INTERNATIONAL JOURNAL OF CURRENT ADVANCED RESEARCH
ISSN: O: 2319-6475, ISSN: P: 2319-6505, Impact Factor: 6.614
Available Online at www.journalijcar.org
Volume 13; Issue 2; February 2024; Page No.2838-2842
DOI: http://dx.doi.org/10.24327/ijcar.2024.2842.1618

Research Article

DERMOSCOPY OF ALOPECIA AREATA AN OBSERVATIONAL STUDY

[1]Dr. Jatin Aseri, [2]Dr. Ram Singh Meena,*[3]Dr. Kanchan Kumawat, [4]Dr. Sapna Meena, [5]Dr. Mehul Choudhary, [6]Dr. Vandana Choudhary and [7]Dr. Vikas Purushottam

[1]Department of Dermatology, Govt. Medical College and Hospital, Hanumangarh, Rajasthan. India
[2,4,5,6,7]Department of Dermatology, Sawai Man Singh Medical college & hospital , Jaipur, Rajasthan. India
[3*]Department of Dermatology, RVRS Medical college & Hospital, Bhilwara, Rajasthan, India

A R T I C L E I N F O

Article History:
Received 20th December, 2023
Received in revised form 11th January, 2024
Accepted 20th February, 2024
Published online 28th February, 2024

Keywords:
Dermoscopy, Alopecia areata,Black dots, Activity, Severity

A B S T R A C T

Background: Alopecia areata is an immune-mediated T-cell attack on hair follicles, resulting in non scarring form of hair loss. It can range from mild, self-limited, focal alopecia to widespread, persistent, treatment-resistant alopecia. The present study was conducted to determine the association of dermoscopic findings with activity, severity, and clinical subtypes of alopecia areata. **Objectives**: To study various dermoscopic findings of alopecia areata and their relationship to alopecia areata disease activity and severity. To study various clinical patterns of alopecia areata and their relationship to dermoscopic findings. **Material and Method**: This was a hospital based cross-sectional study conducted in the outpatient department of Dermatology from May 2021 to June 2022 involving 100 patients with clinically diagnosed and untreated alopecia areata. Written informed consent was taken from all the enrolled patients and detailed history was obtained. Clinical pattern of alopecia areata was noted and dermoscopy using a non-contact, non-polarized digital dermoscope was done on all the patients. Chi-square test was applied to know the various associations. **Results**: Majority of patients belonged to 21-40 years of age. Male to female ratio was 2.70: 1. Mean duration of alopecia areata was 7.87 months. Majority of patients had progressive disease. Most common pattern of alopecia areata was patchy. Scalp was most commonly involved. Most of the patients had mild disease activity. Most common dermoscopic finding was black dots. Most common grade of alopecia areata was S1B0N0. **Conclusion**: No statistically significant association was seen between dermoscopic findings and clinical pattern , disease activity and severity of alopecia areata.

INTRODUCTION

Alopecia areata is a persistent, non-scarring kind of hair loss that can practically affect any portion of the body that has hair. The severity can range from minor bald patches, which typically come back on their own, to total alopecia, with a terrible outlook for hair restoration. The etiology of alopecia areata is still uncertain. Many factors have been described in its pathogenesis such as genetic, family history, the atopic state, non- specific immune and organ specific autoimmune reaction, emotional stress, diet, drugs and infectious agents.[1] Patients with alopecia areata are at a higher risk for developing serious depressive episode, anxiety disorder, social phobia, or paranoid disorder.[2] They also experience lower self-esteem, poor quality of life, and poor body image.[3] Alopecia areata is a potentially devastating condition for the patient. There's a need for rapid, non invasive yet fairly reliable method to quickly assist in establishing the diagnosis in order to plan the next line of management. Dermoscopy, also known as dermatoscopy, is a non invasive technique allowing rapid and magnified in vivo observation of the skin with the visualization of morphologic features often imperceptible to the naked eye.[4] The dermoscopic examination of the hair and scalp is known as trichoscopy.[5] It is performed with a handheld device or videodermoscope which allows rapid, real-time, high-resolution viewing at multiple magnifications, together with the ability to capture and store the projected images with ease.[6] Seen nowadays as the dermatologists' stethoscope, dermoscopy assists in the clinical examination and management decision in dermatology, as the stethoscope does for diagnosing heart, lung or abdominal problems.[7] Trichoscopy aids in differentiating alopecia areata from other conditions causing hair loss and shows features of the disease not seen by other means.[6] The standard methods used to diagnose scalp and hair disorders vary in sensitivity, reproducibility, and invasiveness. In patients with an equivocal clinical examination who require a scalp biopsy, trichoscopy provides a valuable link between clinical and histological diagnosis. The aim of this study was

