



TRICHOSCOPIC FINDINGS TO DETERMINE DISEASE ACTIVITY IN PATIENTS WITH ALOPECIA AREATA

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ABSTRACT

Aim: To assess the role of trichoscopy in determining the disease activity of patients with alopecia areata (AA).

Methods: This is a comparative descriptive study conducted in Department of Dermatology, Amala Institute of Medical sciences, Thrissur for a period of one and a half years, on patients who were diagnosed clinically as AA. Hair pull test was done on them to find out whether the disease is stable or active. Trichoscopy was done on each patch of these patients to find out the characteristic features of AA, and hair pull test and trichoscopy were compared in order to assess the disease activity of AA. Sample size was 128 patients.

Results: In our study out of 252 patches, yellow dots (YDs) were present in 97.2%, black dots in 79.76%, exclamation hair in 60.71%, vellus hair in 38.49%, kinked hair in 28.57%, broken hairs in 53.17%, white hairs in 60.71% and split hairs in 38.49%. Hair pull test was positive in 155 patches while it was negative in 97 patches.

Conclusion: Trichoscopy is an important tool in the present scenario as it is simple, non invasive and helps in assessing the disease activity.

KEYWORDS : Alopecia areata; Black dots; Broken hair; Exclamation hair; Kinked hair; Trichoscopy; Yellow dots

INTRODUCTION

Structures which may be visualized by trichoscopy include hair shafts of different types: vellus, terminal, micro-exclamation mark type, monilethrix, Netherton type, and pili annulati hairs. The number of hairs in one pilosebaceous unit may be assessed. It may be distinguished whether hair follicles are normal, empty, fibrotic ("white dots"), filled with hyperkeratotic plugs ("yellow dots") or containing cadaverized hair ("black dots"). Abnormalities of scalp skin color or structure which may be visualized by trichoscopy include honeycomb-type hyperpigmentation, perifollicular discoloration (hyperpigmentation) and scaling¹.

AIM OF STUDY

To assess the role of trichoscopy in determining the disease activity of patients with AA.

OBJECTIVES

- To assess trichoscopic features of alopecia areata patients in order to assess the disease activity and severity
- To assess the disease activity in alopecia areata patients using hair pull test
- To compare trichoscopy with hair pull test to assess the disease activity in alopecia areata patients

MATERIALS AND METHODS

This was a comparative descriptive study conducted on outpatients attending the department of Dermatology, Amala Institute of Medical sciences, Thrissur. The study was conducted for a period of one and half years (January 2015-June 2016) after obtaining approval from the Institutional ethical committee. The patients included in the study were those who were diagnosed clinically as AA attending the dermatology OPD of Amala Medical College, Thrissur.

Inclusion criteria

- Patients diagnosed to have AA of age 10-70 years of either sex attending the Dermatology OPD, Amala medical college, Thrissur after taking a written informed consent.

Exclusion criteria

- Pregnant and lactating women.
- Alopecia universalis
- Alopecia totalis
- AA on beard area with short hair where hair pull test cannot be done.

DATA COLLECTION

After getting a written informed consent from the patient, hair pull test was done on them to find out whether the disease is stable or active clinically. Trichoscopy was done on each patch to find out the

characteristic features and thus assess the disease activity. Hair pull test and trichoscopy were then compared in order to assess the disease activity of alopecia areata.

Hair pull test – Approximately 60 hairs were grasped (from 4 sites around the patch) from the proximal portion of the hair shafts at the level of the scalp. The hairs were then tugged from proximal to distal end. The number of hairs extracted were counted. It is normal to pull up to 6/60 (<10%) hairs. More than 6/60 hairs is a positive pull test an implies pathology².

Trichoscopy - Trichoscopy was performed with a handheld dermoscope or a videodermoscope on the AA patch and features are analysed. Yellow dots, vellus hairs, black dots, micro-exclamation mark hairs, kinked hairs, broken hairs, tapered hairs include various trichoscopic features of AA.

STATISTICAL ANALYSIS

The test used for analysis was Chi-square test and Fisher's exact test. Sample size was calculated using N master. Data analysis was done using SPSS ver.23.

RESULTS

The present study comprised of 128 patients with alopecia areata, who attended Department of Dermatology and Venereology of Amala Institute of Medical Sciences from 1/1/2015 to 30/6/2016.

Age and sex distribution

Of the 128 patients in the study 61 (47.7%) were females and majority were males 67 (52.3%). The youngest age was 10 years and oldest was 65 years. Mean age of the study population was 28.13±14.48 years. Majority of the patients were in the age group of 21-30 years (31.1%) and least was 61-70 years age group which was 1.6%.

Hair pull test

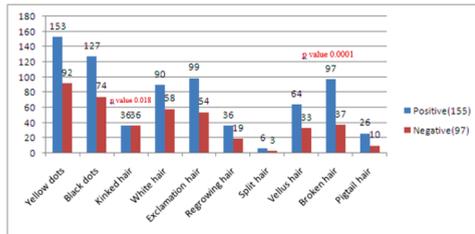
Of the total number of patches 155 had positive hair pull test while 97 patients had negative hair pull test.

Table 1: Hair Pull Test

HAIR PULL TEST		TOTAL
Positive	Negative	
155	97	252

Statistical analysis

Statistical analysis was done using 'Chi square test' and 'Fisher's exact test'. On analysis it was found that kinked hair and broken hair correlated significantly with hair pull test with P values 0.018 and 0.0001 for both respectively, while the rest of the trichoscopic features showed no significant correlation.

