Journal of Young Pharmacists, 2024; 16(4):856-860.
https://www.jyoungpharm.org

Case Report

# Validation of Siddha Medicine in the Treatment of Alopecia areata in Paediatric Patient: A Case Report

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**ABSTRACT**

Alopecia Areata (AA) is an autoimmune condition characterized by scattered patches of hair loss on the body and scalp. Hair loss can be a cause of psychological stress and sufferers may suffer from social phobia, anxiety and depression. Even though there are many treatment options available in modern medicine, they have their own limitation which needs to be addressed. In Siddha system of medicine, a topical applicant named "*Pancharatna Kalimbu*" is used for the management of Alopecia areata, known as *"Puzhuvettu"*. This medicine can be used a standalone drug in the management of Alopecia areata. As this is topical medicine, it can be administered to children who resist taking any kind of internal medicines, injections, or other treatments. Hence, this case report proves it efficacy which may be effective as a best alternate for treating children.

**Keywords:** Alopecia areata, Siddha, Topical, *Puzhuvettu*, *Pancharatna Kalimbu*, Case report.

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**Received:** 11-05-2024;
**Revised:** 06-06-2024;
**Accepted:** 31-07-2024.

## INTRODUCTION

Hair is the primary aspect of appearance and one's personality as it is deep rooted in distinguishing one's gender and culture. Hair is the leading essential of one's self confidence and its loss depends on various factors like environmental stress, hormonal imbalance, improper diet, mental stress and social problems.[1] In recent times, stress related health problems were seems to increase in young age group people which in turn cause increased hair fall. In addition to stress, improper diet pattern also leads to nutritional deficiency causing hair fall and thinning of hair.[2]

Alopecia areata is a common auto-immune disorder with characteristic feature of non-scarring patchy hair loss caused by the destruction of hair follicles through T-cell mediated autoimmune disorder.[3] Alopecia areata can occur to all age group and both sexes equally. The severity of the condition can vary from small patches of hair loss to complete baldness.[1] The choice of treatments currently available for Alopecia areata largely involves hair growth promotion (Eg: Minoxidil), immunosuppression (Eg: corticosteroids) or immunomodulation (Eg: Anthraline or dinitrochlorobenzene).[4] Even though, there are many treatment options, they have certain side effects and do not change the progression of the disease. Among the primary treatment, combination of 5% minoxidil solution using twice a day along with topical corticosteroids was preferred for younger patients below 10 years. Apart from this, Anthraline or Excimer laser treatment was recommended in severe cases.[5] But, Georgala. S *et al*. documented the systemic side effects of minoxidil usage in children. Their report depicts the details of cases showing cardiovascular symptoms.[6] Excimer laser treatments was proved for its safety and efficacy in children, but affordability is the concern here.[7]

To overcome these limitations, Siddha system of medicine, one of the traditional medicines of India, have very simple, non-invasive and cost-effective therapies for Alopecia areata. In this present case study, we will examine the diagnosis, management and outcome of a child with alopecia areata using Siddha treatment modalities. According to Siddha literatures, 46 types of diseases are confined to scalp and Alopecia areata can be matched with *Puzhuvettu*, which is also known as *Uroma Kirumi Vettu* or *Kabala Pura Kkirumi Noi*.[8] Their symptoms include continuous falling of hair, pruritis, mild scaling and loss of hair eruptions in the affected region. *Pancharatna Kalimbu*is a simple preparation mentioned in *Parambarai Kannusamy Vaithiyam* especially for the treatment of *Puzhuvettu*.[9] This medicine can be used a standalone drug in the treatment of Alopecia areata. As this is topical medicine, it can be administered to children who resist taking any kind of internal

**DOI:** 10.5530/jyp.2024.16.109

medicines, injections, or other treatments. The uniqueness of this case lies in its use of traditional Siddha medicine, a non-invasive and child-friendly approach. Hence, this case report proves it efficacy which may be effective as a best alternate for treating children.