Corresponding author:* **Dr. Kanchan Kumawat,
Assistant professor, Department of Dermatology, RVRS Medical college and Hospital, Bhilwara, Rajasthan. India.

to study dermoscopic findings in alopecia areata and their relation to disease activity, severity and clinical subtype.

MATERIALS AND METHODS

This was a hospital based cross-sectional study involving 100 patients with clinically diagnosed and untreated alopecia areata. Written informed consent was taken from all the enrolled patients and detailed history was obtained. In case of minors, written informed consent was obtained from their legal guardians. A pre-formed proforma was used to collect baseline data. Detailed history was taken and clinical and dermatological examination of all patients was done. Particular emphasis was laid on the initial site of presentation, duration of AA and progression 2 months prior to presentation. Triggering event within a year preceding the onset of AA, psychological impairment, history of recurrence, family and personal history of atopy, family history of AA and substance abuse was noted. Clinical pattern of alopecia areata was noted and dermoscopy using a non-contact, polarized digital dermoscope was done on all the patients. Chi-square test was applied to know the various associations.

Assessment and analysis

Data were entered in Microsoft Excel and analyzed using SPSS software. Cross-sectional statistics were used to show feature and characteristic of data. The association between the dermoscopic findings, activity and severity of the disease was statistically insignificant ($p > 0.05$).

RESULTS

Males constituted 73 % of the cases and male to female ratio was 2.70:1. Majority of the patients belonged to the age group of 21-40 years (59%) followed by 1-20 years (33%). Majority of the patients were students (52%). The mean duration of AA was 7.87 months (SD = 17.10 months). The most common initial site of occurrence was the scalp (76%), followed by the beard (22%). Majority of the patients had progressive disease (83%). 17% patients had stable disease. Triggering event was seen in 14% of the patients, namely stress, illness and emotional disturbance. Recurrence was seen in 31% of the patients. Itching was noticed only in 4% of the patients. The remaining 96% had asymptomatic hair loss. Atopy was noted in 6% of the patients. Family history of atopy was seen in 5% of the patients. 5% of the patients had first degree relatives affected with AA. Depression was seen in 4% of the patients. Hypertension was seen in 2% of the patients. Substance abuse was noted in 7% of the patients. Pallor was detected in 11% of the patients. Chronic urticaria, eczema, folliculitis, hand eczema, melasma, pediculosis capitis, nonspecific dermatosis, lichen planus, polymorphic light eruption and scabies were all seen in 1 patient each. Most common pattern was patchy AA (93%); 43% had multiple patches and 50% had a single patch. Scalp was the most common site (69%) involved in patchy AA, followed by the beard (22%) and in the scalp, the vertex was most commonly involved (40.86%). The other patterns of AA seen in our study were as follows: Sisaipho in 3 patients (3%), totalis in 2 patients (2%), Alopecia universalis and Ophiasis in 1 patient each. There was no case of reticulate and ADTA pattern. Majority (53%) of the patients had mild disease severity. Nail changes were seen in 44% of the patients. The most common grade of AA was S1B0N0 [Scalp - less than 25% involvement, Body hair - no involvement, Nail - no involvement]. Black dots were the most common finding overall (81%), followed by short vellus hairs (51%) , broken hair (48%), tapering hair (41%), yellow dots (27%), regrowing hair (18%) (Figure 1-4). No statistically significant association ($p>0.05$) was seen between any of the dermoscopic findings and clinical pattern of AA (Table 1). The association between the dermoscopic findings and activity of the disease was not statistically significant ($p>0.05$) (Table2). The association between the dermoscopic findings and severity of the disease was statistically insignificant ($p > 0.05$) (Table 3). The association between dermoscopic finding and duration of disease was statistically insignificant ($p > 0.05$).

