of *Kilāsa*. It becomes firmly established when vitiated *Doshas* enter at the level of *Medho dhātu* and indicates white coloured skin patches. The subtypes of *Kilāsa* are mainly on the prevalence of *Doshas* with the involvement of *Dhātus* and the colour of the patches was the main base for categorization. These subtypes may be considered as different presentations or advanced stages or progressive stages of the disease respectively. The subsequent ones are more severe than the previous ones and the prognosis worsens accordingly. He opines that the disease is *Asādhyā* (incurable) most as it invades the deeper *Dhātus* and advocates not to treat *Asādhyā* variety. Later on while describing the treatment of the disease, he omitted the *Sādhyā* (curable) variety i.e. *Dārūna* and *Aruna* and described the treatment of *Asādhyā* variety i.e. *Shwitra*. Furthermore, he has considered *Shwitra* as the *Rakta pradoshaja vyādhi* (Ch.Su.28/11-12).

Sushruta mentions that *Khilāsa* is a variant form of *Kushtha* and is devoid of secretion (*Aparisrāvi*). It is classified into three types.^[19]

1. *Vātaja*: It is round (*Mandala*), reddish brown (*Arunam*) in colour and is associated with dry or rough (*Parusham*) and loss of hairs (*Paridhwansi*).

2. *Pittaja*: It is like lotus petal (*Padmapatra pratika*) colour and is associated with burning sensation (*Dāha*).
3. *Kaphaja*: It is white (*Shweta*) in colour, unctuous (*Snigdha*), thick (*Bahalam*) and is associated with itching (*Kandu*).

According to Sushruta, '*Twakgatam eva Kilāsam*' i.e., *Kilāsa* is located only in the skin (*Twakgata*) and is *Aparisrāvi* in nature (Su.Ni.5/13). He classified *Kilāsa* mainly on the prevalence with involvement of *Doshas*. He used the term *Kilāsa* to describe the *Nidāna* and *Samprāpti* but while *Shwitra* to describe the treatment. Dalhana has quoted Vishvāmitra and others tried to differentiate *Kilāsa* and *Shwitra* while commenting upon the Su.Ni.5/17. He said that the disease can be termed as *Kilāsa* when if only *Twaka Dhātu* is involved and the patches is non-exudative and further added that if the disease invades deeper *Dhātus* other than *Twaka* the term *Shwitra* can be used.

Vāgbhat says that *Shwitra* is caused by same aetiology of *Kushtha* and is devoid of secretion (*Aparisrāvi*). It is classified into three types.^[20]

1. *Vātaja* type: It is light red (*Aruna*) in colour and is associated with dry skin (*Rukshata*). It is localised in the *Rakta Dhātu*.
2. *Pittaja* type: It is coppery (*Tāmra*) in colour similar to that of lotus petal (*Kamala patravat*) and is associated with burning sensation (*Dāha*) and destruction of hair follicles (*Roma vidhwansi*). It is localised in *Māmsa Dhātu*.
3. *Kaphaja* type: It is white (*Shweta*) in colour, thick or large lesions (*Ghana*), heaviness or compactness around the lesions (*Guru*) and is associated with itching (*Kandu*). It is localised in the *Medho Dhātu*.

According to Vāgbhat, *Shwitra* is mentioned as a variant of *Kushtha*. *Kilāsa* and *Dārūna* (*Aruna*) are the synonyms of *Shwitra*. They are caused by same aetiology of *Kushtha*. These variants are characterized

