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Review paper

Trichoscopic Findings in Alopecia Areata Incognita and Diffuse Alopecia Areata:

Hospital Based Observational Study

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KEYWORDS

Alopecia areata
Trichoscopy
Platelet Rich Plasma
Hair loss

ABSTRACT

Alopecia areata is a common, chronic, inflammatory disease that causes non scarring hair loss. In several cases, alopecia areata is characterized by a diffuse and acute pattern of hair loss, defining alopecia areata incognita (AAI) and diffuse alopecia areata (DAA). These variants cause widespread thinning of the scalp and lack the typical patches of AA and are therefore often misdiagnosed. Trichoscopy is a non-invasive tool to evaluate hair disorders and to predict the disease course.

1. Introduction

An autoimmune condition called alopecia areata is described as chronic disease with non-scarring hair loss with an unpredictable and variable course while maintaining the integrity of the hair follicle. In addition to diffuse or complete hair loss that can impact all hair-bearing areas, hair loss can also occur in well-defined patches.(1)

Increased catagen and telogen follicle counts and an inflammatory lymphocytic infiltration in the peribulbar area (sometimes known as a "swarm of bees") are characteristics of histopathology.(2)

Clinically, trichotillomania, androgenetic alopecia (AGA), and telogen effluvium are typically the differential diagnoses. In AA, hair loss is often spotty, but in telogen effluvium, it is widespread over the whole scalp.(3) A widespread and acute pattern of hair loss is a common feature of alopecia areata, which distinguishes diffuse alopecia areata (DAA) from alopecia areata incognita (AAI). These variations are frequently misdiagnosed because they result in broad scalp thinning and lack the characteristic AA spots..(4)

A simple and practical method for observing hair loss is Trichoscopy. As it may be performed immediately,

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without the need for any intervention, it is one of the most used diagnostic tool. Trichoscopic characteristics of AA include broken hairs, tapering hair (exclamation marks), short vellus hairs, black spots, and yellow dots.(5) Broken hair, tapering hair, and black spots are signs of active illness. Black dots and yellow dots are proportional to severity of AA, and tapering hair does not have any correlation with severity. Yellow spots are also seen in AGA, although they are less numerous in AA. Single feature on dermoscopy may not be diagnostic of AA, but a combination of features are helpful in detecting difficult cases like AA incognita.(6)

Fig. 1 Clinical variants of AA a) Patchy Alopecia; B) Sisaipho Pattern; C) Ophiasis Pattern; d) Alopecia Totalis.(7)

2. Aim

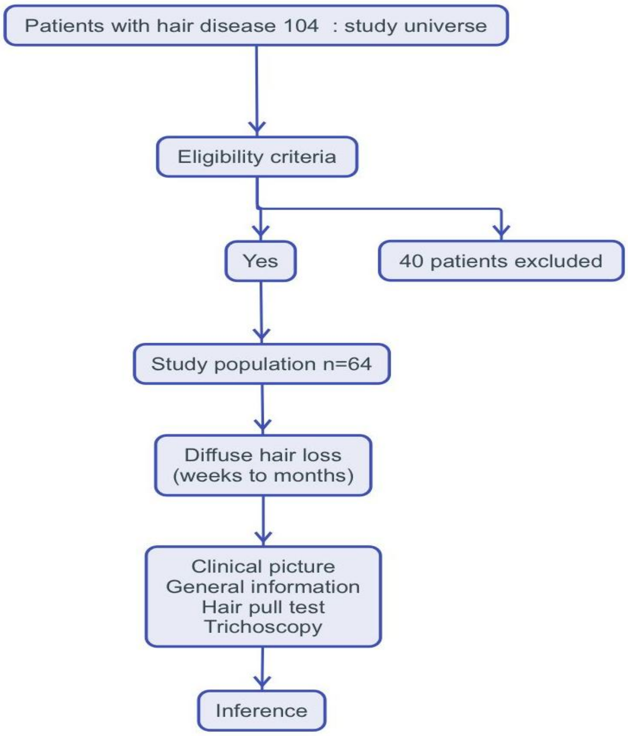
To study the Trichoscopic features of AAI and DAA.