Table 1 Dermoscopic Findings in various patterns of AA

Dermoscopic Findings	Patchy Single	Patchy Multiple	Sisaipho	Alopecia Totalis	Alopecia Universalis	Ophiaisis
Black Dots	41 (50.61%)	35 (43.20%)	2 (2.46%)	2 (2.46%)	0	1 (1.23%)
Short Vellus Hairs	26 (50.98%)	20 (39.21%)	3 (5.88%)	1(1.96%)	0	1(1.96%)
Tapering Hairs	24 (58.53%)	16 (39.02%)	0	1 (2.43%)	0	0
Broken Hairs	28 (58.33%)	13 (31.25%)	2 (4.16%)	2 (4.16%)	1 (2.08%)	0
Yellow Hairs	5(18.51%)	18 (66.66%)	1 (3.70%)	1 (3.70%)	1 (3.70%)	1 (3.70%)
Regrowing Hairs	8 (44.44%)	10 (55.55%)	0	0	0	0

DISCUSSION

In the present study, males were more commonly affected than females. The male-to-female ratio is 2.70:1. However, there is another study done on a larger sample size which has shown a slight female preponderance.[14]The age of the patients varied from 3 to 62 years, with a mean age of 25.55 years, more than half of the patients belonged to the age group of 21-40 years.In a different study, the mean age was found to be 29.12 years, with the age of the patients varying from 8 to 65 years[16]while another study has found the median age to be 33 years with the age varying from 2 to 88 years.[14] The mean duration of AA was 7.87 months. This was in accordance with the observations made by Mane *et al*[17.] In this study, the initial site of occurrence of the AA patches was on the scalp (76%), followed by the beard (22%) which is consistent with the observations made by Sehgal *et al.*[18] Peter *et al* have reported that the majority of the patients had stable disease at the time of presentation.[18] However, in present study it was noted that the majority (83%) of the patients had progressive disease at the time of presentation, while 17% had stable disease. AA is a self-limiting disease in few patients, while in others it may involve the whole scalp or body. The fear of extension of alopecia may be the reason why the majority of the patients in this study presented when the disease was progressive.Recurrence was noted in 31% of the patients, similar to the observation made by Sehgal *et al*[18].

Table 2 Dermoscopic findings and activity of AA

Dermoscopic Findings	Progressing n=83	Stable n=17
Black Dots	67 (80.72%)	14 (82.35%)
Short Vellus Hairs	42 (50.60%)	9 (52.94%)
Tapering Hairs	33 (39.75%)	8 (47.05%)
Broken Hairs	41 (49.39%)	7 (41.17%)
Yellow Dots	24 (28.91%)	3 (17.64%)
Regrowing Hairs	16 (19.27%)	2 (11.76%)

Table 3 Dermoscopic findings and Severity of AA

Dermoscopic Findings	Mild n=53	Moderate n=39	Severe n=8
Black Dots	44 (83.01%)	32(82.05%)	5 (62.5%)
Short Vellus Hairs	25 (47.16%)	20(51.28%)	6 (75%)
Tapering Hairs	23 (43.39%)	16(41.02%)	2 (25%)
Broken Hairs	25 (47.16%)	17(43.58%)	6 (75%)
Yellow Dots	12 (22.64%)	10 (25.64%)	5 (62.5%)
Regrowing Hairs	9 (16.98%)	9 (23.07%)	0

