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The clinical effect of *Prapaundarikadi Taila Nasya* and *Triphaladi Lepa* in the management of *Akala Palitya*

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ABSTRACT

Skin and hair have got a lot of concern for interest of cosmetic purpose, along with its normal physiological functions. Hair is an important skin appendage which has vital role in perspiration and temperature maintenance. The biological process of grey hair appears to be associated with the progressive loss of pigment producing cells. Due to significant changes in lifestyle, diet, environmental pollution, UV light, water with increased fluoride content, nutritional deficiencies and mental stress has added to canites or premature greying of hairs. According to Ayurveda, *Palitya* is discolouration of scalp hairs due to *Agantuja* and *Doshaja Nidana. Nasya Karma* is the best treatment of choice to treat *Palitya*. Along with *Shodhana Karma* external *Shamana Lepas* prove best to treat *Palitya*. *Prapaundarikadi Taila* mentioned in *Ashtanga Hridaya*[1] is a wonder drug for all *Shirorogas* especially *Akala Palitya*, hence it is chosen and externally *Triphaladi Lepa*, a *Krishnikarna Yoga* from *Chakradatta*[2] is taken along with *Nasya*. A total of 30 patients were selected from OPD and IPD of Ramakrishna Ayurvedic Medical College after fulfilling inclusion and exclusion criteria randomly. All 30 patients were included in a single group and given 7 days of *Nasya Karma* followed by 7 days of *Triphaladi Lepa.* In the present study it was observed that, though there is only satisfactory effect on colour of hair, but other associated complaints had significant results.

Key words: *Prapaundarikadi Taila, Triphaladi Lepa, Akala Palitya, Nasya Karma, Lepa Karma.*

INTRODUCTION

Hair is an important anatomical structure of body which plays both protective as well as cosmetic role. The concept of beauty is gaining attention globally among which hair is an important component.[3] In this era of increased industrialization and change in life style along with indifferent dietary habits, due to pollution, contaminated and chlorinated water, nutritional deficiencies, stress etc, *Akala Palitya* has become a burning issue. This is a morbid condition which is of greater concern to affected persons and they feel embarrassment and social stigma.[4]

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Ayurvedic views

The disease *Palitya* has been explained in all *Samhitas* in different context. Charaka explains *Palitya* in *Urdhva Jatrugata Rogas*,[5] *Sushruta* in *Kshudra Rogadhikara*,[6] and *Vagbhata* in *Shirokapalagata Rogas*.[7]

Definition

Shoka Srama Krodha Kritah Shariroshma Shirogata

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Keshan Sa Dosha Pachati Palitam Sambhavatyata ||[8]

Palitya occurs at the stage of *Vardhakya*, but due to increased *Ushma Guna* of *Pitta Dosha*, early greying of hair is observed.

Nidana of Akala Palitya[9-12]

Krodha, Shoka, Adhika Chinta, Atapa Sevana, Rajo Sevana, Dhuma Sevana and *Dushita Vayu Sevana*, *Shiro Abhyanga Ayoga, Dushita Jala Snana,* excess intake of *Lavana Rasa* by pregnant lady.

Samprapti

Due to causative factors like *Soka, Kroda* and *Srama, Pittadosha* is aggravated and there by increases *Pittoshma* and *Shareeroshma*. *Vata* which is also aggravated by *Soka* and *Srama* carries this *Pittoshma* to the *Shiras*. *Stanika Kapha* is also get vitiated as the *Shiras* is the important location of *Kapha*. Thus, vitiated *Tridosha* settled in the *Romakoopa* (*Stanasamsraya*). Locally settled *Tridosha* further vitiate locally available *Brajaka Pitta,* which gives colour to the hair. In this way the natural colour of the hair is affected and *Akala Palitya* is caused.