by *Aparisrāvi*. He too classified the subtypes of *Shwitra* mainly on the prevalence of *Doshas* with the involvement of *Dhātus* and the colour of the patches was the main base for categorization. Indu and Arunadutta have been clarified that *Shwitra* has two other names i.e. *Dārūna* and *Kilāsa* and also clarified the *Aparisrāvi* nature of *Kilāsa*. Further Vāgbhat stated that *Shwitra* is also called as *Bāhya Kushtha* (external dermatosis) since it is localized outside the body i.e. on the skin without the deeper tissues being involved (A.S.Ni.14/7). In addition, other *Samgraha Kālina* authors such as Mādhavakara (M.Ni.49/41)¹⁵, Bhāvamishrā (B.P.Ni.54/47-48)¹²¹ and Vangasena (V.S.49/41)¹²² have followed the trend of Vāgbhat. Jejjat said that there is no difference between *Kilāsa* and *Shwitra*. The differences of opinions are only *Sangyabhedha*, not *Arthabhedha* in contrast to Bhaluki, who has tried to differentiate both terms on the basis of *Dhātugatatva*. Gangādhara also supports the view of Bhaluki in the commentary on *Kilāsa* and *Shwitra*. Todaranand (Ayurved Saukhyam by Todarmalla) has tried to differentiate the terms on the basis of colour of the patches. If the patches are white in colour, then it is *Shwitra*. If the colours of the patches are whitish red then it is *Kilāsa*.

According to **Bhoja**, *Shwitra* is of two types based on its genesis.¹²³

1. *Doshaja* – It is caused by vitiated *Doshas*. It is again of two types i.e. *Ātmajam* (caused by vitiation of *doshas* in one's own body) and *Parajam* (contiguous variety produced due to the contact with the infected persons etc.)
2. *Vranaja* – It is caused by mismanagement of *Vranas* as in accidental wounds, injury, burns etc.

According to **Hārīta**, vitiated *Vāta* along with *Pitta* affects *Raktadhātu* and manifests *Pāndura Varna* (yellowish white coloured) patches on skin that is called as *Shwitra*.¹²⁴

According to **Kāshyapa** any changes of the skin colour towards white is called as *Shwitra* and it is five types.¹⁸

Table 3: Opinion of Āchāryas regarding to the typology of Shwitra.

<i>Shwitra</i>	<i>Āchāryas</i>
As variety of <i>Kilāsa</i>	Charaka, Chakrapāni, Dalhana, Gangādhara, Bhaluki, Vishvāmitra.
As synonym of <i>Kilāsa</i>	Vāgabhatta, Jejjata, Arunadutta, Mādhavakara, Bhāvamishra, Vangasena and Yogaratnākara.

Table 4: Types of Shwita or Kilāsa according to different Āyurvedic texts.

Types	C S	S S	A H / A S	M N	B P	V S	B J	S H S	H S	Y R	K S	C D	R R S
<i>Vāta ja</i>	-	+	+	+	+	+	-	-	-	-	-	-	-
<i>Pitta ja</i>	-	+	+	+	+	+	-	-	-	-	-	-	-
<i>Kap haja</i>	-	+	+	+	+	+	-	-	-	-	-	-	-
<i>Dārū na</i>	+	-	-	-	-	-	-	-	-	-	-	-	-
<i>Arun a</i>	+	-	-	-	-	-	-	-	-	-	-	-	-
<i>Shwi tra</i>	+	-	-	-	-	-	-	+	+	+	+	+	+
<i>Dos haja</i>	-	-	-	-	-	-	+	-	-	-	-	-	-
<i>Vran aja</i>	-	-	-	-	-	-	+	-	-	-	-	-	-

CS=Charak Samhitā; SS=Sushrut Samhitā; AH=Astānga Hridaya; AS=Astānga Sangraha; MN=Mādhava Nidāna; BP=Bhāva Prakāsha; VS= Vangasena Samhitā; BJ= Bhoja Samhitā; SHS=Shārangadharā Samhitā; HS=Hārīta Samhitā; YR= Yoga Ratnākara; KS=Kāshyap, Samhitā; CD=Chakradatta; RRS= Rasa Ratna Samucchaya.

