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Original Research Paper

Ayurveda

A CLINICAL STUDY TO EVALUATE THE EFFICACY OF JALAUKAVACHARANA FOLLOWED BY SHIROPICHU IN THE MANAGEMENT OF KHALITYA (ALOPECIA)

Dr. Komal Yadav PG Scholar, Department of Panchakarma, PGIA Jodhpur, Rajasthan, India

Dr. Gyan Prakash Sharma Head of Department, Department of Panchakarma, PGIA Jodhpur, Rajasthan, India

ABSTRACT

Thus, the actual meaning of the word *khalitya* is falling off the hair. So *khalitya* is a disease in which hair fall occurs in several forms. The hair can fall out completely or incompletely but before the usual time. Acharya Charaka classified it under *Shiroroga*. *Khalitya* is primarily a Pitta-dominant *Tridoshjanya Vyadhi*. Hair is considered a vital part of beauty and has gained global recognition. It is often viewed as a reflection of one's attractiveness, making it an important factor in determining beauty standards.1 According to modern science, it is termed Alopecia or baldness. *Khalitya* is hair loss, more common in males, typically seen in those aged 18-40, and increasingly affecting younger individuals. The incidence of "*Khalitya*" (Hair fall) is increasing day by day. The modern lifestyle, dietary habits, pollution, stress, weakened immunity, and other factors have led to hair loss and premature greying. Chemical beauty products have exacerbated hair problems, and conventional medicine often can't cure them. Ayurveda's holistic approach to well-being makes it an ideal option for hair-related issues. In *Ayurveda,* various *bahya* and *abhyantar chikitsa* is described for khalitya. In *Ayurveda* the treatment procedure mentioned like vaman, nasya, mukha, and shiro abhyanga. Pradeha siravedha and raktamokshan with jalauka can provide a simple painless, economical treatment for this common ailment. *Ayurvedic* procedures are beneficial in such cases so we need to think from the *Ayurvedic* point of view for the treatment of hair fall. A research study was carried out on 30 patients of *Khalitya.* These patients received treatment for 52 days, followed by a follow-up evaluation conducted on the 52nd day after the completion of the treatment procedure. Treatment is given – *Jalaukavacharana* followed by *Shiropichu* with *Karanja taila* for 52 days.

KEYWORDS : *Khalitya,* Alopecia, *Shiropichu, Raktamokshan.*

INTRODUCTION –

In the *Ayurvedic* approach, loss of hair is coined as in the term '*Khalitya*' under the broad heading of *Shiroroga*.[2] *Pitta* present in the hair follicles, associating with *vata*, make the hairs (of the head) fall off; then *Kapha* together with blood blocks the hair follicles, making the growth of new hair impossible; this disease is called *Indralupta, Khalitya,* or *Rujy*.[3]

Hair loss is a silent yet devastating issue that can affect anyone, even those who are otherwise healthy. While it has often been associated with aging, it can occur earlier in life due to factors such as hormonal imbalances, improper hair care practices, and exposure to pollution.[4]

Khalitya, described in Ayurvedic literature, bears a resemblance to alopecia, a common hair problem in both cosmetic and primary healthcare settings, recognized for over 2000 years. Approximately 0.2%-2% of the population is affected by alopecia[5], characterized by hair loss and inhibited new hair growth, commonly on the scalp.

In today's fast-paced society, maintaining healthy and beautiful hair is an individual's responsibility, amid lifestyle challenges like pollution, stress, and weakened immunity that led to hair issues. Chemical beauty products have worsened the situation. Ayurveda's holistic approach is an ideal option for addressing these problems, as conventional medicine often falls short.

Need of study –

- The prevalence of hair fall was found to be 60.3%, and the prevalence of baldness was found to be 50.4%. In the modern era due to extremely busy schedules, pollution, and an unhealthy diet, hair fall i.e., "*Khalitya*" is increasing day by day and the main victims who are facing this problem are youngsters.
- Hair loss, baldness, or *khalitya* (medically known as alopecia) is a loss of hair from the head it is a partial or complete loss of hair especially from the scalp. *Khalitya* is commonly seen in the age group of 18-40 years.
- In modern science many drugs are used for treating hair fall but they have some limitations due to their adverse effects.
- In *Ayurveda* various *bahya* and *abhyantar chikitsa* are described as *khalitya*. In *Ayurveda* the treatment procedure mentioned like *vaman, nasya, mukha,* and *shiro abhyanga. Pradeha siravedha* and *raktamokshan* with *jalauka* can provide a simple painless, economical treatment for this common ailment.
- *Ayurvedic* procedures are beneficial in such cases so we need to think from the *Ayurvedic* point of view for the treatment of hair fall.