Lakshana[13]

Vataja	*Sphutita, Shyava, Khara, Ruksha, Jala Prabha.*
Pittaja	*Pitabha, Dahayukta.*
Kaphaja	*Snigdha, Sweta, Sthula, Vivriddha*
Dwidoshaja	*Mixed Laxanas* of *Doshas*
Tridoshaja	*Sarva Laxanas*

Chikitsa

1. ***Triphaladi Lepa :*** *Triphala + Neelini + Loha Bhasma + Bringaraja* + Sheep's urine - application
2. ***Prapaundarikadi Taila :*** *Prapaundarika + Madhuka + Pippali + Chandana + Utpala + Dhatri Swarasa + Taila*

Modern View

Definition

Premature greying also known as canities is defined as the onset of greying of hair before the age of 20 in Caucasians and before the age of 30 in Asians and Africans or when 50% or more of scalp hair turns grey before the age of 50.

Etiopathogenesis

Nutritional deficiencies (especially iron or vitamin A, B vitamins, iron, copper, and iodine in the daily diet & Faulty diet are said to be a contributory factor. Mental worries, Unhygienic condition of scalp, Heredity, Stress (emotional and physical), Hormonal imbalance, specifically androgen sensitivity, Genetics, Thyroid disorders etc. are few causative factors.

Greying of hair is caused when cells at the hair base (melanocytes) stop producing the pigment melanin which is responsible for giving our hair its colour. To continue making the colour producing pigment, the cells need vitamin B12, thus nutritional deficiencies like vitamin B12, vitamin D3, calcium, iron deficiency, copper deficiency, protein loss etc. are found associated with premature greying of hairs. Other factors like familial predisposition, autosomal disorders, prolonged exposure to UV rays, smoking etc. is considered to be related to premature greying of hairs.[14]

Aims and Objectives

The present study is intended to evaluate the efficacy of *Prapaundarikadi Taila Nasya* and *Triphaladi Lepa* in *Akala Palitya*.

Materials and Methods

30 patients of *Akala Palitya* fulfilling the criteria of diagnosis were selected from the OPD and IPD of RAMC Bengaluru.

Inclusion Criteria

- Patient who has classical signs and symptoms of *Palitya.*

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- Patient within age group of 16-34 irrespective of sex and occupation, with premature greying of hairs.
- Person fit for *Nasya Karma*.

Exclusion Criteria

- Hereditary diseases like albinism, vitiligo.
- Subjects with hormonal diseases like thyroid disorders.
- Nutritional deficiencies, pernicious anemia etc.
- Patients unfit for *Nasya Karma*.
- Subjects above 35 years of age and below 16 years of age.

Follow up study

At an interval of 7, 14 and 21 days after treatment. The value is studied after complete follow up days

Assessment Criteria

Subjective and objective parameters will be assessed for the result.

Subjective Parameter

- *Akala Kesha Vaivarnyata* (colour of hair)
- *Rooksha Sphutitha* (dry splitted hair)
- *Snigdha Sthoola* (oilyness)
- *Daha* (burning sensation of scalp)

Objective Parameter

- Random hair count

Grade of Subjective Parameter[15]

Colour of hair (Kesha Varna)

Colour of Hair	Grade
Krishna Varna (black hair)	0
Shyava Varna (ash coloured)	1
Peetabha (yellowish or coppery red)	2
Shwetha (white hair)	3

Dry split hair (*Rooksha Sphutitha*)

Dry Split Hair	Grade
Absent	0
Dryness felt	1

Snigdhata (oiliness)

Oiliness of Hair	Grade
Absent	0
Present	1

Daha (burning sensation of scalp)

Burning Sensation of Scalp	Grade
Absent	0
Present	1

Grade for Objective Parameter

Random hair count: 1 Site of scalp will be chosen where more grey hairs are present. One square centimeter will be chosen from those sites and number of grey hairs will be counted.

Number of Grey Hair	Grade	Severity
No grey hairs	0	Normal
1 to 10 grey hairs	1	Mild
10 to 25 grey hairs	2	Moderate
More than 25 grey hairs	3	Severe

RESULTS

The study was carried out in patients of *Akala Palitya* in a single group where 7 days of *Nasya Karma* followed by 7 days of *Shirolepa* was done. Data was collected from the patient on the 1st day before treatment and on the 14th day, that is, after treatment, then on 21st day and 28th day after treatment.