Recently, an international panel of experts has proposed consensus definitions of vitiligo. Typical vitiligo lesions can be defined as whitish, non-scaly

macules that have usually distinct margins. The main sign of vitiligo is patchy loss of skin colour. Usually, the discoloration first shows on sun-exposed areas, such as the hands, feet, arms, face and lips. Overall, vitiligo can be divided into Segmental Vitiligo (SV) or Limited Vitiligo which accounts for 10% to 15% of all types of vitiligo and Non-segmental Vitiligo (NSV) or Widespread Vitiligo which is the most common variant of vitiligo and accounts for almost 80% of all cases. It encompasses several subphenotypes such as acrofacial (fingers or toes), mucosal (mucous membranes and lips), generalized (no specific area or size), universal (most of the body), mixed and rare forms of vitiligo such as punctate vitiligo (any area of the body), vitiligo minor (children), follicular vitiligo (body hairs).^[25]

PATHOGENESIS (SAMPRĀPTI)

Though *Samprāpti* of *Shwitra* has not been explained directly in Ayurvedic classics, but keeping in mind all the general *Nidāna* explained under *Kushtha* and *doshic* involvement of the disease, here an attempt has been made to formulate and explain the pathogenesis of *Shwitra*. Due to frequent intake of one or all of the above said *Nidānas* leads in to formation of toxins (*Āma*) which further provoke or vitiates all *Doshas* and which get mixed with digestive juice (*Pitta*) and then *Rasa dhātu* and so on it spreads from one *Dhātu* to next *Dhātu*. Thus, the vitiated *Doshas* spreads from the *Koshtha* (alimentary tract) to the *Shākhā* (body tissues). While travelling through all over the body wherever there is *Sthānavāigunya* (deformity in location) it gets lodged and shows the symptoms of the diseases. Then, these vitiated *Doshas* move in *Triyākgata Sirās* and get lodged in *Tāmra* layer of *Twachā* (skin) causing *Sanga* or obstruction to the local *Rasavaha Srotas* (lymph or plasma carrying channels) and *Raktavaha Srotas* (blood carrying channels). The reason behind *Doshadushya sammurchana* in *Tāmra* layer of *Twachā* is due to the presence of *Khavāigunya* (deformity in structural entity) in the respective areas of *Twachā*. This leads to the *Kshaya* (decline) of local *Bhrājākapitta* and causes *Twak shwetata*. Further the *Samprāpti* continues and the deeper *Dhātus* like

Māmsa and *Medas* are also involved. The involvement of each *Dhātu* exhibits specific discoloration on the patches. *Doshas* settled in *Rakta Dhātu* produces *Rakta varna*, *Mamsa Dhātu* produces *Tāmra varna* and *Shweta varna* when settled in *Medo Dhātu*. These altogether involved invariably in different grades and produce white macules all over external surface of the skin causing *Shwitra kushta*. Though all the three *Doshas* are involved, mainly vitiated *Udānavāta* and *Bhrājākapitta* are held responsible because these two are responsible for maintenance of colour of *Twachā*. The functioning of *Vyānavāta* cannot be neglected as it is the main motivating force behind the movement of *Dushta dosha* along with *Rasa*. According to Sushrut the pathogenesis of *Shwitra* is restricted up to level of skin only. It cannot reach further deeper level and also it is devoid of secretions. The elements involved in pathogenesis of disease are listed in table.5

Table 7: Samprāpti Ghataka of Shwitra

SN	Samprāpti Ghatakas of Shwitra	
1	Dosha	- Tridosha (Kapha Pradhāna)
2	Dushya	- Rasa, Rakta, Māmsa and Meda
3	Āma	- Jatharāgni and Dhātawāgni
4	Agni	- Jatharāgnimāndya and Dhātawāgnimāndya
5	Srotas	- Rasavaha, Raktavaha, Māmsavaha and Medovaha
6	Srotodushti	- Sanga
7	Adhishthāna	- Twak (Rakta, Māmsa and Meda)
8	Udbhava sthāna	- Āmāshaya (Twak)
9	Roga mārga	- Bāhya
10	Vyaktasthāna	- Sharira (Twak)

The exact pathogenesis of vitiligo is still not fully elucidated and it remains obscure in spite of all recent findings, genetic, immune and oxidative stress factors

etc., However, it is postulated that vitiligo is a multifactorial, polygenic disorder, with a complex pathogenesis. Western science explains it as a condition caused due to improper distribution of the melanin (impaired melanocyte production) beneath the skin surface.

