Comparison of Dermoscopic Patterns at the Center and Periphery of Alopecia Areata Patch – A Cross-sectional Study in 100 Patients

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ABSTRACT

Background: Dermoscopy is a noninvasive tool for the diagnosis of various dermatological disorders. Dermoscopy of alopecia areata (AA) aids in confirming the diagnosis and severity of the disease. Materials and Methods: A total of 100 patients of AA were evaluated with a dermoscope (×20 and ×200) to determine the dermoscopic features at the center and periphery of patches of AA. Results: Black dots were the most common dermoscopic finding at the periphery of AA patch among the study population, followed by yellow dots, vellus hair, broken hair, tapering/exclamation mark hair, kinking at the point of emergence of a hair shaft, piggy tail hair, and depressed follicular opening. At the center of the patch, yellow dots were the most common dermoscopic findings among the study population, followed by black dots, vellus hair, broken hair, and piggy tail hair. Conclusion: Black dots were the most common dermoscopic findings at the periphery of the patch. Yellow dots were the most common dermoscopic findings at the center of patch among the study population. Kinking at the point of emergence of the hair shaft was a new sign in this study seen at the periphery of the patches in 19 patients. It is the latest finding which requires further elaboration with larger sample size studies.

Key words: Alopecia areata, black dots, dermoscopy, kinking at the point of emergence of a hair shaft, yellow dots

INTRODUCTION

Dermoscopy is a noninvasive, useful tool for the clinical diagnosis of alopecia areata (AA). Characteristic trichoscopic findings in AA involve black dots, exclamation mark hair (tapering hairs), broken hair, yellow dots, and clustered vellus hairs. Pigtail hairs, coudability hairs, and Pohl–Pinkus constrictions are also seen.

There have been several studies on dermoscopic signs in AA. However, there is no study comparing dermoscopic findings at the center and periphery of the same patch. Hence, we undertook this study.

MATERIALS AND METHODS

This study was carried out in 100 patients of AA visiting the dermatology outpatient department of a tertiary care center in Mumbai. The duration of the study was 18 months. The institutional ethical clearance was obtained. Patients were diagnosed after a detailed history and clinical examination. Ambiguous cases were confirmed by scalp biopsy. Patients with alopecia universalis were excluded from the study.

The dermoscopy was performed with the OITEZ e-scope DP-M17 filter e-scope pro on the patch of AA. The patch of AA was divided into two parts as a periphery of patch and center of the patch. The periphery of the patch
RESULTS

As shown in Chart 1, black dots (75%) were the most common dermoscopic finding at the periphery of AA patch among the study population, followed by yellow dots (59%), vellus hair (49%), broken hair (46%), tapering/exclamation mark hair (26%), kinking at the point of emergence of hair shaft (19%), telangiectasia (6%), coudability sign (5%), piggy tail hair (4%), depressed follicular opening (3%), and Pohl–Pinkus constrictions (2%).

DISCUSSION

In the present study, black dots (75%) [Figure 1] were the most common dermoscopic findings at the periphery of AA patch among the study population, followed by yellow dots (59%) [Figure 2], vellus hair (49%), broken hair (46%) [Figure 1], tapering/exclamation mark hair (26%) [Figure 3], kinking at the point of emergence of hair shaft (19%) [Figure 4], telangiectasia (6%), coudability sign (5%), piggy tail hair (4%), depressed follicular opening (3%) [Figure 5], and Pohl–Pinkus constrictions (2%).

In the present study, yellow dots (88%) [Figure 6] were the most common dermoscopic findings at the
broken hair (8%), telangiectasia (3%), and piggy tail hair (1%) [Figure 7].

Similarly, in a study conducted by Mane et al.,[1] the authors have analyzed 66 patients of AA and observed yellow dots, black dots, broken hairs, short vellus hair, and tapering hairs in 81.8%, 66.6%, 55.4%, 40.9%, and 12.1% of patients, respectively.