3. Objective

To analyse the clinical and trichoscopic features of AAI and DAA and to undermine the major differences between them for diagnostic confirmation.

4. Material and Method

The study was conducted in 104 patients enrolled with hair disease at the outpatient consultation of dermatology at MGUMST from Jan' 21 to June '22. Trichoscopy was performed and findings were noted. General patient information was collected including age of onset, clinical history of disease, history of stress or illness, any relevant past medical or surgical history and previously prescribed therapies. Each patient was subjected to global photography, pull test and Trichoscopy.



Flowchart 1 Methodology of the Study

4.1 Exclusion Criteria

- Patients of scalp dermatosis with secondary bacterial infection.
- Patients with localized hair loss.
- Patient not giving consent for the study.

4.2 Inclusion Criteria

- Patients with diffuse hair fall.
- Consenting individuals.
- No known case of any other systemic disorders.

5. Results

DAA had a greater involvement of the parietal and anterior-temporal regions while AAI mainly involves the occipital and parietal regions. Most common trichoscopic finding were empty yellow dots (DAA 75% and AAI 8.9%), yellow dots with vellus hair (52%) and small hair in regrowth but the presence of Pigtail hair (40.38%) was very frequent and exclusive of AAI. In DAA dystrophic hair and black dots are more frequent (36%).

6. Limiations of the study

- Small sample size.
- Biopsy was not taken.
- Limited duration of the study.

7. Discussion

Both sexes are equally affected by the 2% lifetime incidence of AA, which is more common in children than in adults. The first signs of AA appear by the age of 20 in 40% of patients and by the age of 40 in 83% to 88% of patients.(8) The prevelance of AA varies greatly geographically. Global incidence is rising with time, and is lower in adults than in children.(9)

Table Differential Diagnosis of AA

AAI	DAA	AGA	TE
Empty yellow dots, yellow dots with vellus hair, pigtail hair, regrowing small hair	Empty yellow dots , yellow dots with vellus hair, pigtail hair, dystrophic hair and black dots	Miniaturized hair, hair diameter heterogeneity >20% peripilar sign	Absence of features Upright regrowing hair

A physical examination and the patient's clinical history are part of the diagnosis, which is based on clinical findings. Important prognostic information about the disease and its treatment may be obtained by evaluating the disease's activity and severity and with the help of Trichoscopy.(10)

Fig. 2 Black dots in AA, seen under Trichoscope

Trichoscopy is the term used to describe the use of dermoscopy on the hair and scalp. This practical method lessens the need for more intrusive treatments like biopsies and is straightforward, non-invasive, and simple to learn. Dermoscopy can be used in the dermatological clinic to better diagnose AA, check treatment control, identify indicators of severity, measure inflammatory activity, and uncover prognostic variables.(11)