INVESTIGATIONS

Vitiligo has been associated with multiple endocrine and immune conditions. Several laboratory tests have been assessed in this disease although results are controversial. Based on suggested associations described in literature, the tests such as Routine Haematological and Urine, Anti-nuclear antibody (ANA), Anti-thyroid peroxidase antibody (ATPO), Anti-parietal gastric cell antibody (APGC), Anti-thyroglobulin antibody (ATG), Glycaemia, Vitamin B₁₂, Folic acid, TSH (Thyroid-stimulating hormone) and FT₄ (Free T4) are to be suspected.^[26]

BIOMARKERS IN VITILIGO (LEUCODERMA)

The pathophysiology of vitiligo is complex although recent research has discovered several markers which are linked to vitiligo and associated with disease activity. They are: Serum homocysteine, Melanin / Tyrosinase, Serum miRNA expression, Mitochondrial Dysfunction, Oxidative Stress, Lymphocyte Mediated, DNA Damage, Serum level of, Vitamin B12 and Folic Acid, Serum Zinc, Genetics theory, Neural theory, Apoptosis.^[26]

PROGNOSIS (SĀDHYĀSĀDHYATĀ)

Acc.to Charaka, *Shwitra* which has no red hairs (*Arakta Lomavat*), not extensive or thin (*Tanu*), pale or white (*Pāndu*), of recent origin (*Naiva*) and raised upwards in the middle (*Na ati Chirothitam*) is *Sādhyā* (curable). *Shwitra* with undemarcated mutually (*Parasparato Abhinnam*), extensive or thick or big patches (*Bahu*), red hairs (*Rakta Lomavat*) and arisen since many years (*Varshaganotpannam*) is *Asādhyā* (incurable).^[18]

Acc.to Sushruta, *Shwitra* which has contiguous patches of discolouration (*Sambandha Mandalam*), situated in end parts such as lips, hands, feet, private

parts (*Ante Jātam*), red hairs (*Rakta roma*) and burnt with fire (*Agnidagdha*) is incurable.^[19]

Acc.to Vagbhata, *Shwitra* which has black hairs (*Ashuklaloma*), not extensive or widespread (*Abahulam*), non-intermingled with each other (*Samsrushtam*), newly manifested (*Navam*) and not caused due to burns by fire (*Anagnidagdhajam*) is curable. *Shwitra* with symptoms contrary to those mentioned in curable category (*Ato anyathā*) i.e., white hair, thick / big patches, intermingled, chronic or existing for more than one year and the one developed due to burns by fire, extensively spread over body and born over private parts (genitals), palms, soles and lips (*Guhya pānitalaoshtajātam*) is to be rejected, even though of newly manifested.^[20] In addition, other *Samgraha Kālina* authors have followed the trend of Vāgbhat. Among these, *Vāta* variety is difficult to cure. *Pitta* variety is still more difficult for treatment and *Kaphaja* kind is impossible to treat. Depending upon chronicity and involvement of deeper tissue, disease becomes difficult to treat. The change in colour from red to white indicates the extent of pigment loss. If the pigment is completely lost, it is not curable.