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Effect of treatment was assessed on the basis of changes found in gradation of both subjective and objective parameters before and after treatment and after follow up.

Table 1: Showing Colour of hair - Assessment at Before and After treatment and follow up.

Colour of hair	Before Treatment	After Treatment	After Follow up	% Difference
0	0 (0%)	1 (3.3%)	2 (6.7%)	6.7%
1	2 (6.7%)	2 (6.7%)	2 (6.7%)	0.0%
2	9 (30%)	10 (33.3%)	15 (50%)	20.0%
3	19 (63.3%)	17 (56.7%)	11 (36.7%)	-26.6%
Total	30 (100%)	30 (100%)	30 (100%)	-
P = 0.076, Not significant, Paired proportion test, improvement of 6.7% at Colour of hair = 0 score				

Table 2: Showing Nature of Hair - Assessment at Before and After treatment and follow up

Nature of Hair	Before Treatment	After Treatment	After Follow up	% Difference
Nil	0 (0%)	13 (43.3%)	21 (70%)	70.0%
Rooksha	12 (40%)	6 (20%)	3 (10%)	-30.0%
Snigdha	18 (60%)	11 (36.7%)	6 (20%)	-40.0%
Total	30 (100%)	30 (100%)	30 (100%)	-
P<0.001**, Significant, Paired proportion test, improvement of 23.3%				

Table 3: Showing Associated complaints - Assessment at Before and After treatment and follow up

Associated complaints	Before Treatment	After Treatment	After Follow up	% difference
Nil	17 (56.7%)	22 (73.3%)	28 (93.3%)	36.6%
Kapala daha	7 (23.3%)	4 (13.3%)	1 (3.3%)	-20.0%
Shira shoola	6 (20%)	4 (13.3%)	1 (3.3%)	-16.7%
Total	30 (100%)	30 (100%)	30 (100%)	-
P = 0.048*, Significant, Paired proportion test, improvement of 36.6%				

Table 4: Showing Random hair count - Assessment at Before and After treatment and follow up

Random hair count	Before Treatment	After Treatment	After Follow up	% Difference
0	0 (0%)	3 (10%)	7 (23.3%)	23.3%
1	6 (20%)	10 (33.3%)	8 (26.7%)	6.7%
2	11 (36.7%)	11 (36.7%)	13 (43.3%)	6.6%
3	13 (43.3%)	6 (20%)	2 (6.7%)	-36.6%
Total	30 (100%)	30 (100%)	30 (100%)	-
P = 0.003**, Significant, Paired proportion test, improvement of 23.3% at RHC =0 score				

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Table 5: Showing Colour of hair

Colour of hair	Min-Max	Mean ± SD	difference	Z value	P value
Before treatment	1.00 - 3.00	2.57 ± 0.63	-	-	-
After treatment	0.00 - 3.00	2.43 ± 0.77	0.133	- 2.000	0.046*
After follow up	0.00 - 3.00	2.17 ± 0.83	0.400	- 3.464	0.001**

Table 6: Showing Random hair count

Random hair count	Min - Max	Mean ± SD	difference	Z value	P value
Before treatment	1.00 - 3.00	2.23 ± 0.77	-	-	-
After treatment	0.00 - 3.00	1.67 ± 0.92	0.567	- 4.123	<0.001**
After follow up	0.00- 3.00	1.33±0.92	0.900	- 5.014	<0.001**

DISCUSSION

Discussion forms an important part of all clinical trials where the observations are discussed and all the actual facts presented during the research work is presented.

Mode of action of *Prapaundarikadi Taila Nasya*

According to references from *Ashtanga Hridaya, Prapaundarikadi Taila* is useful in all *Shirorogas* including *Palitya.* Hence this medicine was selected.

All *Acharyas* have mentioned that *Nasa* is the gate way of *Shiras.* But this doesn't mean that there is a direct channel connecting from nose to brain. But it can be inferred as a connection by blood vessels, lymphatic drainage and nerves.

