

ROLE OF PANCHKARMA IN THE MANAGEMENT OF STRESS INDUCED ALOPECIA: A REVIEW

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ABSTRACT

Stress is a condition arising from external physical or mental overload. Response to stressful situations varies according to person's physical and mental constitution and also the nature of stress inducing stimulus. Poor response to stressful conditions or prolonged exposure to the same not only leads to feeling of anxiety, nervousness or embattlement but may also lead to various somatic symptoms like gastrointestinal reflux, anorexia, malabsorption, hair fall and premature graying of hair. Acute or chronic loss of hair (more than 100 per day) from scalp and other body parts is known as alopecia. A significant fraction of population nowadays is seeking medical aid for the same. The role of stress in its pathogenesis has been substantiated by many pre-clinical and clinical trials. Three types of hair loss that are mainly associated with stress are Telogen Effluvium, Trichotillomania and Alopecia Areata. Hence, the alopecia treatment must be holistic in approach i.e. it must aim at stress management along with the treatment of hair loss. According to classical Ayurvedic texts line of treatment of hair loss in the form of Indralupta or Khalitya involves many Panchkarma procedures like Samshodhana, Nasya, Murdhni Taila etc. that not only cause cessation or deceleration of hair loss but also promote mental health. This review thus deals with the role of stress in the pathogenesis and the mode of action of aforementioned Panchkarma procedures in the management of the stress induced alopecia.

Keywords: *Stress, Alopecia, Khalitya, Indralupta, Panchkarma*

INTRODUCTION

Healthy hair not only signifies healthy state of the body but also since time immemorial they have been a symbol of youth and beauty. Therefore, hair loss not only affects an individual's appearance but also cause a great toll to her psycho-emotional state, self confidence and quality of life. Loss of scalp and body hair is termed as alopecia. Almost 40% of males and 25% of females in India are victims of hair fall.^[1] Many genetic, as well as environmental factors play a key role in etiopathogenesis of alopecia including

family history, advancing age, hormonal imbalances, nutritional deficiency and various types of physical, chemical, biological and psycho-emotional stress.^[2]

Stress is a condition arising from external physical and mental overload. Prolonged exposure to stressors not only results in derangement of mental state but also causes many somatic symptoms including hair loss. Several interactions between psycho-emotional stress and hair loss can be distinguished such as; stress as a primary inducer of Telogen Effluvium, acute or chronic stress as an aggravating factor in hair loss disorder whose primary pathogenesis is of endocrine,

toxic, metabolic or immunological nature (for e.g. Alopecia Areata) and stress as secondary problem in response to hair loss contributing to further hair loss by aforementioned causes thus, inducing a self-perpetuating vicious circle.^[3] Though all kinds of alopecia may be directly or indirectly related to stress, three main disorders that have been extensively studied as an outcome of stressful life situations are Alopecia Areata, Telogen Effluvium and Trichotillomania.^[4] Hair loss in the form of *Khalitya* and *Indralupta* have been described in Ayurveda as *Kshudra Roga* by Sushruta Samhita and Madhava Nidana and as *Shiroroga* (disorders of head) and *Kapala Roga* by Charaka Samhita and Astang Hridayam respectively. *Tridosha* along with *Rakta* play an important role in pathogenesis of the same. While *vata* and *pitta* play an important role in hair loss process, *kapha* and *rakta* inhibit the re-growth of new hair thus leading to baldness.^[5] Stressful states of mind like *chinta* (anxiety), *bhaya* (fear), *shoka* (grief), *krodha* (anger) etc. cause vitiation of *dosha* mainly *vata* and *pitta* thus, playing an important role in pathogenesis of hair loss by accelerating the degenerative ageing process and hampering the metabolic processes of the body resulting in formation of *Ama* (undigested morbid substances) in the body.^[6] Thus, an ideal treatment of hair loss must be comprehensive in its approach, aiming at both stress management and treatment of the somatic symptoms. All the *Panchkarma* procedures mentioned in treatment principal of *Khalitya* are also mentioned in daily and seasonal regimen for a healthy state of body and mind. Hence, *Panchkarma* being one of the greatest gifts of Ayurveda, not only plays an important role in curative but also is vital for the prevention of hair related disorders. The review thus, attempts better understanding of role of stress in pathogenesis of alopecia and role of *Panchkarma* in its management.