## PATIENT INFORMATION

A 7-year-old young girl with complaints of scattered patchy hair loss with mild itching in the back of scalp region for the past six months came to Out-Patient department of *Kuzhanthai Maruthuvam* (Siddha Paediatrics) at National Institute of Siddha accompanied by her mother. She reported that her child had mild itching in some regions of scalp and gradual increase in hair loss especially in the back of the scalp for the past six months. Also, the hair in the above-mentioned regions were noticeably thinning in the course of period. Prior to her visit to our OPD, she already consulted a dermatologist at her home town Vellore, where she was diagnosed with Alopecia areata. There she was prescribed with a topical application and deworming medicine. As she has no significant improvement, she visited our hospital at Chennai. The girl doesn't have any previous history of hair loss or any other skin related ailments. Further, she also had no other relevant family history, medical history and do not take any regular medications. Her mother denied any family history related to her child's condition. Her mother mentioned about a stressful life event that the girl had gone through before six months and no other significant physical or emotional stress in the meantime.

## CLINICAL FINDINGS

The patient presented with the complaints of patchy hair loss and thinning of hair in the occiput region of the scalp for the past six months. On physical examination, the hair shaft was found with normal caliber and length, with no signs of inflammation, wear or scarring. No erythema, desquamation or other abnormalities were noted on the scalp or surrounding skin. Patient was diagnosed with Alopecia areata by the dermatologist from their home town.

**General Examination:** Upon examination, the patient displayed satisfactory orientation, with a lean built and normal nutritional status. The presence of a pale appearance of the palpebral conjunctiva indicated anemia, while no signs of jaundice or cyanosis were observed and clubbing was absent. Vital signs were within normal ranges, with a temperature of 98.4°F, a pulse rate of 80 beats/min, a heart rate of 85 beats/min, a respiratory rate of 22 breaths/min and a blood pressure of 110/70 mmHg.

Siddha Examination Assesement Parameters (*En Vagai Thaervugal*): Upon Siddha system of examination, the patient's tongue (*Naa*) exhibited a healthy pink color, devoid of any coating, cracks, fissures, or ulcerations, with normal taste sensation (Pulan). The skin (*Niram*) appeared pale, while speech (*Mozhi*) was characterized by normal-toned articulation without any slurring. Eye examination (*Vizhi*) revealed normal color and features, with unimpaired vision (*Pulan*). Upon touch (Sparisam), the affected part of the scalp exhibited a smooth texture. Stool examination (*Malam*) indicated normal color, absence of froth (Nurai) and a semi-solid consistency (*Elagal*). Urine analysis (*Moothiram)* unveiled straw-yellow color, normal specific gravity (*Adarthi*), odor (*Manam*) and the absence of deposits (*Enjal*), with the oil instillation test revealing a snake-like pattern. Finally, the pulse (*Naadi*) was identified as *Vali IyyaNaadi.*

## TIMELINE OF THE CASE

The Timeline of the clinical findings of the patient throughout the course of treatment was mentioned in Table 1. This explains all the symptoms the patient had from DAY I to the complete recovery of the patient. It took three months for the patient to completely recover and have normal hair density in the affected regions of scalp.

## DIAGNOSTIC ASSESSMENT

Routine blood investigation did not reveal any systemic diseases or any other illness relevant to Alopecia areata. Haemoglobin was found to be 10.6 g% which confirms that the patient was anemic. The other investigations in CBC were within the normal limits. Fasting Blood Sugar level was found to be 95.6 mg/dL. As she was already diagnosed with *Alopecia aerata* by a well-renowned dermatologist, scalp biopsy was not performed.

### The prognosis was assessed through the improvement in clinical findings

### Therapeutic Intervention

#### *Viresanam-Therapeutic Purgation*[10]

As the first step of treatment protocol, therapeutic purgation was planned to normalize the vitiated *vatha* humour. As per the protocol, on day 1, the patient was given *Murukkan Vithai pills*

**Table 1: Timeline of the Clinical Findings.**

| Date | Patient Condition |
|---|---|
| Day 1 (12.09.2019) | Patient had complaints of patchy hair loss with mild itching in the back of the scalp for the past six months. Thinning of hair was also present. No visible hair roots at the affected parts. |
| Day 30 (11.10.2019) | Itching was started to reduce from the second week of treatment. Thinning of hair persists. No new hair growth was seen. |
| Day 60 (10.11.2019) | No itching at the affected area. Hair fall was reduced noticeably. The hair density was improved in the affected regions of scalp. |
| Day 90 (09.12.2019) | The affected part was completely normal as of the other regions of scalp in the aspect of hair density. |