Here the ingredients of *Prapaundarikadi Taila* are *Prapaundarika (Nelumbo nucifera), Madhuka (Glycyrrhiza glabra), Pippali (Piper longum), Chandana (Santalum album), Utpala (Nymphaea alba), Dhatri Swarasa (Phyllanthus emblica)* and *Tila Taila (Sesamum indicum).*

Prapaudarika - It is having *Madhura Rasa, Sheeta Guna* and *Veerya,* it is *Kapha Pitta Shamaka* and is good *Keshya Dravya*.

Madhuka - Also known as *Yastimadhu* is having *Madhura Rasa, Gurun Snigdha Guna* and *Sheeta Verya*. It is *Vata Pitta Shamaka* and have *Balya* and *Bruhmana Karma*.

Pippali - *Katu Rasa, Ushna Veerya* and *Laghu Teekshna Guna*. But is having *Madhura Vipaka* and *Kapha Vata Hara Guna*. It is having *Chakshushya* and *Vrishya Karma.*

Rakta Chandana - It is having *Tikta Madhura Rasa, Guru Rooksha Guna, Sheeta Veerya* and *Katu Vipaka*. It is *Kapha Pitta Shamaka* and have *Chakshushya* and *Vrishya* properties

Utpala - It is having *Madhura Tikta Kashaya Rasa, Laghu Snigdha Guna, Sheeta Veerya* and *Madhura Vipaka*. Useful as *Medhya,* and in *Pittavikara.*

Dhatri / Amalaki - Have *Amla Pradhana Lavana Varjita Pancharasa*, *Guru Sheeta Guna*, *Madhura Vipaka* and is *Tridosha Shamaka*. It has *Rasayana* properties.

Modern science says that the lipid soluble substance has greater chance of passive absorption directly through lining of olfactory nerve. Later the drug may traverse through capillaries and veins since *Nasya* consists of *Taila Dravya* may be quick and beneficial. That is the reason why ancient *Acharyas* had used lipid media for processing drug.

Sringataka Marma is the area where the *Srotas* of *Ghrana, Akshi, Srotra* joins. This is the area where the medicine gets absorbed. When *the Taila* for *Nasya* is made lukewarm and instilled, it causes vasodilation facilitating drug absorption.

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The posture for *Nasya Karma* is also significant because it allows the *Taila* to reach the olfactory area in upper nasal cavity and thereby stimulates olfactory neurons. This facilitates the drug to penetrate the blood brain barrier. The lipophilic pathway also provides a large surface area for drug delivery.

Increased bio availability is seen in intra nasal drug administration. This bio availability occurs due to quick absorption of molecules into the blood stream through the soft tissues in the mucus membrane of the sinus cavity.

The ingredients of *Prapaundarikadi Taila* having the properties of *Tridosha Hara, Indriya Balavridhikara, Rasayana* and indicated for *Shiro Roga*.

Mode of action of *Triphaladi Shirolepa*

Many *Krishnikarana Yogas* are mentioned by *Acharyas* for *Palitya*. One among that is *Triphaladi Lepa* mentioned by *Acharya Chakrdatta.* The ingredients of this *Lepa* are *Hareetaki (Terminalia chebula), Vibhithaki (Terminalia bellirica), Amalaki (Phyllanthus emblica), Neelini (Indigofera tinctoria), Bringaraja (Eclipta alba), Loha Bhasma, Avi Mutra*.

Harithaki : It is having *Laghu, Rooksha, Ushna, Madhura Vipaka, Tridoshahara, Anulomana, Rasayana* and *Prajasthapana Gunas.*

***Vibhithaki* :** It is having *Kashaya Rasa, Ruksha Laghu Guna, Ushna Veerya, Madhura, Kapha Pitahara.*

Amalaki : It has *Guru Guna, Sheeta Veerya, Madhura Vipaka, Tridoshahara, Vayasthapana, Chakshushya* and *Rasayana Karma. Sheeta Veerya* and *Madhura Rasa* of *Amalaki* pacifies *Pitta Dosha* which is a major *Samprapti Ghataka* in *Palitya*. And also does *Dhatuvardhaka* and *Rasayana* action.