ALOPECIA

Loss of body and scalp hair is known as alopecia. It can be acute or chronic, transient or permanent depending upon the etiology and severity.^[7] Many underlying endocrinal, metabolic and immunological processes are involved in etiopathogenesis of the

disease. Psycho-emotional stress can be the primary cause of alopecia or it may indirectly result in hair loss by affecting any of the aforementioned processes. Three main types which can be directly linked to stress include-

- a) Telogen effluvium
- b) Alopecia Areata
- c) Trichotillomania

The details of these are summarized in Table 1.

AYURVEDIC VIEW

Hair loss in Ayurveda is described under *Kshudra Roga* and *Kapala Roga* as *Indralupta*. It is also known as *Khalitya* or *Ruhy* however some Acharyas have considered them as separate entities. According to Acharya Vagbhata acute hair loss can be termed as *Indralupta* while same if occurs gradually is known as *Khalitya*.^[8] Acharya Kartik however distinguished these on distribution basis. According to him; loss of hair in beard and moustache is known as *Indralupta* while the same over scalp is termed as *Khalitya*. *Ruhy* is loss of hair from all over the body.^[9] All the three *dosha* along with *Rakta* are involved in its pathogenesis. Vitiated *piita* in *Romakupa* (hair follicles) along with *vata* cause shedding of hair. Thereafter, *kapha* along with *rakta* cause obstruction in the *romakoopa* inhibiting replacement by new hair leading to baldness.^[10] Giving a brief description of its epidemiology Acharya Videha explained the sex related variation in the incidence of the disease. According to him hair fall is perceived less in females than males because; a) lack of excessive physical exercise causes less vitiation of *vata* and *pitta dosha* and b) monthly menstrual flow causes *Srotoshuddhi* promoting re-growth of hair.^[11]

Raktamokshana followed by *Shirolepa* with the paste of *Kasisa*, *Tuttha*, *Gunja* etc. is a first line of treatment of *Indralupta* according to Astanghridayam. However, while mentioning general line of treatment for various hair related disorders like *Khalitya*, *Palitya* (premature graying of hair and premature wrinkling of skin Acharya Vagbahta enumerated various *Panchkarma* procedures namely, *Samshodhana* followed by *Nasya*,

Mulhabhyanga, Shirobhyanga and Shirolepa^[12]. While *Murdhni Taila* is indicated in preventive aspect of the disease *Shiro Pichu* is directly indicated in hair loss.^[13]

Type of Alopecia.	Definition	Etiology	Pathology	Clinical Features	Prognosis	Treatment
Telogen Effluvium	The term Telogen Effluvium refers to excessive loss of telogen hair in response to some known or unknown reason.	High grade prolonged fever (typhoid, dengue), Child birth, abortion, Major surgery, hemorrhage, Sudden starvation, crash dieting, or Emotional stress	3-4months after some inciting event, anagon phase terminates prematurely and there is a shift of fraction of anagon hair to telogen. Normal anagon to telogen ratio shifts from 9:1 to 7:3.	Sudden, diffuse and excessive loss of scalp hair. Strongly positive hair pull test.(obtainin g more than 6 hair strands when hair are grasped and pulled between rhumb and index finger).	After the removal of triggering factor, shedding of hair resolves and hair density is gained within 3-6 months. Does not cause total scalp hair loss Acute Telogen Effluvium may land into chronic TE after 6 months.	Reassurance and counseling, High protein diet, green leafy vegetables and iron supplements Topical Minoxidil
Alopecia Areata	It is a chronic inflammatory autoimmune disease involving the hair follicle in genetically predisposed individuals.	Exact etiology is unknown. It is influenced by several factors such as; Autoimmune diseases like vitiligo, thyroid disease and atopy. Triggering factors like trauma, infections, stress etc. Genetic predisposition	There is a lymphocytic infiltrate (mainly T cells) in the peribulbar region of anagon hair follicles. Hair follicles are not destroyed because the stem cells are spared by the disease.	Variable sized, well defined totally bald patch. Skin of the patch is smooth with absence of inflammation, atrophy and scarring Exclamation mark hair at the periphery of the lesion whose presence reflects the active phase of the disease.	Hair may regrow spontaneously in few months or new patches may appear at varied intervals.	Patient counseling Potent topical and oral corticosteroids Intralesional Triamcinolone Acetonide Injections Topical Minoxidil solution Contact Immunotherapy Photochemotherapy