Generally limited vitiligo involving the face and trunk in children of recent onset is most responsive. Extensive disease in adults and disease affecting the hands and feet is resistant to therapy. People with the best chance of regaining skin colour are those who are young, whose vitiligo reaches its peak in less than six months and is located mainly on the facial area. People who are less likely to regain their colour are those who get vitiligo later in life on their lips and limbs, especially the hands.^[27]

COMPLICATIONS

Vitiligo does not develop into other diseases, but people with vitiligo may be at increased risk of social or psychological distress, sunburn and skin cancer, eye problems such as inflammation of the iris, vision problems etc. and hearing loss. A person with vitiligo is more likely to have another autoimmune disorder, such as thyroid problems, Addison's disease, Hashimoto's thyroiditis, type-1 diabetes or

pernicious anaemia. Most people with vitiligo do not have these conditions, but tests may be done to rule them out.^[28]

MANAGEMENT (CHIKITSĀ)

Chikitsā is the measure which brings about the homeostasis of imbalanced *Doshās*. Ayurvedic classics have been mentioned various treatment modalities and formulations for the management of *Shwitra*. The treatment options are mainly aim to remove the aggravated *Doshās* by proper bio-purificatory procedures. Preparations described under the section *Shwitra* are more combined formulations and single herbs that do not have any specific names. These may be topical or oral medications or herbal or herbomineral. The effect of the formulation may be due to increased immunostimulation, hepatic function and photoreaction. *Shwitra* requires quick approach towards management, because it becomes *Asādhyā* very quickly like fire in the forest (A.H.Chi.20/1). In *Gada Nigraha* it is mentioned that *Shwitra* should be treated sooner than *Kushtha* as it becomes *Asādhyā* soon.²⁹ *Charaka* mentioned that all *Kushthaghna Yogas* can be implemented in *Shwitra* along with *Khadirodaka* (Ch.Chi.8/166). However, the treatment of *Shwitra* needs a holistic approach. The treatment involves following principles:

- 1. Nidāna Parivarjana (Avoidance of etiological factors):** Avoidance of etiological factors has been given prime importance behind success of many treatments in *Āyurveda*. The basic principle "Prevention is better than cure" is the first step in the management of *Shwitra* or *Kilāsa*. Avoiding the indulgence in the causative factors of *Shwitra* (table.1) prevents the risk of disorders of the Skin.
- 2. Deepana and Pāchana (Digestants & Appetizer therapy):** These have equal importance in both the sectors of treatment. The root cause for the manifestation of disease in *Ayurveda* is *Āma* (metabolic toxin) resulting from *Mandāgni* (hypo-functioning of metabolic fire). Thus *Deepana* and *Pachana* treatments are mainly targeted towards correcting the *Agni* thereby removing the *Āma*.

Trikatu Churna, *Triphalā Churna*, *Hingwāshtaka Churna*, *Panchakola Churna*, *Ajamoda Churna*, *Āampāchana vati*, *Chitrakādi vati*, are commonly used for *Deepana* and *Pachana*.

- 3. Shodhana (Bio-purification Therapy):** It has mentioned especially as a line of treatment in *Shwitra*. *Sramshamana* (Therapeutic purgation) has been recommended as best treatment (Ch.Chi.7/162). *Raktamokshana* (Blood-letting), *Virukshana* (drying therapies), *Saktu* (administration of nutritious drinks) (Ch.Chi.7/172) and *Upavāsa* (Therapeutic fasting) can also be given. *Shodhana* procedures probably may leads to certain endogeneous changes in the body responsible for the alleviation of pathological process of the *Shwitra* (Vitiligo) and hence are reliable to control the disease. The better significant results can be achieved by intermittent *Shodhana* followed by *Shamana* therapy in a comprehensive way. *Shodhana* should be carried out as per classical guidelines under the experts.

- 4. Shamana (Palliative Therapy):** It includes:

- a) Internal Medicines:** The drugs having *Kushthaghna*, *Krimighna*, *Rakta Shodhana*, *Kandughna*, *Āmapāchana*, *Medhya*, *Rasāyana*, *Kaphaghna*, *Twachya*, *Yakriduttejaka*, *Agnivardhak* and also *Tridoshaghna* properties are to be beneficial in managing the disease *Shwitra*. They not only break the pathogenesis of the diseases but also arrest its progress i.e., prevent the self-destruction of melanocytes.

The following are the some classical medicine used as internally.