AIMS AND OBJECTIVES –

- To evaluate the effect of *Jalaukavacharna* along with *Murdha taila* - *Shiropichu* in *Khalitya*.

Plan of Study

The study incorporates the following points –

Conceptual study -

Diseases Review –

Literary material for *Khalitya* was collected from various Medicine books, Articles, previous research work, journals, and the internet. The collected material was collated and analyzed.

Literature on the *Ayurvedic* part i. i.e., *Khalitya* was collected from Various *Samhitas* and commentaries, previous thesis work, and journals.

Procedure Review –

The procedure review of *Jalaukavacharna* and *Shiropichu* was collected and compiled from various *Ayurvedic* classics and texts.

Drug Review –

Detailed descriptions of properties along with the pharmacodynamics of the drugs have also been compiled from authentic *Ayurvedic* and modern books and the internet. Drugs were prepared by following the standard operative procedure (SOP). *Karanja taila* was prepared in the pharmacy

of PGIA, Jodhpur.

Table 1. List of contents of oil

S. No.	Drug Name	Botanical Name	Use Part
1	Karanja	Pomgamia pinnata	Seed
2	Chitraka	Plumbago zeylanica	Leaves
3	Jaati	Jasminum officinalis	Leaves
4	Karveera	Nerium indicum	Root

Clinical study

MATERIAL AND METHOD –

Ethical Clearance and CTRI Registration –

The clinical trial was started after the approval of the Institutional ethics committee (IEC NO. DSRRAU/UPGIAS&R/20-21/401) and the research work has been registered in the clinical trials registry of India – CTRI/2022/11/047396.

Selection of Patients –

All the patients were selected from the OPD/IPD of *Panchkarma*, PGIA, Jodhpur (Rajasthan). The patients were enrolled regardless of their religion, caste, or sex only after getting informed consent. All the details of the patient were filled in Case report format (CRF).

Inclusion Criteria

1. Diagnosed and confirmed cases of *khalitya* based on CRF.
2. Patients between the age group of 20-40 years of either sex.
3. Patient who has been diagnosed with a local disease like Alopecia, and in Ayurvedic terms patients of *darunak, Arunshinka, and Khalitya*.
4. Patients willing to give written consent.
5. Individual bathing in water with TDS up to 500 ppm.

Exclusion Criteria -

1. Patients suffering from severe systemic disease and circulatory disease.
2. Patients who are taking anticoagulant medicine like warfarin, and heparin.
3. Pregnant woman.
4. Genetic hair loss.

Withdrawal Criteria -

1. If any adverse effect is noted that requires immediate medical and surgical intervention.
2. The patient is not willing to continue the treatment.
3. Any other acute illness.

Follow-Up Study -

Follow-up will be done after 52 days.

Assessment Criteria –

The full details of the history and physical examination of the patients will be recorded as per the Performa. The subjective and objective parameters of pre-and post-treatment and after-follow-up will be compared for assessment of the res
ults.

Both subjective and objective considerations were employed for the assessment of the impact of the treatment.

To facilitate the statistical analysis of the effect of therapy, the scoring system is adopted. Cessation of hair fall will be counted as the main feature to assess the effect of therapy. Other associated symptoms like *Darunaka, Keshabhoomi, Kandu, Kesha khathinya, Kesha tanutva, and Kesha ruskhatva*, were also considered but the main emphasis will be laid on the stoppage of hair fall.

OBSERVATIONS AND RESULTS –

This section includes materials and methods, observations, and results from the present study. A total of 30 patients fulfilling the inclusion criteria of the present study were selected from OPD of *Panchkarma*, DSRRAU, Jodhpur.

Out of these 30 patients, 27 patients completed the study and 3 withdrew.

Assessment of therapy was done before initiation of the procedure and on completion of the procedure. Wilcoxon signed-rank test was applied for subjective criteria to analyze the effect of therapy.