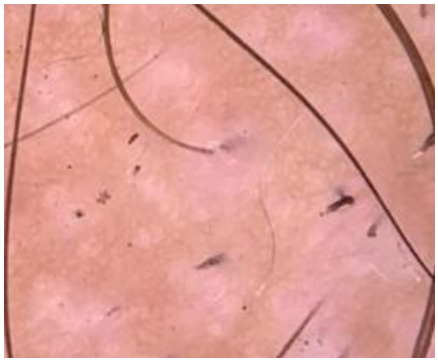

Fig. 1 black dots & broken hairs

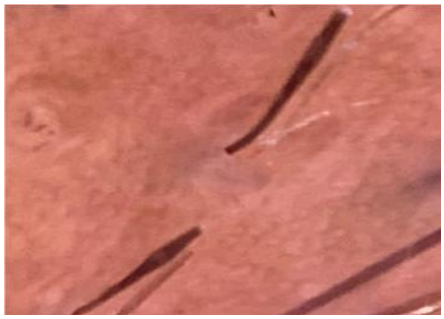

Fig. 2 Short Vellus Hairs & Regrowing Hairs

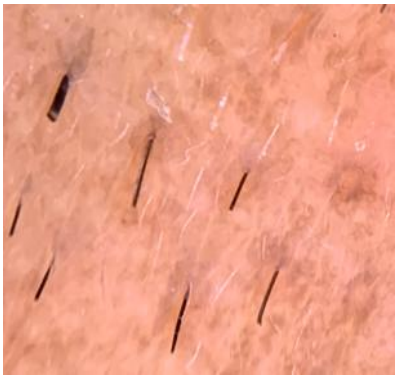

Fig. 3 Exclamation Mark Hairs

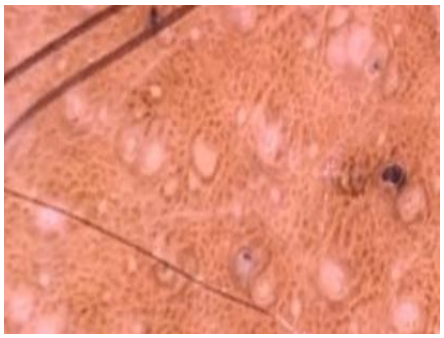

Fig. 4 Yellow Dots

Though AA is an asymptomatic disease, mild pruritus may be associated with hair shedding.[9] In the present study, only 4% of the patients had itching associated with AA patches while the majority (96%) of the patients did not have any symptoms. In the present study, the most common pattern of AA was patchy type, which is in accordance with other studies.[14,16,17] In the present study, 6% of the patients had atopy, which is consistent with other studies[12,18] of the patients. Studies from India have shown a familial incidence ranging from 9% to 20%,[12, 19, 18, 16] the present study had a slightly lower incidence at 5%.It is known that patients with AA are at a higher risk for developing depression and social phobia.[2] In this study, clinical depression was seen in 4% of the patient . Hypertension was seen in 2% of the patients, while Mane *et al*[17] and Thomas *et al*[12] have reported hypertension in one patient and 2.8% of the patients respectively. The other diseases which were noted in this study are asthma, diabetes mellitus all of which have also been previously reported by several other investigators. [12, 17, 13, 19] Pallor was clinically detected in 11% of the patients. Pernicious anemia is known to occur in patients with alopecia areata. [8, 10, 11] In the present study, other dermatological conditions such as chronic urticaria, hand eczema, folliculitis, lichen planus, eczema, polymorphic light eruption, pediculosis capitis, scabies and non-specific dermatosis were seen. Many studies have described concomitant autoimmune disorders of the skin that are not seen in this study.[12,17,18,19]

In the present study, the most common pattern of AA was patchy type, which is in accordance with other studies.[14, 16, 17] Also, a slightly higher number of patients with single patches were present as compared to patients with multiple patches. This finding is concordant with the findings made by Peter *et al*.[16] Scalp was the most common site involved, followed by the beard region in patchy AA. This finding is consistent with the previous studies.[17] In the present study, most of the patients (53%) had mild disease, 39% of the patients had moderate disease while the most severe forms of the disease was seen in the least number of patients. Transverse leukonychia was seen in 26 patients, longitudinal ridging in 12 patients, longitudinal melanonychia in 3 patients, trachyonychia in 2 patients while Pitting was seen in 1 patient. The remaining 56% of the patients did not show any nail changes. These findings were not consistent with previous studies.

