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### RESEARCH ARTICLE

#### VIRECHANA IN VITILIGO: A RAY OF HOPE.

Pretya Juyal<sup>1</sup>, Lalita Sharma<sup>2</sup>, K.K Sharma<sup>3</sup>, Alok Kumar Srivastava<sup>4</sup> and Parul Sharma<sup>5</sup>.

1. PG Scholar, Dept of Panchakarma, Rishikul Campus UAU, Haridwar.
2. PG Scholar, Dept of Panchakarma, Rishikul Campus UAU, Haridwar.
3. Head, Dept of Panchakarma, Rishikul Campus UAU, Haridwar.
4. Professor, Main Campus UAU, Dehradun.
5. Assistant Professor, Rishikul Campus UAU, Haridwar.

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#### Abstract

Skin not only protects our body but also form a major interface between man and the environment. Vitiligo is an autoimmune disorder characterized by white depigmented spots typically first observed on the fingers, knuckles, around eyes and mouth. Vitiligo is an acquired condition effecting 2% of the population worldwide. In Ayurveda the vitiligo can be considered as *Shvitra* and it is caused by imbalance of *tridoshas*. *Sthana of Bhrajak pitta* is *twak* and should be maintained in proper state, imbalance to this may lead to skin disease. This disease is more than just a simple cosmetic problem. Due to the chronic nature, long term treatment, lack of uniform effective therapy and unpredictable course the disease is usually very demoralizing for patients. Various treatment modalities available in contemporary system of medicine but, these are time consuming and some even have adverse effects. So, it becomes a challenge to provide effective and safe treatment protocol for vitiligo. *Ayurvedic* approach is by maintaining *Bhrajak Pitta*.

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#### Introduction:-

Vitiligo is a common, acquired, discoloration of the skin, characterized by well circumscribed, ivory or chalky white macules which are flush to the skin surface<sup>1</sup>. It is a major problem among the society till today, though it is not life threatening but it is life-altering diseases due to the social and psychological stigma attached with it. Vitiligo occurs worldwide with an overall prevalence of 1%. However, its incidence ranges from 0.1 to > 8.8%<sup>2</sup> across the country and in different countries of the globe. The highest incidence of the condition has been recorded in Indians from the Indian subcontinent, followed by Mexico and Japan<sup>3</sup>. Based on dermatological out patient record, it is estimated between 3-4% in India<sup>4</sup>. The etiopathogenesis of vitiligo is poorly understood, but research suggest that it may arise from autoimmune, genetic, oxidative stress, neural or viral. 20 to 30% cases are due to hereditary, 95% of cases are below 40 years<sup>5</sup>. The difference in its incidence may be due to a higher reporting of vitiligo in a population, where an apparent colour contrast and stigma attached to the condition may force them to seek early consultation<sup>6</sup>. The positive family history of Vitiligo is relatively common in those with other auto immune diseases. Trauma and sun burn may precipitate the appearance of Vitiligo<sup>7</sup>.

Adults and children of both sexes are equally affected, but females are in greater number<sup>8</sup>. Although it is only a dermatological disorder but, it has a devastating effect on the psyche of the patient as it distorts the appearance of an individual and causes extreme fear, anxiety and concern that is comparable to that experienced by a patient with any major illness.

It can be correlated with *Shvitra* in *Ayurveda*. The word *Shvitra* has its root in the *Sanskrit*. It is caused by same aetiology as *Kushtha*, it is classified as *Kilasa, darun, charun*. *Acharya Susruta* opines that *Twak gat Shvitra* is referred to as *kilasa*. *Shvitra* is characterized by non-discharging lesions and may occur in *Rakta, Mamsa, Meda*<sup>9</sup>. According to *Kashyap Samhita* *Shvitra* is '*Shweta Bhava Micchanti Shvitram*' this means reflection of white colour<sup>10</sup>.