Trichotillomania	It is a psychiatric illness that manifests as compulsive impulse or habit to pull out hair.	Some underlying chronic psychiatric illness is a major cause in adult patients.	The underlying pathology is based on the involved psychiatric disorder.	The diagnosis can be made by the presence of firmly anchored, partially broken hair in the bald area.	Children respond quickly to treatment while management is quite difficult in adults.	Combination of behavioral therapy and anti-psychotic drugs.
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Table 1: Types of Stress Related Alopecia^[14]

STRESS IN THE PATHOGENESIS OF ALOPECIA

Many clinical and pre-clinical studies suggest the role of stress in induction and aggravation of hair loss. Some of them are summarized as-

- In a Chennai based study a significant association was noted between stress and prevalence of hair loss. Hair loss was perceived higher in people with depression.^[15]
- Recent studies in mice have substantiated that stress can exert profound hair growth inhibitory catagen inducing and hair damaging pro inflammatory effects, with a likely key role for substance P and corticotrophin releasing hormone.^[16]
- In 'A pilot study of hair and cytokine balance alteration in healthy young women under major exam stress' it was concluded that the stress due to examinations can alter the immunological reactions and hamper hair growth.^[17]

Various mechanisms have been suggested to explain the association between psycho-emotional stress and hair loss. Studies suggest that neurohormones,

neurotransmitters and cytokines released during stress responses may significantly influence hair cycle.

ACTH and glucocorticoids released during stressful conditions cause premature hair follicle anagen-catagen transition and stimulate apoptosis in follicular epithelium leading to premature hair follicle involution.^[18]

A close localization of hair follicle bulge and sensory and autonomic nerve fibers raises the possibility of hair follicles to be the easy target for stress responses. Treatment of anagen mice with substance P, in an animal study resulted in premature catagen development which substantiates aforementioned hypothesis. Furthermore sonic stressors in mice resulted in skin immune changes in the form of activated perifollicular macrophages and mast cell deregulation suggesting role of stress in pathogenesis of auto-immunity resulting in hair loss.^[19]

AYURVEDIC MANAGEMENT AND ROLE OF PANCHKARMA

One of the most noticeable features of Ayurvedic management of any particular disease is that, it aims at both preventive and curative management of the disease. *Panchkarma* procedures like *Samshodhana*, *Nasya* and *Murdhni Taila* are not only indicated in treatment of *Khalitya* but also are a part of daily and

seasonal regimen for the maintenance of healthy hair.^[20]

Panchkarma offers a comprehensive and holistic approach to the treatment of Alopecia by targeting body, mind and soul which is a primary goal of hair loss treatment. In this article role of *Samshodhana* therapy, *Nasya* and *Murdhni Taila* are discussed in detail.

1. *Samshodhana*

Samshodhana therapies are indicated in various skin disorders and *pitta* and *kapha* aggravation. Since, prime *dosha* in pathogenesis of *khalitya* is *pitta*,^[21] *Virechana karma* is commonly practiced as a first line of treatment for hair loss.

Shodhana is must before administration of any other *Panchkarma* procedure because in order to promote the re-growth of hair *Srotoshuddhi* is required which is brought by *Shodhana* therapy. It also enhances the nutritional status of the body by enhancing digestive and metabolic functions and curbing malabsorption.^[22] *Vamana* procedure performed in healthy individuals showed a significant reduction in ESR, improvement in appetite, bowel habits and sleep pattern indicating its anti-inflammatory activity and enhancing metabolism.^[23] Hence, it can be administered in patients with Telogen Effluvium and Alopecia Areata. One of the major roles of *Shodhana* is the prevention of recurrence of the disease.

