

Parasurgical Management of *Indralupta* (Alopecia Areata) by *Jalaukavcharana* (Leech Therapy): A Case Report

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ABSTRACT

Urdhwajatrugata Vyadhi (disease of the supra clavicular region) and *Indralupta* {Alopecia Areata (AA)} are characterised by patchy hair loss in the area that bears hair, such as the beard and scalp. According to *Sushruta Acharya*, vitiated *pitta* and vitiated *vata* together cause *Indralupta* (AA), leading to scalp hair loss. Additionally, vitiated *Rakta* and *Kapha* obstruct the hair follicles openings, limiting the growth of new hair. In contemporary science, these conditions are related to the clinical features of AA. A five-year-old female child presented to the Department of *Kaumarbhritya* with complaints of hair falling out in patches on the scalp gradually over six months. In her condition, the *Raktamokshana* therapy by using the *jalaukavcharan vidhi* technique was adopted for effective results. This age-old procedure described by Acharya Sushrut in *Sushrut Samhita* is still beneficial in treating the above aforementioned condition. The patient experienced relief from her symptoms after eight sessions and is continuing treatment. *Raktamokshana*, or therapeutic bloodletting, is one of the Ayurvedic therapy methods for *Raktapradoshaja Vikara*. *Raktamokshana* (Bloodletting) through leech treatment is one of the easiest methods to administer, especially for elderly patients, female patients, paediatric patients, individuals who are extremely shy, and those with sensitive constitutions like children. It resulted in fewer complications postprocedure and reduced the risk of symptom recurrence. The therapy was cost-effective, and within short span of three months, it produced positive outcomes in patients.

Keywords: Ayurveda, Hairfall, *Kaumarbhritya*

CASE REPORT

A five-year-old female child, who was apparently healthy six months ago, experienced a sudden onset of hair fall. Gradually, her mother began to notice hair loss from the scalp area, both in the back and mostly in the center of the head. Five months later, her mother saw an increase in the hair loss patches. There were no signs of dandruff or itching associated. She visited a dermatologist and took medication for three to four months, both externally applied drugs and oral ones. Gradually, in the last four months, the child developed a generalised weakness and began to refuse to eat due to a lack of appetite. She came to the hospital for consultation when her hair growth did not improve. She sought further treatment at the *Kaumarbhritya* OPD.

No family member had a significant history of hair fall as such. The patient was a full-term child of birth weight 2.6 kg delivered by normal vaginal delivery and cried immediately after birth and had no significant findings in birth history, as she was healthy and had achieved all the developmental milestones till age-appropriate. All vaccines were administered as per the government schedule. The patient's diet, as described, was varied, with a greater consumption of fried, fatty, and fast foods, including packaged meals. It was observed that the child had a reduced appetite. Bowel motions were clear and happened often, usually 1-2 times a day. The patient was reported to have a sound and uninterrupted sleep. The child used to urinate approximately 5-6 times a day. There was no specific reference regarding any particular behavioural habit. The patient had no surgical history. There was no history of any metabolic disorders like diabetes mellitus, hypertension, tuberculosis, asthma, or thyroid issues.

From general and local examinations as mentioned in [Table/Fig-1], it was observed that the patient weighed less than the ideal weight for her age, indicating malnutrition {less than the 3rd percentile as per World Health Organisation (WHO) Growth charts} [1] and *Karshya* (nutritional deficiency), with no signs of any further systemic diseases

as she had poor nutritional status. Additionally, the bald patches extended from the parietal to the posterior region of the scalp near the occiput.

General examination		
Sr. no.	Parameter	Finding
1	Blood pressure (mmHg)	100/70
2	Pulse (/min)	104
3	Height (cm)	105
4	Weight (kg)	13
5	Respiratory rate (/min)	19
6	Eyes	Mildly pallor +
7	Tongue	Not coated, mildly pallor
8	Body Mass Index (BMI) (Kg/m ²)	11.8
Local examination of scalp and hair		
Sr. no.	Parameters	Findings
1	Site of involvement	Scalp- parietal (central) to occipital region
2	Size	2.5×6 cm centrally extended to posterior scalp as well, 2×4 cm near occiput
3	Shape	Multiple circulars to oval patches
4	Skin colour	Slight pale to reddish
5	Rashes/discharge absent	Absent
6	Sensation	Present
7	Texture of hair	Generalised thinning of hair

[Table/Fig-1]: General examination and local examination of scalp and hair.