***Neelini* :** It has got *Tikta Rasa, Laghu Rooksha Guna, Ushna Veerya, Katu Vipaka, Kapha Vata Shamaka, Keshya, Vishagna, Krimigna*.

Bringaraja: It has got *Katu Tikta Rasa, Laghu Rooksha Guna, Ushna Veerya, Katu Vipaka, Kapha Vata Shamaka, Keshya, Rasayana, Balya, Chakshushya Guna. Katu Rasa* does *Ama Pachana,* its *Rasayana Guna* helps reverse the effect of *Palitya. Bringaraja* is a well-known drug for is *Keshya* and *Kesha Ranjaka* action.

***Loha Bhasma* :** it has *Kashaya Rasa, Rooksha Guru Sheeta Guna, Sheeta Veerya, Madhura Vipaka, Kapha Pitta Shamaka* and *Rasayana Karma. Loha Bhasma* is known for its efficacy in anemia. There is a close relation in anemia and greying of hairs. This can be correlated as its effect in *Akala Palitya*. Moreover, *Sheeta Veerya* and *Madhura Vipaka* of drug directly helps in pacifying *Ushma Guna* of *Pitta* which leads to *Akala Palitya.*

In *Sharangadhara Samhita*, *Pralepa, Pradeha* and *Alepa* are the methods of application of *Lepa*. *Pralepa* is *Sita, Tanu,* and *Vishoshi* and is applied in case of *Pitta* and *Rakta. Pradeha* is *Ushna, Ghana* and more *Ardra* and is applied in *Vata Kapha Pradhana Vyadhi.*

Topical drugs are the main treatment protocol in dermatology. Most drug absorption is transcellular. Noticeable absorption doesn't occur between cells or through hair follicles or sweat pores. This is a passive method of diffusion, where the magnitude will depend on the integrity and efficacy of epidermal barrier and will be influenced by the drug itself. Drugs having low molecular weight and high lipid and water solubility shows the greatest penetration. So, the vehicle used for the desired drug is important. There are two main pathways by which drugs can cross the skin and reach the systemic circulation.

a. **Transcellular pathway:** Here, the drugs cross the skin by directly passing through both the phospholipids membrane and cytoplasm. Though this is the shortest distance, the drugs encounter significant resistance to permeation because the drug must cross the lipophilic membrane of the cells, hydrophilic contents and phospholipid bilayer of the cell one more time.

b. **Intercellular route:** Here, the drugs must pass through small spaces between the cells of skin.

Several important advantages of transdermal drug delivery are limitation of hepatic first pass metabolism, maintenance of steady plasma level of the drug and enhancement of therapeutic efficiency.

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Sushrutha has advised the use of *Snehadravya* in the *Lepas,* probably he had the knowledge that lipid media is better absorbed through the skin. The application in the *Pratiloma* direction for *Lepa* can probably be due to the appendageal route of entry is stable and act as a reservoir of medicine, to maintain the required therapeutic level. In the study, *Sukshma Churna* is taken to decrease the molecular size of the drug. The time limit of *Lepa* application is said as the time taken for the *Lepa* to dry on its own in the classics. In modern science, it is said that many hours are taken for topical application to reach the therapeutic level in the skin, but the research have shown the penetration of drug to the full thickness epidermis in 100 minutes or less. This gives a new concept of short contact therapy. Research have shown that once a day application for a longer period in the morning hours has yielded better results than application in divided doses.

Conclusion

There is only moderate improvement in black colour of hair, while in other associated complaints like *Rookshatha, Snigdhatha*, *Shira Shola* and *Kapala Daha* significant improvement was noticed even during follow up period. Since the sample size was small and the study duration was also small, correct conclusion cannot be drawn. Hence it is recommended to conduct the same study for larger sample and for longer duration of study for better results and better conclusions. The study can be tried after giving an *Abhyantara Shodhana* prior to *Nasya* and *Lepa* so that its effectiveness will be enhanced. There were difficulties in fixing the parameters of the study. Availability of *Avimutra* as well as its storage and convincing the patient for applying on head was a difficult task.

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