The maximum no. of patients was in the age group of 20 - 25 years i.e., 18 (60%), No. of male patients was more i.e., 18 (60%), 100% of patients were Hindu, 16 patients i.e., 53.33% were married, among 30 patients of *Khalitya*, 22 patients (73.33%) were from urban areas and the other 8 patients (26.67%) were from rural areas, maximum no. of patients i.e., 24 (80%) were graduate and data of the study showed that maximum no. of patients i.e., 14 (46.67%) were a student. Majority of the patients i.e., 22 (73.33%) had negative family history. Maximum i.e., 18 (60%) patients had a veg diet and 19 (63.33%) had *Sama Agni*. The majority of patients i.e., 21 (70%) and 20 (66.67%) were having *madhyama koshtha* and *madhyama sharir*. Maximum patients i.e., 18 (60%) were having Moderate appetites. Maximum no. of patients 16 (53.33%) were from the lower middle class. The majority of patients 16 (53.33%) were addicted to tea. The sleep pattern of the patients shows *samayak nidra* i.e., 63.33%. Maximum no. of patients i.e., 18 (60%) were having regular habits.

17 (56.67%) patients were *Vata pitta prakriti*, 20 (66.67%) patients were *Rajasika prakriti*. Maximum no. of patients 17 (56.67%), 18 (60%), 15 (50%) 22 (73.33%) were having *madhyama sara, samhanana, satmya, satva* respectively. 22 (73.33%), 19 (63.33%), 21 (70%) had *madhyama ahara abhyavaharana shakti, ahara jarana shakti* and *vyayama shakti respectively.*

RESULTS-

Table No. 2 Shows the Effect of Therapy on Subjective Parameters

Parameters	Mean		Median		SD		Wilcoxon W	P-Value	% Effect	Result
	BT	AT	BT	AT	BT	AT				
Hair Fall	2.30	1.26	2.00	1.00	0.67	0.66	-4.772 b	0.0000018	45.16	Sig
Dandruff	1.26	0.04	1.00	0.00	0.76	0.19	-4.231 b	0.0000232	97.06	Sig
Kandu	1.15	0.00	1.00	0.00	0.72	0.00	-4.244 b	0.0000219	100.00	Sig
Kathiniya	1.26	0.48	1.00	0.00	0.76	0.51	-4.583 b	0.0000046	61.76	Sig
Tanutva	0.93	0.74	1.00	1.00	0.73	0.59	-2.236 b	0.0253473	20.00	Sig
Ruksha tva	1.63	0.41	2.00	0.00	0.56	0.50	-4.689 b	0.0000027	75.00	Sig
Grading of hair pull test	2.30	1.26	2.00	1.00	0.61	0.59	-4.772 b	0.0000018	45.16	Sig

Since observations are on an ordinal scale (gradations), we have used the Wilcoxon Signed Rank Test to test efficacy. From the above table, we can observe that the P-value for all parameters is less than 0.05. Hence, we conclude that the effect observed in all parameters is significant.

Table No. 3 Showing the Overall Effect of Therapy

Overall Effect	Frequency	Percentage
Marked Improvement	3	11.11%
Moderate Improvement	19	70.37%
Mild Improvement	5	18.52%

No Improvement	0	0.00%
TOTAL	27	100.00%

The above table shows that there was moderate improvement in 19 patients (70.37%), While Mild Improvement in 5 patients (18.52%), and 3 patients (11.11%) were found to have marked Improvement.

DISCUSSION –

Probable mode of action of *Jalaukavacharana and Karanja taila* for *Shiro Pichu* –

The line of treatment for *Khalitya* described by Acharya Sushruta is the *sira* on the head (scalp) should be punctured after anointing and fomentation; then the skin should be incised (mildly) and apply the therapeutic paste. However, this is an invasive treatment and patients are more comfortable in non-invasive treatment as selected in the present trial. Patient psychology is well understood by ancient acharyas that's why they found a method of bloodletting from the body using *jalauka* (leeches) which is considered the easiest and most convenient one, it is the best for children, frightful, debilitated, women, and persons of the tender constitution.

Jalauka (leech) is ideal to remove blood vitiated by *pitta*.

Probable mode of action of *Jalauka*: -

- Containing properties of anti-coagulant, analgesia, anesthesia, etc. are very helpful in removing congested blood from local lesions quickly and from general circulation.
- Normalization and improvement of capillary as well as collateral blood circulation.
- Immuno-modulating effect.
- Anti-inflammatory effect.
- Hirudin-Anti coagulant, anti-biotic effect.
- Calin-prevent blood coagulation.
- Eglin/Hyaluronidase: - antithrombin, anti-trypsin, and anti-chymotrypsin, etc.
- Antiphlogistics are used for the local abstraction of blood and are more anticoagulants.
- Normalization and improvement of capillary circulation.
- Expresses anti-inflammation effect.
- Blood purification.
- Immune stimulant and immune modulating.
- Improvement of an Endo cellular exchange.