**Table 2: Ingredients used in the preparation of PancharatnaKalimbu.[11]**

| Sl. No. | Chemical Name of ingredients | Tamil Name of ingredients | Ratio Used in the Formulation |
|---|---|---|---|
| 1. | Hydrargyrum | Rasam | 1 part |
| 2. | Sulphur | Gandhagam | 1 part |
| 3. | Magnitic oxide of iron | Kaantham | 1 part |
| 4. | Red Sulphide of Mercury | Lingam | 1 part |
| 5. | Sodium Biborate | Vengaaram | 1 part |

Note: All the above-mentioned ingredients were ground with cotton seed milk for 6 hours and used as topical ointment.

**Figure 1:** Occiput view of scalp showing patchy hair loss- Before Treatment.

(1 pill) with warm water in empty stomach at early morning 6 AM. She had four times of slimy and loose stools without any discomfort in stomach. The patient was refrained from breakfast and only allowed to drink warm water till the effect of purgative medicine fades away. On the day of purgation, food is provided to the patient based on her digestive fire *(Agini),* i.e., only if the patient feels hungry. The ideal food is porridge cooked with moong dhal or red rice porridge. The drug used for *Viresanam* was chosen depending upon the patient's body constitution, age, season, digestive capacity, deranged humour, immune status, etc. Dietary restrictions should be followed stringently to get maximum result.

## Siddha Topical intervention

From the next day onwards, the patient was advised to apply the topical medicine, *Pancharatna Kalimbu* (Table 2) on the affected area twice a day. She was not given any other internal medicines. Yet, she was advised to follow certain lifestyle modification like avoiding hairstyles such as tight braids that stress the hair and to use gentle products on her hair. Patient and her mother were well informed about the nature of the disease and the need of therapy for a long term. The patient was advised to revisit our OPD every once in a month to monitor the prognosis. By the end of one month, the child's mother mentioned that the itching was begins to reduce gradually after two weeks of treatment. At the end of second month, the patient noticed less shedding of hair and also there were improvement in the hair density. At the end of third month, the patient reported note note-worthy prognosis in hair growth particularly in the patches where the hair was lost earlier. Adding further to that, there were no new patches of hair loss.

**Figure 2:** Occiput view of scalp showing patchy hair loss- After Treatment of 90 days.

## FOLLOW-UP AND OUTCOME

The therapeutic purgation was given to the patient without any complications and also, she seems to be fine without any complication even when observed after the procedure. After the purgative procedure, the prescribed topical medicine was applied twice a day daily. The first outcome was noticed after the second week of treatment. Itching was completely reduced even though thinning of hair and hair loss persists. At the beginning of second month, the eruptions of hair were well seen and the hair fall also reduced gradually. On day 60, it was noticed that there was a noticeable increase in the density of hair. After day 90, affected part seems to be completely normal as of the other parts of the scalp (Figures 1 and 2). The density of hair in the affected area was assessed using SALT score system and it is reduced from 7.6 to 3.4 (Table 3) within three months with a topical application as a standalone medicine. There was no adverse event noted during the treatment period.

**Table 3:** **Prognosis Assessment based on SALT Score-Before and After Treatment.**

| Area | SALT Score (Day 0) | SALT Score (Day 90) |
|---|---|---|
| Vertex | 0 | 0 |
| Left Scalp | 0 | 0 |
| Right scalp | 0.4 | 0 |
| Occiput | 7.2 | 1.4 |
| Total Score | 7.6 | 1.4 |

## DISCUSSION

Alopecia areata is clinically presented by progressive hair thinning in a certain pattern, with the front and crown regions of the scalp being the most frequently affected areas. The precise cause of alopecia areata is not yet well-known, but it is believed to be due to genetic and environmental factors.[12] The pathophysiology of *Alopecia aerata* is complex, involving suppression of surface molecules required for presenting autoantigens to CD8+ T lymphocytes (i.e., MHC class I).[13] The impact of this disease is severe as it causes distortion of one's personality and image. Even though, there are many treatment options like oral medications, topical applications, hair transplantation, Immunotherapy and low-level laser therapy,[14] not a single therapy assures complete cure. Also, these medications are expensive and are having side effects upto certain level.[15,16]