- **Vati** (tablets): *Vijayeshwara Rasa* (YR), *Shwitrāri Rasa*, *Swayambhuva Guggulu*, *Brihat Swayambhuva Guggulu*, *Triphalā Gutikā*, (CS/CKD) *Dhātryādi Ghanavati* (BR), *Shashilekha Vati* (YR)
- **Churna** (powder): *Bākuchyādi Churna*, *Kākodumbarikādi Yoga*, *Khadira Sarādi Churna*, *Panchanimba Churna* (CS)

- **Kwātha** (decoction): *Mahāmanjishthādi Kwātha*, *Kākodumbarika kashāya Khadirādi Kashāyam* and *Dhātryādi kwātha* (CS),
 - **Āsava–Arishta** (Medicated fermented preparation): *Madhwāsava*, *Kanakabindvārīsta*, *Khadirārīsha* (CS)
 - **Avaleha** (Medicated semisolid preparation): *Bhallātak avaleha* (GN) and *Vidangādi loha* (AH)
- b) External application (Lepa):** These are the local treatment methods of application of drugs. It is an application of drugs in the form of layer or paste in the affected part. The categories of *Doshaghna Lepas* are used. Expose the lesion to the early morning sunrays for few minutes which bring out melanin in the de-pigmented lesions. Be careful about exposing. Charaka has been described six *Lepa* as local application for *Kilāsa*. The following are the some classical *Lepa* which help to remove the harmful substances hampering the melanogenesis and stimulate melanogenesis.
- *Kākodumbara*, *Avalguja*, *Chitraka*, *Gomutra* (CS),
 - *Shila*, *Vidanga*, *Kāsisa*, *Rochanā*, *Kanakapushpi* and *Saindhava Lavana* (CS)
 - *Avalguja biija*, *Lākshā*, *Gopitta*, *Anjane-dwe*, *pippali* and *Lohabhasma* (CS)
 - *Avalguja biija*, *Mākshika*, *Kākodumbara*, *Lākshā*, *Lauha churna*, *Pippali*, *Rasānjana*, *Krishna tila* and *Gavam pitta* (CS)
 - *Avalguja biija*, *Haritāla*, *Gomutra* (CS)
 - *Khilāsahara lepa* (SS), *Shwitrahara lepa* (SS), *Tutthyādi lepa* (SS), *Shwitranāshaka lepa* (BR), *Manasilādi Lepa*, *Triphalādi Lepa*, and *Vayasyādi Lepa*.
 - **Taila** (Medicated oil): *Somarāji taila*, *Bākuchi taila*, *Aragwadhayādyā taila*, *Aragwadhādi taila* (CKD), *Panchanana taila*, *Marichyādi taila* (CKD), *Visha taila* (YR), *Manasilādyā taila* (RT), *Chitrakādyā taila*, *Jyotishmati taila*, *Kushta kalanala taila*, *Kushtha raksasa taila*. *Karpanpatru taila* (RRS).
- **Ghrita** (Medicated Ghee): *Mahākhadira ghrita*, *Somarāji ghrita*, *Neelinyādi ghrita*, *Mahātiktaka ghrita* (CS), *Mahānila ghrita*, *Bhallātaka Ghrita* (GN)
- 5. Rasāyana (Rejuvenative Therapy):** Generally, skin diseases run a chronic course and the recurrence is very common. *Rasāyana* drugs enhance cure rate and prevent disease recurrence. Most of the drugs described for the management of skin diseases in Ayurveda have *Rasāyana* properties viz. *Ashwagandha*, *Guduchi*, *Haridrā*, *Shunthi*, *Pippali*, *Haritaki*, *Āmalaki*, *Bhallātaka*, *Chitraka*, *Bhringarāja*, *Nimba*, *Manjisthā* etc. They exert a good degree of anti-inflammatory and immunomodulating effect. *Chitraka Rasāyana* (A.H.Ut.39/65), *Eindriya Rasāyana* (Ch.Chi.1/3/29) is best for *Roga Apunarbhava Chikitsā*.
- 6. Yogic Therapy:** Generally, vitiligo is a condition after the body status reaches to a stage called autoimmunity where the pigment cells (melanocyte) gets in the stage of dormancy or sometimes with time the cells get dead also. Yoga is very effective as it detoxifies the body and mind it is helpful to cope up with the condition of autoimmunity. Yoga can prevent progression of vitiligo, improve immunity and help to maintain healthy melanocytes. *Prānāyāma* such as *Nādisodhana*, *Bhāramri*, *Sitkārī* and *Sitali*, *Kapālabhātikriyā*, *Āsanas* like *Suryanamaskāra*, *Savāsana*, *Padmāsana*, *Sidshāsana*, *Makarāsana* and *Dhyāna* (Meditation). One should be practiced daily 10 to 20 minutes of Stress relief exercises. However, it is more effective with Ayurvedic management.
- 7. Pathyāpathya (Do's and Don'ts):** Once the treatment is adopted it becomes essential to advocate *Pathyāpathya* to the patient for the purpose of efficient results. The diet and regimen that is congenial to the body and mind, both in healthy and diseased are referred by the name *Pathya*. It becomes beneficial to the body when taken in an appropriate time with proper proportions. This helps to correct the morbid