Before applying the leeches, it is necessary to assess for coagulation abnormalities and moderate anaemia, as the leeches have an anticoagulant effect due to hirudin. Routine investigations were conducted prior to treatment, to ensure the safety of the treatment. As per [Table/Fig-2], it was observed that all the pathological parameters were within normal limits.

Sr. no.	Investigation tests	Findings	Normal range
1.	White Blood Cells (WBC)	7.3	(3.5-11.0×10 ³ /mm ³)
2.	Red Blood Cells (RBC)	4.47	(3.80-5.80×10 ⁶ /mm ³)
3.	Haemoglobin (Hb)	12.3	(11.0-16.5× g/ dL)
4.	Haematocrit (HCT)	38.5	(35.0-50.0 %)
5.	Platelet (PLT)	205	(150-390 × 10 ³)
6.	Procalcitonin (PCT)	0.150	(0.100-0.500 %)
7.	Mean Corpuscular Volume (MCV)	86	(80-97 μm ³)
8.	Mean Corpuscular Haemoglobin (MCH)	27.5	(26.5-36.5 pg)
9.	Mean Corpuscular Haemoglobin Concentration (MCHC)	31.9	(31.5-36.5 g/dL)
10.	Red Cell distribution Width (RDW)	13.0	(10.0-15.0%)
11.	Mean Platelet Volume (MPV)	7.3	(6.5-11.0 μm ³)
12.	Platelet Distribution Width (PDW)	15.5	(10.0-18.0%)
13.	Differential Leukocyte Count (DLC)	Lymphocyte- 24.6	(17.0-48.0%)
		Monocyte- 5.7	(4.0-10.00%)

[Table/Fig-2]: Pathological parameters.

Conditions such as AA, trichotillomania, androgenetic alopecia, scarring alopecia, post-traumatic alopecia, tinea capitis, and secondary syphilis were considered for provisional diagnosis. Alopecic patches have broken hairs and strange forms and sizes, unlike trichotillomania, which does not show inflammation or epidermal alteration. Erythema, scaling, and crusting in specific areas of the scalp are indicative of tinea capitis. Scarring alopecia can be distinguished from post-traumatic alopecia by looking for signs of atrophy or the for signs of atrophy or the follicular ostia. While syphilis is rare, high-risk individuals or with additional symptoms or indicators should be suspected. Hair loss in androgenetic alopecia is typically patterned and progresses gradually, as opposed to sudden hair loss. Distinguishing between widespread AA and telogen effluvium can be challenging when there is no clear precipitating event. In this case study, the patient had distinct circular to oval hair loss patches on the scalp without signs of inflammation, erythema, scaling, or trauma, suggesting the final diagnosis of AA, which can be correlated with *Indralupta*.

The treatment protocol followed in this patient included *Sanshaman Aushadi* and *Shodhan Chikitsa*. This protocol is well explained in [Table/Fig-3] along with the accurate dose administered to children and the duration for which it was prescribed.

Treatment	Medicine	Dose and Duration
Sanshamana aushadhi	<i>Krimikuthara Rasa</i> (125 mg)	Initially for five days (1/2-tab BD)
	<i>Avipattikar churna</i> (1 gm)	1 tsp at night (HS) with lukewarm water for seven days initially
	<i>Triphala churna</i> (100 mg) + <i>Trikatu churna</i> (300 mg) + <i>Ashwagandha churna</i> (100 mg) + <i>Hingvashtak churna</i> (300 mg)	All the churnas were mixed in the proportion of ¼ tsp each except for trikatu which was taken 1/8 tsp (1 tsp mixed churna TDS/ Premeal)
Shodhana chikitsa	<i>Jalaukavcharana</i>	8 sessions (4 sessions- interval of 7 days 4 sessions- interval of 15 days each)
	<i>Anutaila Nasya</i>	1 - 1 drop in each nostril daily

[Table/Fig-3]: Treatment protocol.