Similarly, in a study conducted by Inui et al.,[2] the authors have analyzed 300 Asian patients with AA and reported dermoscopic findings and their relationship with disease activity and severity. According to the authors, yellow dots, short vellus hairs, black dots, tapering hairs, and broken hairs were seen by dermoscopy in only 63.7%, 72.7%, 44.3%, 31.7%, and 45.7% of AA patients, respectively.
**Yellow dots**

Yellow dots are a powerful new tool in the diagnosis of hair loss diseases initially proposed by Ross et al.[3] Yellow dots are marked by a distinctive array of yellow to yellow-pink, round or polycyclic dots that vary in size and are uniform in color. They represent distention of the affected follicular infundibulum with keratinous material and sebum. In AA, degenerating follicular keratinocytes probably constitute the bulk of the yellow dots. In a study conducted by Inui et al.,[4] yellow dots were seen in 63.7% (191/300) of cases in contrast to Ross et al.’s study where 94.8% of cases with AA had yellow dots (55/58 cases).[4] Mane et al.[5] reported an incidence of 81.8% among 66 patients. The incidence of yellow dots in our study was 59% at the periphery and 88% at the center of the patch.

**Black dots**

Black dots (formerly “cadaverized hairs”) which represent pigmented hairs broken or destroyed at the scalp level are characteristic of black-haired individuals.[6] This sign is not seen in foreign population due to the hair color and cuticle resistance. Black dots are remnants of exclamation mark hairs or broken hairs. These are a sensitive marker not only for disease activity but also for the severity of AA.[6] In our study, black dots were seen in 75% at the periphery and 39% at the center of the patch. Inui et al.[4] demonstrated black dots in 44.3% (133/300) of cases of AA, whereas 67.7% (44/66) of patients studied by Mane et al.[6] had black dots.

**Exclamation marks hairs/tapering hairs**

Exclamation mark hairs were seen in 31.7% (95/300) of cases of AA by Inui et al.[4] and 12.1% (8/66) of cases by Mane et al.[1] We noted exclamation mark hairs in 14 (26%) cases, which was consistent with the previous studies. Tapering hairs were seen at the periphery of the patch only. Tapering hairs were absent in patients presenting with duration of the patch for more than 1 year.

**Broken hairs**

Broken hairs, considered to be dystrophic hairs produced by the least severely affected follicles in AA, are clinical markers of the disease activity and severity. Inui et al.[4] demonstrated broken hairs in 45.7% (137/300) of alopecia cases, whereas 55.4% of patients had broken hairs in the study conducted by Mane et al.[1] Broken hairs were seen in 28 patients (46%) at the periphery and 8% at the center of the patch in our study.

**Short vellus hairs and pigtail hairs**

Lacarrubba et al.[4] described two patterns of hair regrowth in some patients with chronic AA: one was homogeneous and <10 mm long hair indicating early disease remission (upright vellus hair) and second was sparse, thin, and twisted vellus hair with characteristic circular hair pattern pigtail hair that was usually lost after few weeks. Regrowth of short vellus hairs after the treatment can be seen in dermoscopy even before they can be perceived by the naked eye. In the present study, short vellus hairs were seen in 49% at the periphery and 33% at the center of a patch of the patients, similar to Hegde et al.[5] study. Peter et al.[6] and Mane et al.[1] found a lower incidence of short vellus hairs. This variation in the incidences may be attributed to the difference in exposure of patients to various treatment modalities before being included in the study. Pigtail hairs were seen in 14% of the patients in the current study, whereas Peter et al.[6] reported it in 17.5% of the patients. As there were very few studies reporting pigtail hairs incidence, further studies with large sample size and follow-up are necessary to comment on its evolution and prognostic significance.

**Kinking at the point of emergence of hair shaft**

In the present study, we observed interesting dermoscopic finding like kinking at the point of emergence of hair shaft at the periphery of the patch. It was most commonly seen in patients presenting with the duration <1 month of a patch (31.60%). Out of 19 patients, 14 untreated and 5 treated patients showed this sign. This finding is unique and has not been described in previous studies. It may represent the earlier stage of a black dot. However, further studies with a larger sample size are required for further elaboration.

**CONCLUSION**

Our study showed an increased male preponderance of AA. The mean age of onset of AA was 25.43 with a mean duration of 8.14 ± 17 months. The scalp was more commonly involved. The parietal area was the most common site of the scalp among the study population. Black dots were the most common dermoscopic findings at the periphery of the patch. Yellow dots were the most common dermoscopic findings at the center of the patch among the study population. Kinking at the point of emergence of the hair shaft is the latest finding which requires further elaboration with larger sample size studies.
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Conflicts of interest

There are no conflicts of interest.

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