Diagram 1: Correlation of trichoscopic features of alopecia areata and disease activity

DISCUSSION

Alopecia areata usually occurs in young adults, and its incidence peaks between 20 and 25 years of age³. The first disease episode typically presents before 20 years of age^{3,4}. In our study 25% had disease onset between 20-30 years, 24.2% had disease onset between 11-20 years while 12% had history of onset before 10 years.

In our study males were 52.3% and females were 47.7% which is almost showing equal incidence. There is no clear conclusion about whether the disease varies according to sex.

Hair pull test is one non invasive method by which we can assess the activity of the disease. In our study hair pull test was positive in 155 patches while it was negative in 97 patches. The negativity can be because of the treatment modification of the cases.

There are not much evidence in literature on dermoscopic features of AA on Indian patients. Dermoscopic features that are correlated with active disease vary in most of the studies as per literature, but finding such trichoscopic features will definitely aid in assessing the activity of the disease and prognosis as well as help us in avoiding an invasive procedure. Yellow dots (Yds), black dots, short vellus hairs, exclamation mark hair and broken hair are the common dermoscopic findings of AA reported in the literature. Other features that can be present include kinked hair, white hair, regrowing hair and rarely split hair and pigtail hair.

Peter et al.⁵ in their study of AA patients from a tertiary care center in South India, reported that the commonest dermoscopic finding was black dots (75%), followed by broken hairs (67%) and YDs (42%). In another study⁶, YDs and short vellus hairs, were more commonly seen when compared to other dermoscopic findings. Inui et al.⁷ in their dermoscopic study of 300 Japanese patients with AA, reported 72.7% frequency of short vellus hair, 63.7% of YDs, 45.7% of broken hair, 44.3% of black dots and 31.7% of tapering hair.

De Moura et al.⁸ reported the presence of YDs in 95% of AA patients in all stages of the disease and stated that YDs were a specific finding for alopecia areata. In our study out of 252 patches, YD was present in 97.2% (245 patches) which is comparable to the previous reports but it was not statistically significant while correlating with the disease activity and the p value was 0.073. Hence yellow dots seem to be more of diagnostic value rather than a marker of disease activity.

Black dots as remnants of exclamation mark hairs or broken hairs provide a sensitive marker for disease activity as well as severity of AA⁷. However, this finding is not readily appreciable in the White population⁹. Inui et al.⁶ demonstrated black dots in 44.3% (133 out of 300 cases) of AA cases. In our study black dots were seen in 79.76% (201 patches) which is slightly more than previous studies and it did not correlate with the disease activity as the p value was 0.278. Hence black dots which are present frequently in AA patches are not a marker of activity as our values did not show statistically significant correlation with activity.

"Tapering hair is commonly seen in AA⁷. The narrowing of hair shafts toward the follicles is more readily perceived using dermoscopy than by naked eye. Inui et al.⁷ demonstrated tapering hairs in 31.7% (95 out of 300 cases) of cases. In one study, tapering hairs were seen in 12.1% (8 of 66 patients)¹⁰. In AA, dermoscopy characteristically shows exclamation mark hairs, particularly along the edges of the patches where the activity of the disease is greater says another study¹¹. No correlation was found between tapering hair and severity of the disease says Inui et al.⁷. Exclamation mark hair was 60.71% (153 patches) in our study which is almost double that of previous studies and it was not statistically significant (p value=0.195). Hence tapering hairs are not a

marker of disease activity and may be considered as a hallmark diagnostic feature of AA.

The regrowth of short vellus hairs after treatment can easily be seen in dermoscopy⁹ even when the recovered hairs are hardly visible by naked eye. These are seen as new, thin, and unpigmented hairs within the patch.¹² Vellus hairs may be straight or thin and twisted which are usually lost in a few weeks¹³. The pigmented skin of Asian patients helps in easy detection of vellus hairs¹⁰. Short vellus hairs correlated negatively with both disease activity and severity^{9,12}. In one study short vellus hair were present in 40.9%¹⁰. In our study vellus hair was present in 38.49% (97 patches) which is comparable with previous studies and it is not a marker of disease activity in AA. Upright regrowing hair in or study was seen in 55 patches (21.82% and pigtail regrowing hair in 36 patches (14.28%). Therefore regrowing hairs/vellus hairs are good prognostic markers in AA.

Kinked hair is a feature of active AA of recent onset⁷ and it was present in 72 patches (28.57%) in our study and it correlated significantly with a p value of 0.018. Kinking of hair may be present at sites with or without shaft abnormalities. There are not much previous studies with similar findings.

Inui et al.⁷ demonstrated broken hairs in 45.7% (137 out of 300 cases) of alopecia cases, which is comparable to another study which had 55.4%¹⁰. They also reported that black dots, tapering hairs, and broken hairs correlated positively with disease activity⁷. Lacarrubba et al.¹² in their dermoscopic study of AA reported that broken/cadaverized hairs were found most commonly in acute AA and their presence indicated progressive disease activity. Broken hairs were seen in 134 patients (53.17%) in our study which is comparable to the previous studies and also correlated with disease activity with a significant p value.

CONCLUSION

Trichoscopy is an important tool in assessing the disease activity of AA, which is confirmed by this study. In this study broken hairs and kinked hairs correlated statistically with disease activity with p values of 0.0001 and 0.018 respectively.

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