2. *Nasya karma*

According to Acharya Charaka *Nasa* (nose) is a door to all other structures in the head. It communicates with brain and all the sensory organs. Hence, the drugs administered through *Nasya Karma* are beneficial in all the morbid conditions of head and neck.^[24] Not only it is indicated as an effective treatment of hair loss but also is an important aspect of daily regimen for the maintenance of healthy state of hair. Its mechanism of action in stress induced

alopecia can be understood by following modern anatomical and physiological parameters:^[25]

- a) Experimental stimulation of olfactory nerve causes stimulation of hypothalamus that regulates various neuroendocrinal pathways responsible for stress induced hair loss. Hence, drugs administered through *nasya* can directly counter various processes resulting in hair loss.
- b) *Nasya* acts on limbic system which controls emotional and behavioral patterns that helps in better coping with stressful conditions.
- c) Nasal mucosa is richly supplied with blood hence, nutrients and drugs are readily absorbed through nasal mucosa resulting in quick action and easy nutritional supplementation which is required in patients with alopecia.

3. *Murdhni Taila*

Murdha or *Murdhni* means Head, *Taila* means oil. Thus, it is a procedure of conducting treatment/therapy over the *Shirapradesha* (Head) with medicated oils such that the oil remains in contact with the scalp for a fixed duration of time.. This contact period of oil on the scalp is necessary for begetting its benefits. *Shiro abhyanga* (head massage), *Shirodhara*, *Shiropichu* and *Shiro Basti* are four components of *Murdhni Tail* in the order of their increasing efficacy.^[26]

Murdhni Taila is again indicated as an exceptional preventive procedure for hair loss. *Shiro pichu* is specifically indicated for hair loss. However all the procedures are beneficial in this regard.

Shirobhyanga along with *Mukhabhyanga* is indicted in *Khalitya*. It acts by following ways-

- a) It improves blood circulation that in turn results in better nutrition and excretion of morbid substances causing hair loss.

- b) Tactile stimulation causes relaxation of mind by promoting release of endorphins that cause relaxation.^[27]
- c) Counters *vata dosha*, thus indirectly regulating mind.^[28]

Shirodhara is extensively studied and practiced procedure in the patients with stress related disorders. Though not directly indicated in *Khalitya* its efficacy in stress management can be substantiated by following observations and mechanisms.^[29]

- a) In a clinical trial carried out on healthy individuals, EEG showed an increase in the alfa rhythm after *Shirodhara*. One subject showed an increase in the central theta activity which is present after deep meditation.
- b) The mean value of salivary cortisol post-*Shirodhara* was not significantly different from that of the pre *Shirodhara* value. However, the individual values showed a decreasing trend. Thus, it may help in regulating neuroendocrinal changes during stress response.

Shiropichu is directly indicated in hair loss. It works by similar mechanism as shiro-abhyanga and dhara. However, since the contact period with oil is more, absorption of drugs and its bioavailability is more than the previous two.

Shirobasti is indicated in the diseases of deeper structures of head mainly brain. Hence, it may directly help to counter various effects of stress on brain helping in management of *khalitya*.

Discussion

Stressful environment and its damaging effect on skin and appendages is substantiated by many animal and human epidemiological studies. Efforts are made to understand the exact pathogenesis in the field

of modern medicine. Ayurveda due to its comprehensive approach to a disease has a great potential in the management of the same as discussed in the article. Assessment of disease state, etiological factors and available treatment options must be thoroughly done before planning a treatment. By successfully treating a dermatological condition a physician not only improves patient's appearance but also boost up her confidence and self esteem.

CONCLUSION

Due to a significant change in lifestyle and increased exposure to stressors, somatic manifestations of psychological disorders have become very common. Since, many of the stressor agents are difficult to eliminate effort must be made to enhance coping mechanisms to deal with stress. Along with all the treatment modalities discussed here, role of counseling must not be undermined. However, there is a great deal of scope for further research in understanding the exact mechanism that come into role play in stress induced deleterious effects on dermatological health and role of Ayurvedic management of the same.

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