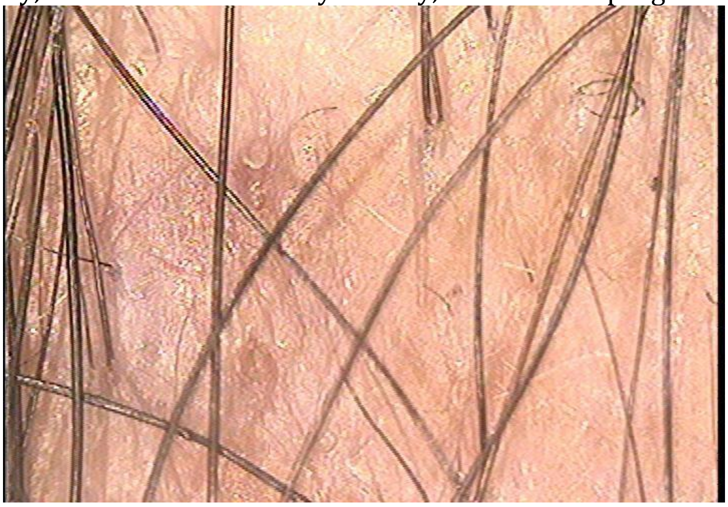


Fig. 3 Pigtail Hair in AA, seen under Trichoscope

Fig. 4 Yellow hair in AA, seen under Trichoscope

Since yellow dots are more common in chronic types of AA, where they are widely dispersed and extremely numerous, they serve as a severity indicator. Clinically, yellow dots are dilated infundibula filled with sebum.(12) Broken hairs with a thicker, hyperpigmented distal end and a thin, hypopigmented proximal end are known as exclamation mark hairs. They might be the consequence of impaired cortical development or due to transient cellular degeneration.(13) Similar to a comedo, black dots are pigmented hairs that break at the scalp's level when the root is still attached to the follicle opening. They are indicative of inflammatory injury to the hair follicle, which causes the proximal part of the hair shaft to weaken and mitotic activity to abruptly stop.Therefore, in AA, as soon as the hair exits the follicle opening, it breaks.(12)

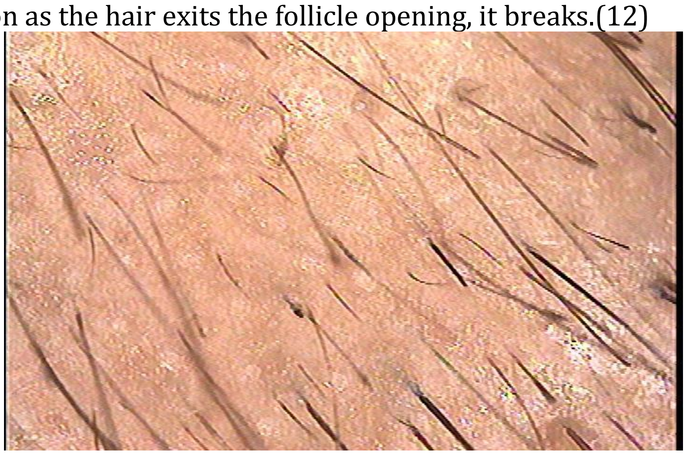


Fig. 5 Vellus hair in AA, seen under Trichoscope

Although the precise pathophysiology is still unknown, the most widely accepted notion is that certain parts of the body have a collapsed immunological privilege system.(14) A cross-sectional fracture of a previously compromised hair shaft results in broken hairs. The rapid growth of partly damaged hair, which appear as black spots, may potentially be the cause. Broken hairs are short and have a normal-looking hair shaft, with the exception of the distal end, which is twisted and uneven, in contrast to exclamation mark hairs, which have a fine and hypopigmented end.(13)

Fig. 6 Distropic hair in AA, seen under the Trichoscope

The treatment options of AA are mentioned in the table below. New therapy approaches, including biologics, Janus kinase (JAK) inhibitors, and a number of small molecular medicines, have been developed as a result of recent discoveries into the pathophysiology of AA. Furthermore, antihistamines, platelet-rich plasma (PRP) injections, and other cutting-edge treatments have been thoroughly investigated as contemporary treatments for AA.(4) Regrowth, spontaneous illness remission, and a positive response to therapy are indicative of good treatment response.(10)

Table 2 Treatment options in AA.(5)

Topical	Systemic	Miscellaneous	Ineffective
Corticosteroids[5,29,63-65]	Corticosteroids[63-65,78-87]	Cyclosporine A[91]	Calcineurin inhibitors[97,98]
Minoxidil[66-68]	Sulfasalazine[88,89]	Methotrexate[92]	Biologicals[99,100]
Anthralin[5,65]	PUVA[90]	Azathioprine[93]	NBUVB[101]
Immunotherapy[69-72]		Capsaicin[94]	
Phototherapy[73,74]		Topical bexarotene 1% gel[95]	
Prostaglandin analogues[75-77]		Camouflage[96]	

8. Conclusion

Trichoscope is a very useful tool in the differential diagnosis between the two diseases and to select the site for biopsy. One must consider these entities while making a diagnosis of diffuse hair thinning.

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