VIRECHANA IN VITILIGO: A RAY OF HOPE.

Pretya Juyal¹, Lalita Sharma², K.K Sharma³, Alok Kumar Srivastava⁴ and Parul Sharma⁵.

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.

Manuscript Info

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.

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 surface¹. 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%² 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 Japan³. Based on dermatological out patient record, it is estimated between 3-4% in India⁴. 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 years⁵. 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 consultation⁶. 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 Vitiligo⁷.
Adults and children of both sexes are equally affected, but females are in greater number. 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 Susrutha opines that Twak gat Shvitra is referred to as kilasa. Shvitra is characterized by non-discharging lesions and may occur in Rakta, Mamsa, Meda. According to Kashyap Samhita Shvitra is ‘Shweta Bhava Micchanti Shvitram’ this means reflection of white colour.

Acharya Charaka has mentioned various causes out of which Virudhaaharsevan, Papkarma are important one. The treatment adopted for the condition are Shodhana Karma like Yamana, Virechana, Rakta mokshana using leeches. Apart from these Ayurveda has also given importance to Daivavyapasraya chikitsa as kustha is a sequel of bad deeds, thus vratha, 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) which is evidenced by low catalase levels and cellular vacuolization in the epidermis. 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. 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.

There seem to be three major factors involved in the destruction of melanocytes in patients with vitiligo. The first is that vitiligo patients inherit a set of three "vitiligo" genes which predisposes them to destruction of melanocytes. 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. Also, vitiligo melanocytes are much more sensitive to phenolic chemicals than normal melanocytes and readily undergo apoptosis when exposed to such agents. 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, 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.

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 peril follicular or marginal hyperpigmentation is its salient feature.

**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.

**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 ‘Aparishravi’ (Non discharging), non-infectious, peculiarity of causative factors, prognosis, chronicity and hereditary history. Acharya Sushrut opines that Tvak 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 perversive life (Pooryakarma) etc. These causes point to the inheriting nature of the disease in some cases and towards mal or abnormal thinking by the brain (Prayagaapradha) as a major cause. The different causes have been given in the science but Viruddha aahar 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 dominanace 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) dhatus. Additionally, Charaka has named synonyms of Shvitra (Kilasa) as Darun, Charun and Shvitra when the Doshas are seated in Rakta, Mamsa and Medo Dhatu respectively. In fact, Dhatu’s are not practically affected, but their initiation is expressed by dermis (twak).

Madhavaniad classified Shvitra on the basis of the causative factors viz., Doshaja and vranaj. Madhavaniadana 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.

Acharya Charaka and Sushruta are of the opinion that disease of recent origin can be cured.

**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\(^3\).

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 (Rakta), 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 *Kushta*. It is named as a *Rakta Pradoshaja vyadhi* because vitiation of *Rakta* is found as a common pathology in this disorder\(^3\). 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\(^3\). 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\(^3\). 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 *Tvagata lasika, Raktu* 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, & Vaikrutha Varna* in its normal & abnormal state respectively\(^3\). 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, Parisheka & Lepa* substances\(^3\). *Avabhhasini*, the first layer of *Tvacha* 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* & *Vaikrutha 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. Shodhana 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 Rakta 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 aushadhi they liquify the doshas located in the channel of entire body, thus doshas flow towards GIT, morbid doshas reaches the stomach carried by Udana vaya, due to the predominance of prithvi and jala mahabhata 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.