*Acharya Charaka* has mentioned various causes out of which *Virudhaaharsevan, Papkarma* are important one<sup>11</sup>. The treatment adopted for the condition are *Shodhana Karma* like *Vamana, Virechana, Rakta mokshana* using leeches are recommended. *Shamana Chikitsa*- done through oral medications and external applications i.e. *lepa* Apart from these *Ayurveda* has also given importance to *Daivavyapasraya chikitsa* as *kushtha* is a sequel of bad deeds, thus *vraha, puja, dana* to be done and also *Pathya* to be followed.

### Aetiology

Various etiological factors are there such as Autoimmune, Neurogenic (interaction of melanocytes and the nervous system), Toxic destruction (mechanism involves progressive destruction of selected melanocytes, probably by cytotoxic T-cell lymphocytes. Oxidative stress (excess of hydrogen peroxide)<sup>12</sup> which is evidenced by low catalase levels and cellular vacuolization in the epidermis<sup>13</sup>. In generalized there may be possibility of positive family, and this type is associated with auto-immune diseases such as Diabetes, thyroid, adrenal disorders and pernicious Anaemia.

### Pathogenesis

The etiopathogenesis of Vitiligo is not clearly understood. The patchy loss of skin pigmentation in Vitiligo, may be due to immune attacks on melanocytes. Although there is no significant proof or evidence, many doctors believe that it can be caused by defects in many genes. Variations in genes that are part of the immune system or part of melanocytes have both been associated with Vitiligo. The immune system genes are associated with other autoimmune disorders. There are two basic mechanisms whereby the skin can become white<sup>14</sup>. Melanin is synthesized by melanocytes within melanosomes that are transferred into the surrounding keratinocytes. The keratinocytes transport the melanin and melanosomes from the basal layer of the epidermis to the stratum corneum where they are desquamated into the environment<sup>15</sup>.

There seem to be three major factors involved in the destruction of melanocytes in patients with vitiligo<sup>16</sup>. The first is that vitiligo patients inherit a set of three "vitiligo" genes which predisposes them to destruction of melanocytes<sup>17</sup>. There probably are many different sets of three genes that can cause vitiligo so that not every individual would necessarily inherit the same three. The second abnormality relates to the melanocytes themselves. Melanocytes from patients with vitiligo differ from those obtained from a person without vitiligo. For example, vitiligo melanocytes require different and more fastidious culture conditions than those from normal individuals<sup>18</sup>. Also, vitiligo melanocytes are much more sensitive to phenolic chemicals than normal melanocytes and readily undergo apoptosis when exposed to such agents<sup>19</sup>. The third factor is an environmental agent(s) that activates (or inhibits) the genes involved, thereby setting in motion the process of destruction of the susceptible melanocytes. The vitiligo genes activated (inhibited) by the environmental agents seem to cause an excessive immune reaction that induces melanocytes to undergo apoptosis<sup>20</sup>, and depigmentation of the skin results.

### Clinical Features

It is characterized by the appearance of patchy discoloration evident in the form of typical chalky-white or milky macule(s). The size of the macules may vary from a few millimetres to several centimetres with the lesions affecting the skin or mucous membranes. Mostly, the lesions are asymptomatic and symmetrically distributed although in some patients itching or burning may precede or accompany the onset of the lesions<sup>21</sup>.

However, it is a slow and progressive disease but it may have remissions and exacerbations correlating with triggering factors. Although any part of the skin and / or mucous membranes is amenable to develop vitiligo, the disease has a predilection for normal hyperpigmented regions such as the face, groin, axillae, areolae and genitalia.

Furthermore, the areas like the ankles, elbows, knees, which are subjected to repeated trauma / friction, may develop lesions.

#### **Morphological variation may be there in the form of:**

##### **Trichrome vitiligo:**

It is recognized by the presence of a narrow to broad intermediate colour zone between a vitiligo macule and normal pigmented surrounding skin.

##### **Quadri-chrome vitiligo:**

It is a well-documented fourth colour in vitiligo lesions, usually seen in darker skin phenotypes. A macular perifollicular or marginal hyperpigmentation is its salient feature<sup>22</sup>.