SALT score: The Severity of Alopecia Tool (SALT) was created as a universal technique to measure hair loss on the scalp. Achieving a SALT score of ≤20 has been established as a successful treatment goal for individuals with severe AA (≥50% scalp hair loss/SALT score ≥50) and is utilised as the primary endpoint in clinical studies of

pharmacological treatments for AA [2]. SALT scores were calculated by investigators at every clinic visit. The top, left, right, and rear of the head make up 40%, 18%, 18%, and 24% of the Scalp's Surface Area (SSA), respectively. The SALT divides the hair-bearing portions of the scalp into four quadrants [3]. The SALT score is a weighted total of the percentage of hair loss in each quadrant, calculated using the methods suggested by Olsen EA et al., [2]. The scores represent 0-100% loss of scalp hair and range from 0 to 100 [4,5]. To illustrate the development of scalp hair after therapy, photographs were chosen to depict SALT scores at baseline (SALT score ≥50) and following a therapeutic response (SALT score ≤20), representing a range of disease severity [Table/Fig-4].

Quadrant (Of scalp)	Hair loss (SSA)	Area of scalp	Quadrant score
Top	95%	×0.40	=38
Left	15%	×0.18	=2.7
Right	15%	×0.18	=2.7
Back	35%	×0.24	=8.4
		Total SALT score	=51.8

[Table/Fig-4]: SALT score calculation of patient prior to the treatment.

SALT Score depiction indicates the severity of the patient's condition with AA [6,7]. In the present case study, the patient had a score that ranged in the S3 category, depicting 50% to 74% hair loss before treatment.

As mentioned above, the patient was assessed with the help of the SALT Score, which can be observed in [Table/Fig-5], and a treatment plan was initiated, leading to significant improvement in the child's symptoms after a few sessions. The entire treatment protocol and observations according to the timeline are addressed in [Table/Fig-6]. The table shows that the child exhibited improvement, and no new hair fall patches developed further. [Table/Fig-7,8] shows the progression of SALT scores over 12 weeks of treatment with *Raktamokshana* by *Jalaukavcharana* in patients with hair loss on the scalp.



[Table/Fig-5]: Preoperative image of the patient showing the extent of bald patches over the scalp (Day 0).

Day	Treatment protocol	Observation
Day 0	a. <i>Sanshaman Aushadhi</i> was started for seven days initially b. <i>Raktamokshan</i> by <i>Jalauka-1st</i> sitting was done c. <i>Anutaila Nasya-1</i> - 1 drop in each nostril daily	Multiple circular to oval patches over the scalp at the parietal (central) to the occipital region with a SALT Score of 51.8% (S3)
Day 7	a. <i>Raktamokshan</i> by <i>Jalauka-2nd</i> sitting was done b. <i>Anutaila Nasya</i> was continued	
Day 14	a. <i>Raktamokshan</i> by <i>Jalauka-3rd</i> sitting was done b. <i>Anutaila Nasya</i> continued	<ul style="list-style-type: none"> Reduction in patch size with a significant reduction in SALT Score <50% was observed No development of new patches Continuing the same treatment protocol

Day 21	a. <i>Raktamokshan</i> by <i>Jalauka</i> -4 th sitting was done b. <i>Anutaila Nasya</i> continued	
Day 35	a. <i>Raktamokshan</i> by <i>Jalauka</i> -5 th sitting was done b. <i>Anutaila Nasya</i> continued	
Day 40	Follow-up was taken to note the progress of treatment	A reduction in patch size with a SALT Score of 32.4% (S2) was observed, as seen in [Table/Fig-7].
Day 49	a. <i>Raktamokshan</i> by <i>Jalauka</i> -6 th sitting was done b. <i>Anutaila Nasya</i> continued	
Day 63	a. <i>Raktamokshan</i> by <i>Jalauka</i> -7 th sitting was done b. <i>Anutaila Nasya</i> continued	A reduction in patch size was observed on follow-up
Day 77	a. <i>Raktamokshan</i> by <i>Jalauka</i> -8 th sitting was done b. <i>Anutaila Nasya</i> continued	
Day 80	Follow-up was taken to note the progress of treatment	A reduction in patch size with SALT Score reduced up to 11.92% (S1) was observed as seen in [Table/Fig-5]

[Table/Fig-6]: Showing the treatment protocol and gradation of the SALT Score with a timeline.