The commonest grade of AA seen in the present study was S1B0N0.(Scalp hair loss: S0 - no hair loss; S1 - <25% hair loss; S2 - 26-50% hair loss; S3 - 5175% hair loss; S4 - 76-99% hair loss; S5 - 100% hair loss. Body hair loss: B0 - no body hair loss; B1 - some body hair loss; B2 - 100% body (excluding scalp) hair loss. Nail involvement: N0 - no nail

involvement; N1 - some nail involvement.)S1B0N0 (<25 percent scalp hair loss, no body hair loss, no nail involvement) which is consistent with other studies.[14, 16, 17]

In the present dermoscopic features seen are black dots – 81% (most common), followed by short vellus hair – 51%, broken hair - 48%, tapering hair – 41%, yellow dots– 27%, regrowing hair – 18%. In the present study, which is in accordance with the study done by Peter *et al*.[16] Other studies have reported yellow dots and short vellus hair to be the commonest dermoscopic finding.[14, 17] The next common finding was short vellus hair seen in 51%. This is consistent with the findings of Mane *et al*.[17] Yellow dots were seen in 27 % of the patients .The incidence is lower compared to studies done by Ross *et al*[6] and Mane *et al*.[17] Various other studies by Kibar *et al*,[15] Inui *et al*[14] and Peter *et al*[16] have noted a comparitively lower incidence of yellow dots. The lower incidence of yellow dots is postulated to be due to the skin type of the study population (Asians) which makes visualization of yellow dots difficult.[14]Broken hair was seen in 48% in our study. Other studies have reported a higher incidence at 67% - Peter *et al*[17] 54.5% - Mane *et al*[17] and 45.7% - Inui *et al*[14]. Tapering hair or exclamation hair, the hallmark of AA, was seen in 41% in this study. This finding is consistent with other studies by Peter *et al*[16] and Inui *et al*[14] while Kibar *et al*[15] showed a higher incidence and Mane *et al*[17] showed a lower incidence. Regrowing hair, including pigtail hair, was seen in 18% in our study. Peter *et al* reported the incidence at 17.5% .[16] The findings are consistent. Like Kibar *et al* no statistically significant association was found between the dermoscopic findings and the various clinical patterns of AA.[15]

Inui *et al* have reported that black dots, tapering hairs, broken hairs correlated positively while short vellus hairs correlated negatively with disease activity.[14] Kibar *et al* have noted that exclamation mark hair related positively with activity while atypical red vessels and white dots related negatively with disease activity.[15] Mane *et al* and Peter *et al* have not found an association between dermoscopic findings in AA and the disease activity.'[16,17] In the present study, the association between the dermoscopic findings and activity of the disease was not statistically significant (p>0.05).Inui *et al* have reported that black dots and yellow dots correlated positively while short vellus hair correlated negatively with the severity of AA.[14] On the contrary, some investigators have not found an association between dermoscopic findings in AA and the disease severity.[16, 17] The association between the dermoscopic findings and severity of the disease was statistically insignificant (p >0.05).

CONCLUSION

No statistically significant association was seen between dermoscopic findings and clinical pattern, disease activity and severity of alopecia areata.

Declaration of patient consent: The authors certify that they have obtained written informed consent from all the patients. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understood that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

Financial support and sponsorship - Nil.

Conflicts of interest - There are no conflicts of interest.

