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Dermoscopic And Clinical Features Of Alopecia Areata In Pakistani Patients: A Cross-Sectional Study

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Abstract

Objective: To evaluate the dermoscopic and clinical findings in Pakistani patients with Alopecia Areata.
Methods: The study was conducted at THQ Hospital Layyah with a sample size 800 within an age limit of 10-40. The patient's clinical history and demographic information were collected using a structured interviewing questionnaire with informed consent. Patients were examined using a Dermlite dermoscope.
Results: Of 800 patients, 52.9% were females and 47.1% were malesThe scalp was the most common site of alopecia among the studied patients, accounting for 89.9% (n=719). Dermoscopy of AA patients revealed the following: yellow dots in 79.9% (n=559), black dots in 33.1% (n=265), exclamation mark hairs in 42.5% (n=340), short villus hairs in 32.6% (n=261), broken hairs in 42.3% (n=338), pigtail hairs in 27.9% (n=223), and Pohl-Pinkus constriction in 25.9% (n=207). The Pearson chi-square test showed a significant correlation between age and the presence of black dots, yellow dots, broken hairs, exclamation mark hairs, pigtail hairs, short villus hairs, and Pohl-Pinkus constriction ($p < 0.001$).
Conclusion: Alopecia Areata affects both men and women equally. The majority of affected individuals are young, between the ages of 10 and 30. The scalp is the typical site of Alopecia Areata.
Key Words: Alopecia.

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1. Introduction

The term "alopecia" is derived from the Greek word "alōpex," meaning "fox," and was initially used to describe bald spots on the scalp. The Latin word "area," meaning "occurring in patches," is the origin of the term "areata." The phrase "Alopecia Areata" was first used in 1763 by the French physician Sauvages de Lacroix to describe patchy hair loss due to various causes.[1] An autoimmune condition specific to the hair follicle that causes non-scarring, patchy, confluent, or widespread alopecia, resulting in hair loss is called Alopecia Areata (AA). It is present mostly on the scalp but can be on other parts of the body without any inflammatory clinical signs.[2] This disease is triggered in genetically susceptible by environmental factors.[3] Globally, the prevalence of Alopecia Areata is estimated to be around 0.1% to 0.2% of the population. In Pakistan, while there is no comprehensive nationwide study, smaller studies and clinical observations suggest a similar prevalence rate. A study conducted in Karachi reported a prevalence of 0.15% among dermatologist patients. It can occur at any age and affects both sexes equally, however, most patients have symptoms in the early thirties (30s) of their lives.[4, 5] Patients with AA frequently have psychological issues including depression and anxiety.[6] A significantly higher risk of comorbidities including vitiligo, atopic dermatitis (AD), and Crohn's disease (CD), was linked to an AA diagnosis.[7] A non-invasive diagnostic technique dermoscopy uses magnification to see minute clinical patterns of skin lesions and subsurface skin structures that are ordinarily invisible to the human eye. Black dots and yellow dots, tapering hair (exclamation marks), broken hairs, and short vellus hairs are characteristic dermoscopic signs of AA.[8] In addition to aiding in diagnosis, dermoscopy may also provide insight into the course of treatment.[9] There is currently no particular AA therapy available.[10]

2. Materials & Methods

The current study is a cross-sectional (observational) study. All patients with written informed consent were enrolled from October 2020 to April 2024 THQ Hospital Layyah with a sample size of 800 Alopecia Areata patients. Patients diagnosed with Alopecia Areata, aged between 10 and 40 years, who provided informed consent, were included in the study. Subjects currently taking AA treatment were excluded. A structured interview questionnaire was developed to gather clinical history and demographic information from the patients, with their informed consent. During the initial visit, the patients were seen by a dermatologist in the

Dermatology Service where the dermatological part of the protocol, and sociodemographic data were completed. After filling out the questionnaire patients were brought to a dermoscopy room where a dermlite dermoscope was used to examine patients. The subjects were divided into 6 age groups to estimate the prevalence of AA in various age groups. Data was statistically analyzed in SPSS software.