##### **Penta-chrome vitiligo:**

black skinned individuals are more prone to have this disorder. It is an infrequently encountered variant in which there is a sequential display of white, tan, brown, blue-grey hyperpigmentation and the normal skin<sup>23</sup>.

#### **Ayurvedic view**

In *Ayurveda* majority of skin ailments are considered under *Kshudra Kushtha*. But as in vitiligo (*Shvitra*), in spite of manifestation of disease over the skin, there may be systemic involvement. It is considered different from *Kushtha* on the basis of some factors like '*Aparisravi*' (Non discharging), non-infectious, peculiarity of causative factors, prognosis, chronicity and hereditary history. *Acharya Sushrut* opines that *Twak gata Kushtha* is *Kilasa*, In *Shvitra* colour of the skin is changed to *Aruna*, *Tamra* or *Shveta Varna*. As per *Ayurveda*, it has same causative factors as *kushtha* i.e., leprosy. *Acharya Charaka* has described some special causes for vitiligo e.g. telling lie, not believing God, not apologizing someone's good deeds, performing sins, deeds of pervious life (*Poorvakarma*) etc<sup>24</sup>. These causes point to the inheriting nature of the disease in some cases and towards mal or abnormal thinking by the brain (*Pragyaaparadha*) as a major cause. The different causes have been given in the science but *Viruddha aahar*<sup>25</sup> is the unique concept of *Ayurveda*, is attributed as one of the cause responsible for *Shvitra*. The *Nidana* under the heading of "*Ahara*" like excessive intake of incompatible diets, intake of mutually contradictory food, drinks which are liquid, and heavy, Transgression of the prescribed order of the intake of food may alter the GIT environment, which leads to faulty digestion, malabsorption and improper distribution of nutrients to cells. Disturbance of any of them may lead to deficiency of required nutrients, which are extremely necessary for the pathway of melanin synthesis. It is different from Leprosy (*Kushtha*) in the respect that it is non-contagious, non-bacterial, it doesn't destroy body tissues, doesn't have any discharge (*Vyadhiswabhava*). It is without discharge, vitiated with three doshas i.e., Vata, Pitta, Kapha doshas.

In *Ayurveda*, it is classified according to *Dosha* dominance as *Vataja*, *Pittaja*, and *Kaphaja*. *Vataja Shvitra* is dry (*ruksha*) and of Red-black (*arun*) in colour. *Pittaja* is coppery or lotus-like in colour and associated with inflammation (*daha*) and loss of hair. *Kaphaja* *Shvitra* is hard, heavy with white coloured and associated with itching. *Dushya* associated with *Shvitra* are *Rakta* (blood), *Mamsa* (Muscle tissue) and *Meda* (lipid) *dhatu*<sup>26</sup>. Additionally, *Charaka* has named synonyms of *Shvitra* (*Kilasa*) as *Darun*, *Charun* and *Shvitra* when the *Doshas* are seated in *Rakta*, *Mansa* and *Medo Dhatu* respectively. In fact, *Dhatu*'s are not practically affected, but their initiation is expressed by dermis (*twak*).

Madhavnidan classified *Shvitra* on the basis of the causative factors viz., *Doshaja* and *vranaj*<sup>27</sup>. Madhavanidana described that Vitiligo (*Shvitra*) in which hairs are black, in a small percentage, with ununited spots, new (<1 year) is curable. Others including developed due to burns, in genitals, hands, and feet, lips, with a history of inheritance are non-curable or difficult for a cure<sup>28</sup>.

*Acharya Charaka* and *Sushruta* are of the opinion that disease of recent origin can be cured<sup>29</sup>.