condition of *Dhātus* bringing them to Homeostatic state. Thus the diseased condition can be cured and further complications can be prevented. Quite opposite to this, the food and regimen that is not suitable to mind and body is called *Apathya*. Considering above points it can be inferred that *Nidānās* of *Kushtha* are itself *Apathya* for that disease *Shwitra*. The healthy dietetics and lifestyle to be followed in *Shwitra* can be summarized as under:

Table 8: Patyāpatya of Shwitra (Kushtha) (Ch.Chi.7/82-83)

Dravya	Pathya	Apapthya
Ahara	<i>Purānā dhānya, Laghu anna, Yava, Mudga, Āmalaki, Tikta Shāka, Ghrita, Triphalānimbayukta anna and ghrita, Tikta rasa pradhān dravya, Tāmrajala, Khadirajala.</i>	<i>Guru anna, Āmla-Katu-Lavana rasa, Matsya, Anupa pashu paksi māmsa, Dadhi, Dugdha, Madhu, Mulaka, Guda, Viruddhāhāra, Mithyāhāra.</i>
Vihara	<i>Abhyangam, Lepa, Snānam, Exercises,</i>	<i>Divāswapna, Chardivega nigraha, Rātrijāgarana, Deva-guru nindā, Excess krodha, shoka and stress & Strain</i>

Research has advanced the understanding of the physical and psychosocial aspects of Vitiligo, but the cause and cure for this disease are unknown. The main goal of medical treatment is to create a uniform skin tone by either restoring colour (re-pigmentation) or eliminating the remaining colour (depigmentation). Treatment options vary depending on severity and preference and may include topical, systemic, and/or light-based therapies and surgery.^[30] A combination of therapies is usually more effective than a single therapy. Despite the availability of treatment, the course of the condition and response to treatment are unpredictable.

CONCLUSION

Shwitra is a variety of *Kushtha* in which the non-exudative milky white coloured patches are

manifested on the skin on any part of the body. It is synonym or advanced stage of *Kilāsa* which is caused by vitiation of *Kapha pradhāna tridosha*. Among all the etiological factors intake of *Viruddhāhāra* and *Mithyāhāra* plays a significant role in genesis of disease. Chronicity plays a vital role in prognosis of disease and is become incurable after one year. The better significant results can be achieved by intermittent *Shodhana* followed by *Shamana* therapy in a comprehensive way, otherwise it is said to be *Krichrasādhyā* (difficult to cure). Further, Ayurveda has different approach to the understanding and treatment of *Shwitra* (vitiligo also called as leucoderma) which requires extensive research. Although medicines and holistic approach may contribute significant benefits to patients of vitiligo, scientific rationale behind use of these medications need to be further explored with modern methods and research.

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