[Table/Fig-7]: Patient showing improvement as hair growth can be seen subsequently (Follow-up after 5th sitting- day 40).



[Table/Fig-8]: The patient showing hair growth and a noticeable reduction in the size of the bald patch as well (Follow-up after 8th sitting- day 80).

Method of *Jalaukavcharana Karma*

Purvasya karma (preoperative procedure)

Collection of leeches: Three *Jalauka* (*Nirvish*) in total were purchased from a well-known vendor in Nagpur, Maharashtra, India. The process was carried out comfortably in a position suitable for the patient.

Preservation of leeches: Leeches were obtained and then stored in a sterile container. Pure water from the tank was procured and filled into a container. *Jalauka* were also fed with powder from stems of shrubs, *shaivala*, etc. Water was changed on every 3rd day, and feeding was done on every 7th day along with the changing the container on every 7th day.

Preparation of patient: The patient was asked earlier to keep the site clean and free from any oil application. Avoid using harsh shampoo was advised prior to *Jalaukavcharana*. The site was examined for any lesion like ulceration, etc., if present, and was cleaned properly with tap water or normal saline and patted dry using gauze. The site can also prepared by rubbing milk, blood, or by making a small wound with a surgical blade as it will help in proper attachment for the *Jalauka*.

Shodhana of leech: The leeches were taken out from the container, and *shodhana* was performed by sprinkling water saturated with Turmeric powder in a kidney tray. Then leeches are kept in this tray full of turmeric powder until they are free from natural urges (*muktapurisha*) and regain their natural cheerfulness (*vigataklama*). After the above *shodhana*, *Jalauka* should be applied to the affected part.

Pradhana Karma (Operative procedure- *Jalaukavcharana* procedure)

Application of leech: *Jalauka* should be held cautiously in hands while wearing gloves, with a small wet white cloth, cotton, or gauze covering the mouth. Expose the mouth end of the leech to the site so that it can grab the skin and attach to the site properly. It was determined that *Jalauka* was effectively sucking the impure blood effectively when its lips sucked onto and the central section of its mouth rose upwards while resembling the appearance of a horseshoe (*Unnabhya va skandam, Ashwakhuravata*). A moist towel was used to cover the sucking leeches. A cool atmosphere was provided to the leech by covering it with a thin gauze soaked in water [8].

Withdrawal of leeches: Throughout the procedure, the patient was frequently asked if they experienced any pain at the site. When the patient complained of pricking pain, the leech was removed, and now the *Jalauka* has started sucking the pure blood. It can be removed by sprinkling salt or turmeric powder on its mouth.

Pashchata karma (Postoperative Procedure)

Jalauka vaman: When the leech detaches itself, it should be held properly with the left hand holding its back region between the thumb and fingers. Now, slowly and gently squeeze from the tail side towards the direction of the mouth using the fingers and thumb of the right hand. This way, it is induced to vomit out the blood. After emptying the impure blood entirely (*Samyak vaman*), the leech will become active again and can then be placed back in the container.

Wound care: The site after the detachment from the leech was cleaned with cotton and sprinkled with *Yashtimadhu churna* and *Haridra churna*. It was then compressed with gauze, and dressing was applied [9].

Advice after treatment: The patient was advised to avoid using harsh soap, oils, and shampoo on the scalp immediately after the procedure. Avoid taking a bath with the head for a day. Avoid combing the hair on the day after the procedure. Overexposure to the sun and pollutants needed to be avoided as well.

Pathya-Apathya: Pathya Ahara includes the consumption of *Shastikashali* (a variety of rice), *Sevana*, *Ghrīta* (clarified butter), and *Dugdha* (milk). Vihara practices consist of *Chhatradharana* (head covering). On the other hand, *Apathya Ahara* involves consuming *Atikatu Rasa* (spicy), *Atilavana* (oily) food, junk food, packaged food, and cold drinks. In terms of Vihara, it includes exposure to sunlight and dust, staying awake at night (*Ratrijagarana*), head bathing, and avoiding harsh and chemical soaps and shampoos.