#### **Management**

Since long ago, the treatment of vitiligo is a challenge to the medical fraternity. Due to its chronicity, long term treatment, lack of uniform effective therapy and unpredictable course of disease it is very demoralizing for patients and creates a very bad social stigma for the victim. In allopathic system no satisfactory and permanent cure is available. Treatment is steroid based, systemic psoralens with exposure to long wave UV radiation. Topical potent corticosteroids are used. Other treatment options are Cosmetic make up, Cryosurgery, Depigmentation,

Dermabrasion Use of sun protective devices, Intra-lesion therapy, Depigmentation therapy, Laser treatment Punch grafting, Chemical peeling off.

Skin grafting is practiced but again it has its own limitations and side effects<sup>30</sup>.

In modern science PUVA (Psoralen + Ultra Violet A ray's exposure) therapy are mainly used for treatment of disease but these therapies have so many harmful side effects. Everyone is expecting some beneficial and useful remedies. So, it is really needed to find a safe, easier, less complicating, cost effective and fruitful approach for the management of disease, and Treatment needs a holistic approach. There is an imbalance of regulating hormones for melanin synthesis. For homeostasis of hormones and detoxifying body with Ayurvedic body purification treatment i.e., Panchakarma is very useful. In fact, in Ayurveda, it is described as powerful purificatory treatment and it should be done before commencing any specific medical treatment for the disease. In Ayurveda internal medications (Abhyantara Chikitsa), Local application (Lepachikitsa), sun UV ray's exposure (Aatapsevan), Body purification i.e., Panchakarma treatment-Therapeutic Emesis (Vamana), Purgation (Virechana), Basti-purification method for Vata, Bloodletting (Raktamokshan), etc., advised in texts. Treatment is long-term and should be continued from months to years

### Discussion:-

Vitiligo is considered as one of the social evils from a very long time. Living with vitiligo can be a continuous struggle, this disease disturbs individuals psychologically, as it distorts the body image and causes extreme fear, anxiety and concern that is comparable to that experienced by a patient with any major illness, particularly in dark-skinned victims. With the psychological characteristics of each individual determining their ability to adjust to and cope with disfigurement. The science has proved that it is only a deformity of the skin pigment and it is not of any infective or systemic disease, but it acts as a social stigma in the society. It results from an autoimmune process that damages melanocytes. The cause is multifactorial, may be genetic, autoimmunity, neurologic factors, toxic metabolites, and lack of melanocyte production or early degeneration of melanocytes. In Ayurveda all skin diseases are described under the common umbrella term *Kushtha*. It is named as a *Rakta Pradoshaja vyadhi* because vitiation of *Rakta* is found as a common pathology in this disorder<sup>31</sup>. The causative factors for skin diseases and Vitiligo are the same and affect the same basic body tissue levels. *Shvitra* differs from other skin disorders by the normal functioning of all but the 'skin tissue' resulting in discoloration of the skin), without discharge. Physical symptoms in vitiligo are usually mild, but the unpredictable nature of the disease and its tendency to progress in the majority of cases can be psychologically and cosmetically overwhelming. However, in *Ayurveda* the causes for the *Shvitra* are as untruthfulness, ungratefulness, disrespect for the god, and insult of the preceptors, sinful acts, misdeeds of past lives and intake of incompatible food<sup>32</sup>. No single theory is above to satisfactorily explain all the various types of vitiligo leading one to believe. Vitiligo is probably multifactorial in aetiology. The large majority of patients with this condition have only the cosmetic handicap, but there are others that may have systemic association as well.

According to modern pathophysiology, in generalized vitiligo, melanocytes are not found in the affected skin. Melanocytes contain the pigment melanin which serves a protective action against the harmful effects of sunlight. Phenylalanine → Tyrosine → Dihydroxyphenylalanine (DOPA) → Melanin (adrenals) Melanin formation in the skin is augmented by the hormone Melanocyte Stimulating Hormone (MSH) or intermedion secreted by the par's intermedia of the pituitary gland. ACTH by anterior pituitary has melanocyte stimulating activity similar to MSH although to a much lesser degree. 25% of cases are autoimmune<sup>33</sup>. The pathogenesis is thought to involve an autoimmune process targeted against melanocytes. Histologic studies showed an absence of melanocytes in the affected skin.