Probable mode of action of *Karanja taila*: -

The drug chosen for the trial had the base taken from *shastrokta* "*Karanja tail*".

The "*karaja tail*" consisted of four ingredients in the tila tail base. The basis for taking *Karanja tail* has been specified below-

Karanja, *chitraka*, *jati*, and *karveera* were the main constituent of the chosen drug which are, *katu*, *vipaki*, and *ushna virya*. Because of these properties, it is *kaphavata shamak*. Additionally, *chameli* is *tikta*, *kashaya* in *rasa*, so it is *pittashamaka* too, and *tila tail* is *madhura ushna* and *tridosha shamaka*. *karveer* and *chitraka* also possess the properties of *sweda janana*. *Karanja* is mainly used for skin disorders and *chameli* acts as *rakta prasadan*.

Overall, the mechanism of action of the drug is supposed to be due to *srotoshodhan*, *sweda janana*, and *kaphvata shaman*. *Kapha* fills the *romakoopa* and prevents the growth of new hairs along with *shonita*, *pitta* & *vata*. These are initiative *dosha* for *Khalitya* as mentioned in our text.

In the *Karanja tail* discussion, *kapha* fills the *romakoopa* to obstruct & prevent the growth of new hairs. *Vata* is an initiative of *dosha* that causes the transport of the other doshas. By its *ruksha guna*, *vata* dries the *kapha in romakoopa*, which further ceases the growth of new hairs.

Probably mode of action of *Shiropichu*

Probably mode of action of *Shiropichu* and *Shirobasti* are almost the same. Only contact of oil is more in the *Shirobasti* than *Shiropichu* procedure.

Shiropichu is a procedure in which the oil will be retained over the scalp in a prescribed quantity and temperature.

The local effect of *Shiropichu* depends upon the type of medicine that is used for the procedure. Hence, for this reason, *Karanja taila* was selected for Shiro Pichu as all the contents of this *taila* are *keshya*, *kandughna*, etc.

Oil absorption through scalp-

There are three mechanisms for trans-dermal delivery [6] -

- Intracellular route
- Inter-cellular route
- Shunt route

In the intracellular route, molecules pass directly through the cells of the stratum corneum.

In the intercellular route, molecules pass between intercellular spaces. The shunt route is a cleaver bypass system in which molecules pass through structures that originate in the dermis. The area of the scalp is a great location for absorption because this area is plentiful in sweat glands, sebaceous glands, and hair follicles.[7]

Factor affecting the trans-dermal absorption [8]-

Surface area of the application
Location of the skin application
Exposure time
Temperature
Substance use for application and its molecular size

Route of absorption-

In this procedure, medicated oil is poured over the head. The oil used in the procedure is absorbed transversally into the scalp through the roots of hairs. The dense subcutaneous tissue contains the vessels and nerves of the scalp. In the loose areolar tissue of the scalp, emissary's veins are present. These are valveless and connect the superficial veins of the scalp with the diploic veins of the skull bones and with the intracranial sinuses. This is a route of absorption of the oil. [9]

Procedural effect-

The warm oil is mainly used for *Shiropichu* which stimulates the efferent blood vessels and causes vasodilatation. Pressure improves blood circulation, increases fresh oxygen and glucose supply to the brain, and relaxes muscles and nerve endings.

Shiro Pichu is one type of *Murdha tail kriya*. This means direct application of medicated oil on the scalp. *Khalitya* is a disease where the hairs and hair roots are affected. Thus, the medicaments come into direct contact with hairs and hair roots. *Keshbhoomi* comes in direct contact with the medicated oil in this procedure, hence alleviating other associated symptoms like *Darunaka*, *Kandu*, *Keshbhoomi daha*, *Kesh rukshta*, etc. in addition to hair fall. This is the reason why *Shiro-pichu* was chosen as therapy for this purpose. *"Karanja tail"* is a preparation prescribed by *Sharangdhar Samhita* for treating *Khalitya*. As it is prepared from *Karanja*, *chitraka*, *jaati*, *karveera*. All the drugs have properties like *Keshya*, *Kandughna*, etc.

CONCLUSION -

The conclusion drawn from the data obtained is that individuals with a *Pittaja Prakruti* are more susceptible to

Khalitya, a condition associated with hair loss. Additionally, research studies have demonstrated the effectiveness of therapies like *Shiropichu* and *Jalaukavacharan* (leech therapy) in treating *Khalitya*. Therefore, it can be concluded that *Khalitya* can be effectively managed using Panchakarma therapy and Ayurvedic formulations, with minimal to no side effects.

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