References

1. McDonagh AJ, Tazi-Ahnini R. Epidemiology and genetics of alopecia areata. Clinical and Experimental Dermatology 2002; 27(5):405-9.
2. Koo JY, Shellow WV, Hallman CP, Edwards JE. Alopecia areata and increased prevalence of psychiatric disorders. International Journal of Dermatology 1994; 33(12):849-50.
3. McGarvey EL, Baum LD, Pinkerton RC, Rogers LM. Psychological sequelae and alopecia among women with cancer. Cancer Practice 2001; 9(6):283-8.
4. Micali G, Lacarrubba F, Massimino D, Schwartz RA. Dermatoscopy: Alternative uses in daily clinical practice. Journal of the American Academy of Dermatology 2011; 64(6):1135-46.
5. Rakowska A, Slowinska M, Kowalska-Oledzka E, Rudnicka L. Trichoscopy in genetic hair shaft abnormalities. Journal of Dermatological Case Reports 2008; 2(2):14-20.
6. Ross EK, Vincenzi C, Tosti A. Videodermoscopy in the evaluation of hair and scalp disorders. J Am Acad Dermatol 2006; 55(5):799-806.
7. Zalaudek I, Lallas A, Moscarella E, Longo C ,Soyer HP, Argenziano G. The dermatologist's stethoscope - traditional and new applications of dermoscopy. Dermatol Pract Concept 2013; 3(2): 67-71.
8. Rook A, Dawber R. Alopecia Areata. In: Champion RH, Burton JL, Burns T, Breathnach S, editors. Textbook of Dermatology. 6th ed. Oxford: Blackwell Science Ltd; 1998. pp. 272-306.
9. Zhao Y, Zhang B, Caulloo S, Chen X, Li Y, Zhang X. Diffuse alopecia areata is associated with intense inflammatory infiltration and CD8+T cells in hair loss regions and an increase in serum IgE level. Indian Journal of Dermatology, Venereology and Leprology 2012; 78(6):709-14.
10. Brenner R. Coincidences of alopecia areata, Vitiligo, Onychodystrophy, localized scleroderma and lichen planus. Dermatologica 1979;159:356-8
11. Muller SA, Winkelmann RK. Alopecia areata. Arch Dermatol 1963;88:290–7
12. Thomas EA, Kadyan RS. Alopecia areata and autoimmunity: a clinical study. Indian Journal of Dermatology 2008; 53(2):70-4.
13. Lacarrubba F, Dall'Oglio F, Nasca MR, Micali G. Videodermatoscopy enhances diagnostic capability in some forms of hair loss. American Journal of Clinical Dermatology 2004; 5(3):205-8.
14. Inui S, Nakajima T, Nakagawa K, Itami S. Clinical significance of dermoscopy in alopecia areata: analysis of 300 cases. International journal of dermatology 2008; 47(7):688-93.
15. Kibar M, Aktan Ş, Lebe B, Bilgin M. Trichoscopic findings in alopecia areata and their relation to disease activity, severity and clinical subtype in Turkish patients. Australasian Journal of Dermatology 2015; 56(1):e1-e6.
16. Peter CV, George L, Pulimood SA. Trichoscopic features of various types of alopecia areata in India: application of a hand-held dermoscope. Australasian Journal of Dermatology 2013; 54(3):198-200.

17. Mane M, Nath AK, Thappa DM. Utility of dermoscopy in alopecia areata. Indian Journal of Dermatology 2011; 56(4):407-11.
18. Sehgal VN, Srivastava G, Aggarwal A, Sethi G, Adhikari T. Alopecia areata in the Indian subcontinent. SKINmed: Dermatology for the Clinician 2007; 6(2); 63-9.
19. Sharma VK, Kumar B, Surrinder K, Inderjeet K. Alopecia areata. A clinical study of 250 patients. Indian Journal of Dermatology Venereology and Leprology 1988; 54(3):132-6.

How to cite this article:

Jatin Aseri, Ram Singh Meena, Kanchan Kumawat, Sapna Meena, Mehul Choudhary, Vandana Choudhary and Vikas Purushottam.(2024). Dermoscopy of alopecia areata an observational study. *International Journal of Current Advanced Research*.13 (2), pp.2838-2842.

****