In this case, the patient was diagnosed as alopecia areata based on her clinical history and examination findings by the local dermatologist from her hometown. According to Siddha system of medicine, this is termed as *Puzhuvettu* and its cause is explained in *"Gurunaadi Nool"*. Based on the phrase from this literature, *"Puzhukadi Pol Kaanumadhu Kirumiyalae"*, explains that *Puzhuvettu* is caused mainly by infection.[17]

Moreover, based on the principles of Siddha, imbalanced or excessive *vatham* leads to a variety of health problems, including skin ailments.[18] *Viresanam* (Therapeutic purgation) done as the first step of management, balanced out the vitiated *vatha* humor.[19] *Murukkan Vithai*, the drug used for purgation is used in the form of tablet or powder, to treat worm infestations (anti-parasitic properties) and to promote purgation or bowel movements.[20] So in this case, *Murukkan Vithai* tablet was used to normalize *vatham*.

After balancing the three humors, the direct medicine for treating Alopecia areata was chosen to be *Pancharatna Kalimbu.* This is a topical medicine indicated for *Puzhuvettu* (*Alopecia areata*) in the Siddha literature. The medicine is believed to promote hair growth by any one of the following reasons like more flow of blood to the hair follicles, alleviating infection, by directly targeting the hormones or enzymes involved in hair growth, etc.

The extent of hair loss was analyzed using Severity of Alopecia Tool (SALT) score method. In this study, treating with *Pancharathna Kalimbu* resulted in a significant regrowth of hair in the affected regions of scalp within three months of treatment. The prognosis was assessed by calculating SALT score before and after treatment. In the right side of scalp, 0.4 score was reduced to nil and in occiput region, 7.2 was reduced to 1.4. No hair loss was found in vertex and left scalp. The total score before treatment was 7.6 which were significantly reduced to 1.4 after treatment of 3 months. The exact mechanisms by which the Siddha treatment promotes hair regrowth are not well understood or explored in the study. Further research into the pharmacological actions of the ingredients used in *Pancharatna Kalimbu* is necessary, which is the limitation of the study.

## CONCLUSION

Side effects, affordability, palatability, regularity in having medicines were few limitations in other treatment options for Alopecia areata. Siddha medicine acts as a best alternate in all aspects to overcome these limitations. This particular drug, *Pancharathna Kalimbu* shows remarkable improvement within few months and is also cost-effective where palatability is not a big concern as it is only for topical application. This result may leads to future studies with more number of patients to prove its efficacy in a significant way.

## PATIENT'S PERSPECTIVE

The patient's mother-"While bringing my child to this hospital, she had patchy hair loss with itching in her scalp region. After taking purgative medicine, itching reduced within week's time. She was too young and usually don't co-operate in regular medicine intake. Since, here they prescribed only external medicine, it is very convenient to make her follow the medicines regularly. This gives remarkable changes to my daughter".

## ACKNOWLEDGEMENT

We would like to express our sincere gratitude to the National Institute of Siddha, Chennai, for providing the necessary resources, facilities, and support to conduct this study. The expertise and guidance of the faculty and staff have been invaluable in the successful completion of this research.

## CONFLICT OF INTEREST

The authors declare that there is no conflict of interest.

## ABBREVIATONS

**OPD:** Out-Patient Department; **CBC:** Complete Blood Count; **SALT:** Severity of Alopecia Tool; **FBS:** Fasting Blood Sugar; **T-cell:** Thymus-derived lymphocytes (T-lymphocytes); **MHC:** Major Histocompatibility Complex.

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**Cite this article:** Elangovan P, Ramaswamy G, Thangamani S, Arumugam M, Ananthathandavan P. Validation of Siddha Medicine in the Treatment of Alopecia areata in Paediatric Patient-A Case Report. J Young Pharm. 2024;16(4):856-60.