



# A Case Study of Treatment of Fungal Alopecia through Leech Therapy: Exploring Efficacy of Ayurved Protocol

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**Introduction:** Fungal alopecia, also known as tinea capitis or ringworm of the scalp, is a common fungal infection that can lead to hair loss and discomfort. It can lead to hair loss, itching, inflammation, and other discomforting symptoms. Managing fungal alopecia requires a multifaceted approach that targets both the underlying fungal infection and the associated hair loss. In Ayurveda text the term Alopecia is considered as Khalitya. And Fungal Alopecia as krimijanya Khalitya. In this article, we will explore the various treatment options available as leech therapy for fungal alopecia/ krimijanya Khalitya., including medications, topical treatments, and lifestyle modifications as well as exploring its effectiveness, safety, and clinical considerations through Ayurveda protocol.

**Case Presentation:** The patient, a 17-year-old female, registered herself as OPD No. 11842 during her first visit in Skin care unit at Govt. Dhanwantari Ayurveda Medical College & Hospital Ujjain (M.P.) presented with symptoms of fungal alopecia, including red, scaly patches on the scalp, itching, and hair loss in bulk. She was chiefly complaining about her blank patch without hair and she had previously tried antifungal shampoos and topical treatments, internal medication as well without significant improvement. Upon examination, KOH test resulted positive and fungal culture confirmed the presence of Trichophyton species, indicating a fungal infection.

**Treatment Approach:** Along with topical ayurvedic treatment, antifungal medication and leech therapy was proposed as a treatment option. After obtaining informed consent, the patient underwent leech therapy sessions conducted by a qualified Ayurvedic practitioner experienced in the technique.

The leeches were applied to the affected areas of the scalp, where they attached themselves and began to feed. The therapy sessions were performed weekly for a total of four weeks. During each session, the leeches were left in scalp on affected area for approximately 15 to 30 minutes, allowing them to extract blood and deliver their saliva containing bioactive compounds with potential therapeutic effects as mentioned in Ayurveda Texts.

**Outcome:** Following the completion of four leech therapy sessions, the patient reported significant improvement in symptoms. The itching and redness on the scalp had subsided, and there was a noticeable reduction in hair loss. The patient also reported growth of new hairs as feeling a sense of relief and relaxation during the therapy sessions.



**Follow-Up and Monitoring:** The patient was advised to continue scalp hygiene practices and to monitor for any recurrence of symptoms. Follow-up appointments were scheduled to assess long-term outcomes and to address any concerns or questions the patient may have.

**Discussion:** This case study highlights the potential efficacy of leech therapy as a treatment option for fungal alopecia. Because fungus is type of Krimi resulting the Pittaj dushti lakshan on the localised area like irritation and burning sensation also causing loss of hair. Leech or Jalauka is used to treat pittaj dominant tridoshaj conditions like alopecia as mentioned in Ayurveda text.

Jalaukavacharana is an Ayurvedic para surgical procedure mentioned in Susruta samhita practiced since 2 BC10. In Susruta samhita, a whole chapter has been dedicated to Jalaukavacharana. It is a painless minimal invasive technique of Raktamokshan (controlled bloodletting). Jalauka is mainly collected during Sharad Ritu and it has divided into two groups of each 6 in number on the basis of the nature i.e. Savisha (poisonous) and Nirvisha (Non – poisonous)<sup>12</sup>. Jalauka is mostly pittaghna and madhura<sup>13</sup> in nature. Globally, Jalaukavacharan gained popularity due to its therapeutic benefits.

Saliva of Leech contains various biologically active compounds such as analgesic, antiinflammatory, anaesthetic and antioxidative properties. It is estimated that approximately 100 therapeutic substances are present in leech saliva<sup>14</sup>. Components of Leech saliva and their action Saliva of Leech contains various bioactive components<sup>15</sup> such as

Hirudin – Prevents blood clotting by binding with thrombin.

Calin – Inhibits blood clotting by blocking the binding of Von Willebrand factor to collagen and also inhibits collagen –mediated platelet aggregation.

Apyrase – Prevent platelet aggregation by inhibition of adenosine triphosphate. Tryptase inhibitor – Inhibits Proteolytic Enzymes of Host Mass Cells.

Destabilizase – Dissolves the fibrin.

CarboxypeptidaseA Inhibitors: Increases At the bite site, the inflow of blood. Hirustasin – Responsible for normal level of blood pressure by inhibiting the kallikrein. Eglins – Anti- inflammatory substance, inhibits the activity of subtilisin, chymotrypsin, cathepsin, elastase, chymase.

Bdellins – Anti- inflammatory and inhibit acrosin, trypsin, plasmin.

Histamine-like substance – Vasodilator, increase the inflow of blood at the bite site.