*Shvitra* is a *Tridoshaja vyadhi* which predominantly involves *Tvakgata lasika*, *Rakta* and *Mamsa dhatu*. It also involves *Udana vayu*, *Ranjaka pitta* and *Bhrajaka pitta*. The skin is also the site of *Pitta Dosha*. The function of *Pitta Dosha* like *Prabha Tanumardava* is related with the skin. If the *Pitta Dosha* is decreased, the skin becomes *Nishprabha*. According to *Acharya Charaka*, the *Pitta Dosha* is responsible for *Prakruta*, & *Vaikruta Varna* in its normal & abnormal state respectively<sup>34</sup>. The location of *Bhrajaka Pitta* is attributed to *Twacha*. The meaning of the word *Bhrajana* is *Prakashana* or *Deepana* i.e. imparting lustre to skin. It does the *Pachana* of *Abhayanga*, *Parishheka* & *Lepa* substances<sup>35</sup>. *Avabhasini*, the first layer of *Twacha* exhibits all types of *Varna*, & 5 types of *Chhaya* which is due to the action of *Bhrajaka Pitta*. The word *Sarvavarna* includes all the *Prakruta* & *Vaikruta Varna*.

As we know modern science fails to give a satisfactory treatment in Vitiligo. Unstable (spreading) vitiligo is controlled with systemic steroids. Once static, localized patches can be treated with topical steroids or topical PUVA and then residual areas surgically grafted whereas generalized lesions need systemic PUVA therapy for depigmentation. Oral psoralene may cause nausea and vomiting. Over exposure (phototoxicity) to UVA leads to erythema, oedema, vesiculation, pain and tenderness of the involved skin. Hyperpigmentation of the surrounding normal skin is the commonest side effect. But *Ayurveda* is still a hope in this modern world as it not only cures the disease but also have effect on other systemic diseases related to Vitiligo. *Shodhan* therapy in *Panchakarma* can prove a boon in Vitiligo. In shodhan specially *Virechana* can be implicated for *Shvitra* with following reason:

1. Acharya Charak enlisted *Shvitra* under *Rakta Pradoshaja Vyadhi*.
2. *Pitta* is a Mala of *Rakta*
3. Both *Pitta* and *Rakta* are interdependent
4. Both are involved in *Shvitra*

*Vata* and *bhrajaka pitta* reside in the skin. As the skin covers the whole body, *bhrajaka pitta* should be maintained in a proper state, and it needs continuous care. Hence *Virechana* is line of treatment for *Pittaja* and *Raktaja Vyadhi* (due to *Ashraye- Ahsrayee bhava*) as involvement of *Rakta* and *Pitta* are very clear in *Shvitra*. So *Virechana* is most helpful in this disease. Only topical application cannot uproot the disease.

### Mode Of Action Of Virechana

The mode of action in this case can be understood as: it Causes downward movement of doshas from koshta and i.e. the *Virechana* drug having the property like *Ushna*, *tikshna*, *Sukshma*, *Vyavayi* and *Vikasi* due to these property *Aushadha* reaches the *Hrudaya* and circulate through the vessel. Due to the *Ushna* property present in *ausadhi* they liquify the doshas located in the channel of entire body, thus doshas flow towards GIT, morbid doshas reaches the stomach carried by *Udana vayu*, due to the predominance of *prithvi* and *jala mahabhuta* in *virechana dravya* causes downward movement of doshas from koshta and leads to expulsion of unwanted toxin in the body

### Conclusion:-

Though *Shvitra* is an auto immune disease *Shodhana* therapy is useful. The Curable *kustha* do not recur if pathological factors are expelled out by *Shodhana*. As *Shvitra roga* is difficult to treat in other System of medicine, it can be managed successfully with knowledge of our system of medicine by adopting *Shodhana*, by considering *roga bala*, *dosha*, *dushya*, *prakriti* etc thus *Shodhana* karma like *Virechana* will have good results.

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