References:-

1. Sehgal VN. Vitiligo. Textbook of clinical dermatology. 4th edition. Jaypee: New Delhi; 2004.p. 99-101
2. Hahn SK, Park YK, Chun WH. Clinical feature of vitiligo. Clin Dermatol 1997; 15:891-7
3. Howitz J, Brodhagen H, Scheartz M, Thomsen K. Prevalence of Vitiligo. Epidemiological survey on the isle of Bornholm, Denmark. Arch Dermatol 1977; 113:47-52
4. Manjiri Walinjkar, PD Londhe, Anil Avhad: Clinical Efficacy of Dhatryadi Ghanavati in Shvitra (Vitiligo) Manjiri; Journal of Ayurveda and Integrated Medical Sciences | Nov-Dec 2016 | Vol. 1 | Issue 4 14
5. Genetics & Incidence, [cited on 2016 MAY 11]. Available from; http://www.vitiligosupport.org/vitiligo/genetics and incidence.cfm
6. Levai M. A study of certain contributory factors in the development of vitiligo in South Indian patients. AMA Arch Derm 1958;78: 364-71.
7. Sir Stanley Davidson, Davidson’s principle and practice of medicine, Elsevier publications, 11th edition Page no.1253.
8. Srivastava G. Vitiligo- Introduction Asian Clin. Dermatol 1994; 1:11-5
9. Acharya Susruta, Susrutha samhitha nidana sthana 5th chapter, sloka no.17, Chaukhamba Surbharti prakashan,Varnasi page no 286
10. Acharya Kasyapa, Kashyapa Samhita, chikitsastana 9th chapter, shloka 2, Chaukhamba Visvabharati, Varanasi, page no-198
11. Acharya Charaka, Charaka samhitha, Chikitsa sthana 7thchapter, Sloka no 4-8, Chaukhamba Surbharathi prakashan,Varnasi, Page no-450
12. Chaudhary Soniya, Mishra Pramod, Sharma Brahmanand, Soni Anamika: International Journal of Applied Ayurved Research ‘MANAGEMENT OF KILASA (SHVITRA) W.S.R. TO VITILIGO’ ISSN: 2347- 6362 IJAAR VOLUME II ISSUE 11 JAN-FEB 201
13. Schallreuter KU., Moore J, Behrens WillaimsS, Panske A, Harari M. rapid initiation of re-pigmentation in vitiligo with dead sea climatotherapy in combination with pseudo catalase. Int Journal 2002; 41:482-7
14. Ortonne JP, Nordlund J. Mechanisms that cause abnormal skin color. In: Nordlund JJ, Boissey RE, Hearing VJ, King RA, Oetting WS, Ortonne JP, editors. The Pigmentary System: Physiology and Pathophysiology. Oxford: Blackwell Scientific Publishing; 2006. p. 521-38.
15. Nordlund JJ, Ortonne J. The normal color of human skin. In: Nordlund JJ, Boissey RE, Hearing VJ, King RA, Oetting WS, Ortonne JP, editors. The Pigmentary System: Physiology and Pathophysiology. Oxford: Blackwell Scientific; 2006. p. 504-20.
16. Boissy R, Nordlund JJ. Vitiligo: Current medical and scientific understanding. G Ital Dermatol et Venereol 2011. p. 46
17. Majumder PP, Nordlund JJ, Nath SK. Pattern of familial aggregation of vitiligo. Arch Dermatol 1993; 129:994-8. [PUBMED] [FULLTEXT]
18. Puri N, Mojandar M, Ramaiah A. Growth defects of melanocytes in culture from vitiligo subjects are spontaneously corrected in vivo in repigmenting subjects and can be partially corrected by the addition of fibroblast-derived growth factors in vitro. Arch Dermatol Res 1989; 281:178-84. [PUBMED]
19. Le Poole IC, Yang F, Brown TL, Cornelius J, Babcock GF, Das PK, et al, altered gene expression in melanocytes exposed to 4-tertiary butyl phenol (4-TBP): upregulation of the A2b adenosine receptor 1. J Invest Dermatol 1999; 113:725-31
20. Palermo B, Campanelli R, Garbelli S, Mantovani S, Lantelme E, Brazzelli V, et al, Specific cytotoxic T lymphocyte responses against Melan-A/MART1, tyrosinase and gp100 in vitiligo by the use of major histocompatibility complex/peptide tetramers: The role of cellular immunity in the etiopathogenesis of vitiligo. J Invest Dermatol 2001; 117:326-32.
21. Al'Abadie MS, Warren MA, Bleehen SS, Gawkrodger DJ. Morphologic observations on the dermal nerves in vitiligo: an ultrastructural study. Int J Dermatol 1995; 34:837-40.
22. Behl PN, Aggarwal A, Srivastava G. Vitiligo In: Behl PN, Srivastava G, editors. Practice of Dermatology. 9th ed. CBS Publishers: New Delhi; 2003. p. 238-41.
23. Fargnoli MC, Bologna JL. Pentachrome vitiligo. J Am Acad Dermatol 1995; 33:853-6.
24. Agnivesh, Charaka, Dridhabala (1993) Charaksamhita. Chaukhamba Bharati Academy, Varanasi chikitsathana 7: 162-177.
25. Shastrl L. Asthang-Sangraha, Baidyanath Ayurved Bhavan Pvt. Ltd. 1989, 1st Edition, Nidansthana - Kushthakrimidan 14/39 - 41, Pg No. 491
26. Agnivesh, Charaka, Dridhabala (1993) Charaksamhita. Chaukhamba Bharati Academy, Varanasi chikitsathana 7: 162-177.
27. Madhavkar (1994) Madhavanidana. Chaukhamba Sanskrit Sansthan, Varanasi Kushthanidanam 39: 164.
28. Madhavkar (1994) Madhavanidana. Chaukhamba Bharati Academy, Varanasi Sansthan, Varanasi 37: 164.
29. Shastri N. Madhav Nidanam, Motilal Banarasidas, 1st Edition (Reprint) 2002, Kushtha krimi nidan,. 49/37-39 Pg. No. 633.
30. Fauci AS, Harrison TR (1998) Harrison’s Principles of Internal medicine. 14th Edition, McGraw-Hill 316-317.
31. Acharya YT editor. Charaka Samhita of Agnivesha; Sutra Sthana 28/11. Varanasi: Chaukhamba Surbharati Prakashan; Reprint 2011.p.179.
32. Agnivesha, Charaka, Dridhabala, Charakasamhita, edited by Acharya Yadavji Trikamji. Reprint ed. Varanasi; Chaukhamba Surbharati Prakashan; 2011:458
33. Salim Musa Mulla; Vitiligo-Ayurvedic Treatment Approach; Journal of Clinical and Cosmetic Dermatology ISSN 2576-2826 ,Published: 08 Jun, 2018, Volume 2 - Issue 3 | DOI: http://dx.doi.org/10.16966/2576-2826.129.
34. Shastri Ambikadatta, editor. Sushrut samhita, Ayurveda-tattvasandipika Hindi commentary (chikitsa sasthan chapter 9 verse 16-43) Vol I 14 Varanasi: Chaukhamba Sanskrit Sansthan; 1998. P300- 304
35. Tripathi Bramanand, editor .Astanaga Hridayam, Nirmala Hinid Commentary (nedan sansthan Chapter 14, verse 4-,3741)10 ed .Varanasi : Choukhambha Sanskrit Pratisthan;1995. P 527,533.