Hyaluronidase – Increase Interstitial Viscosity, Antibiotic.

Collagenase – Smooth the way for tissue penetration.

Acetylcholine–Vasodilator. Factor

Xa inhibitor – Inhibit the activity of Coagulation factor

Xa – conversion of prothrombin to thrombin.

**Method of Jalaukavacharan:**Every Panchakarma treatment including Raktamokshan involves three stages:

Purva Karma (pretreatment), Pradhana Karma (main-treatment) and Paschat Karma (post-treatment).

**Purva Karma (Pre-Procedure Protocols)** — 1) Snehana (oleation) and Swedana (sudation) to the patient prior to Jalaukavacharan.

2) To clean the leech with mixture of mustard and turmeric paste in water.

3) Patient preparation- Cleaning of the body part on which the leech is to be applied.

**Pradhana Karma (Main Procedure Protocols)** – After cleaning the body parts, apply some ghrta or milk on the site to stick the jalauka, if they do not stick then blood may be applied or scratching may be done. The Leech is applied through its front end and wet white fine cloth covers the leech except for their mouth. Observation of leech during blood sucking - Middle portion of the body in leech appears elevated assuming the shape of a horseshoe<sup>16</sup> indicating that its sucks well. The sense of burning and tingling sensation at the bite spot. Pulsation can be noticeable on the body of the leech. Leech should be removed after 15-20 minutes, the leech may be removed by sprinkling common salt or by

**Paschata Karma (Post Procedure Protocols)** - Treatment of the wound, there is a triangular shaped wound caused by the mouth of the leech. Bleeding from the wound is checked with the help of Yastimadhu churna or turmeric powder by applying tight bandaging or Satadhauta ghrta can be applied to prevent bleeding and scarring.

After raktamokshan keshya an anti-krimi drugs likeGandhak druti for local application,combination of Giloy satva ,talkeshwar ras, gandhak Rasayan for internal use.Panchtik ghrta is given with milk at a dose of 15gram together every morning before breakfast. Pathya apathya is advised to the patients for complete nutritional supports to hairs.

**Pathya- apathy for Khalitya**-There is no clear cut description of Pathyapathya of Khalitya in Samhitas, but on the basis that the disease Khalitya is related to Rakta Vikara and predominance of pitta dosha, Pathya advised which are as follows : -

**Pathya Ahara : Dhanya:** Godhuma, Yava, Shali, Mudga

**Shaka Varga:** Jivanti, Kushmanda, Patol, Karavellaka, Tomato, onion, and Lauki etc.

**Taila Varga:** Tila Taila and coconut oil for external and internal use.

**Fruits:** Amlaki, Dadima, Narikel, Kadaliphala, Draksha etc.

**Others:** Milk, sugar, honey etc. are advised. Pathya Vihara: Shirasnana, Sarvangasana and Shirobhyanga are good care for hair

**Apathya Ahara:** Excess intake of Lavana, Amla and Katu Rasa and Ksharasevana. Continuous use of fry diet, junk food, packed foods and beverages like tea, coffee and cold drinks. Smoking and alcohol to be avoided.

**Apathya Vihara:** Exposure to excessive sun light. Night awakesness. Day sleep. Altered sleep pattern. Avoid tap water for hair wash.

**Mode of action of Jalaukavacharana-Khalitya** or Alopecia is mainly caused by vitiated pitta dosha and Jalaukavacharana is done for removal of vitiated pitta dosha and impurities, toxins from the body through blood. It increases blood circulation around the area result in growth of new hairs. Because saliva of leech contains number of biologically active component like Hirudine, inhibitors of kallikrein, hyaluronidase, histamins like vasodilators, anti-inflammatory and anaesthetic agent. Leech sucks the blood by piercing into the skin and invade their biologically active components into the deep tissue. For tissue penetration Enzyme collagenase helps by smoothen the pathway. Hyaluronidase helps the penetration as well as diffusion of these pharmacologically active components into the tissues. So anti-inflammatory component like Bdelins, Eglins can easily penetrate to give significant effect on intra-articular and periarticular myofascial structures also on inflammatory condition of skin. Vasodilators increases in flow of blood .

**Conclusion:** Jalaukavacharana is more convenient and easy para surgical procedure which eliminates the toxins from the blood stream. It is the best alternative therapy which can be apply for the treatment of Khalitya. It is relatively easy to learn and reduce the complication arising from the excessive use of synthetic drugs. Jalaukavacharan along with keshya drugs and proper diets showing promising results in hair loss. It is economical and cost effective therapy with no any side effects if done under supervision. It has the potential to stop hair fall significantly. So we can say that it is great boon for patients of Khaliya (alopecia).

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