The patient had *Indralupta* (severe AA) (SALT score ≥ 50) at baseline and achieved clinical response (SALT score ≤ 20) after 12 weeks of treatment. Hair fall was resolved within two weeks, and there was no development of new bald patches noted. A noticeable reduction in the previous patch size was observed in two to three months. Subsequently, hair growth was noted on the bald area of the scalp after treatment. As she was slightly fearful of the leech earlier, she is now excited about getting the treatment and is happier. Her appetite also improved within the first two weeks of treatment. No complications developed, and no scar marks were observed later on. The current instance did not have any recurrence of hair loss over the two-month follow-up period.

Patient's Perspective: The patient said, "I was experiencing loss of appetite and noticed several areas of hair loss on my scalp when I arrived at this institution. After undergoing Leech treatment, the results were evident. Some of the affected areas on my scalp have started to show new hair growth. Additionally, after taking medication, my appetite has changed significantly."

Declaration of patient consent: A statement of the patient's consent is known as a declaration of patient consent. The authors confirm that they have obtained this consent form from the patient, who has given permission for the case, images, and other clinical data to be published in the journal. The patient understands that complete anonymity cannot be guaranteed, although every effort will be made to protect their identity, ensuring that neither their name nor initials will be revealed.

DISCUSSION

Indralupta was common from the prevedic to the medieval era [10]. The clinical features of *Indralupta*, as mentioned by Acharyas in Ayurveda, can be correlated with the conventional modern medicine description of AA. The convoluted autoimmune disease known as AA is distinguished by non scarring hair loss. It can manifest at any age and usually presents as well-defined circumferential areas of hair loss [11]. These days, AA is regarded as an autoimmune condition. One reason to consider AA as an autoimmune illness might be its correlation with other autoimmune conditions like vitiligo, psoriasis, thyroid disorders, diabetes mellitus, and anaemia [12,13].

Acharya Sushruta states that vitiated *Kapha* and *Rakta* obstruct the follicular openings of hair, preventing the formation of new hair, whereas *Indralupta* results from the combination of vitiated *Pitta* and vitiated *Vata*, which causes hair to fall out of the scalp [14]. If vitiated *Rakta* is located in a specific area of the body such as hair follicles in this case, *Shodhana Karma* was carried out by *Raktamokshana*, specifically *Jalaukavcharana* (blood-letting, primarily with *Nirvisha Jalauka*), to effectively remove *dushit Rakta* [15]. The leeches with sheet *Virya* pacify the *ushna* and *tikshna guna* of vitiated *Rakta* [16]. Leeches' saliva also contains a variety of bioactive substances that help to balance these vitiated doshas, including vasodilators, anesthetics, and analgesics [17]. *Jalaukavcharana* aids in the *Sampraptivighatana* of the *Indralupta* by removing the vitiated blood from the *Srotas* [18].

Nasa is the *dvara* (door) to *Shira*, and hence this door is used to treat diseases related to *urdhwang* [19]. Therefore, due to its *brimhana* qualities, *Anutaila Nasya* was advised to the patient

[20,21]. *Krimi* is one of *Shiroroga's Nidana*, and *Krimikuthara Rasa* was given for its *Krimihara* property to provide an antimicrobial cover to the patient by deworming her before administering *Deepan* and *Pachana aushadhi*. Consuming too much salt, or *Lavana* (salty), *Kshara* (alkaline), and *Viruddha* (contradictorily behaving) foods results in *Khalitya*, or pathological baldness [22,23]. Thus, the child was advised to do *Nidan parivarjan* by avoiding such food items. A polyherbal formulation was advised to boost the *Agni* and improve her appetite.

In earlier case studies, particularly involving children, positive outcomes were obtained by combining *Raktamokshan* and *Shaman* with other *Shodhan* techniques [24,25]. In this case study, however, the patient's only means of alleviation were *Jalaukavcharan* and a few shaman *ausadhis*.

CONCLUSION(S)

The *Nidanaparivarjana* rules played a crucial role in the healing procedure and in avoiding recurrence. The treatment provided the patient with significant symptom alleviation. No adverse drug reaction was observed. Patients with *Indralupta* may be treated with internal medication in addition to *Jalaukavcharana*. A comprehensive clinical study with a considerably large patient group is necessary to statistically prove the effectiveness of this therapy procedure.

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