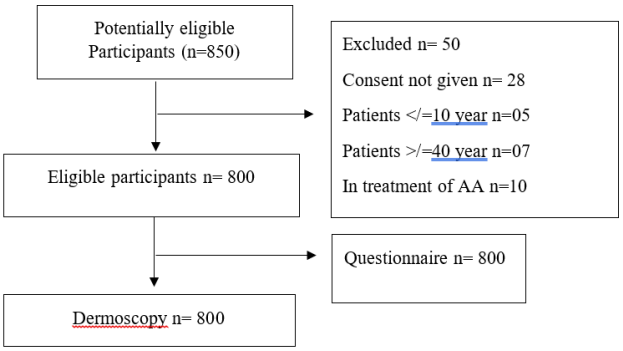

Figure 1: Flow Diagram For Patient Selection

3. Results

Of 800 patients, 52.9% were females and 47.1% were males. Most of the subjects 28.1% (n=225). belong to the 21-25 years age group followed by 16-20 years 27.1% (n=217). The scalp was the most common (89.9% (n=719) affected site by AA. Regarding the duration of Alopecia Areata among the patients, 42.5% (n=295) had a duration of 2 weeks, followed by 36.9% (n=207) with a duration of 1 week. A single lesion was prominent in 61.8% (n=494) of the patients. (Table 1)

Table 1: Demographics and Dermoscopic findings among studied patients

Variable Name	Category	Frequency and Percentage%
Age of Patients	10-15	179 (22.4%)
	16-20	217 (27.1%)
	21-25	225 (28.1%)
	26-30	70 (8.8%)
	31-35	75 (9.4%)
	36-40	34 (4.3%)
Duration of AA	1 Week	295 (36.9%)
	2 Weeks	340 (42.5%)
	3 Weeks	128 (16.0%)
	4 Weeks	26 (3.3%)
	10 Weeks	11 (1.4%)
Site of AA	Scalp	719 (89.9%)
	Eye BrowScalp	62 (7.8%)
	Both Eye Brow	19 (2.4%)
No of Lesions	One	494 (61.8%)
	Two	161 (20.1%)
	Three	129 (16.1%)
	Four	16 2.0

Table 2: SALT Scoring among Studied Patients. Table 1 shows the SALT scoring in which S1 (20.9%), S2 (24.1), and S3 (23.1) have more percentages among studied patients

SALT scoring	Frequency	Percentage
10-15 (S1)	167	20.9%
16-20 (S2)	193	24.1%
21-25 (S3)	185	23.1%
26-30 (S4)	69	8.6%
31-35 (S5)	73	9.1%
36-40 (S6)	32	4%
Total	719	89.9%

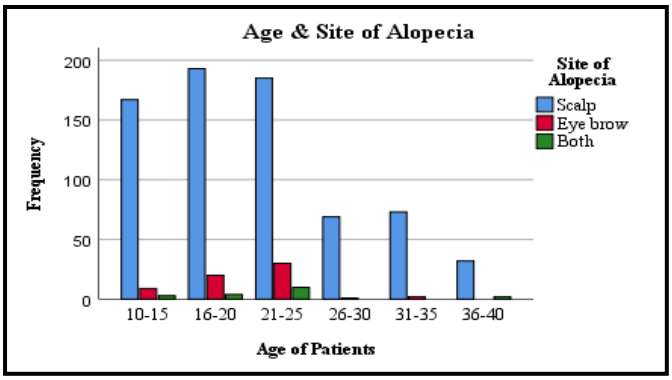

Figure 2: Crosstab of Age & Site of Alopecia Areata (AA)

In this study, 79.9% (n=559) of patients exhibited yellow dots, 33.1% (n=265) had black dots, 42.5% (n=340) had exclamation mark hairs, 32.6% (n=261) had short villus hairs, 42.3% (n=338) had broken hairs, and 27.9% (n=223) had pigtail hairs. Additionally, 25.9% (n=207) of patients showed Phol pinkus constriction (Table 4). Regarding the duration of AA and age, the Pearson Chi-Square test yielded a X^2 156.58 p-value <0.001,(Table 3) indicating a highly significant association between them. A significant association is also found between age and lesions and the site of Alopecia Areata with p-value <0.001. (Table 3)

Table 3: Chi-square Test Interpretation of Age with Duration. No of Lesions & Site of Alopecia (AA)

Age & Variable of Interest	Pearson Chi-square Value	df (Degree of Freedom)	P-Value
Duration	156.589a	30	<0.001
Lesions	115.999a	15	<0.001
Site	32.839a	10	<0.001

This table shows a significant relationship of the chi-square test between age and clinical findings. This table shows a significant association of age with duration, lesions, and site with p-value (<0.001).

The current study found a statistically significant relation of age with black dots, yellow dots, broken hairs, pigtail hairs, marks of exclamation, and short villus hairs with p-value <0.001 (Table 4) in Alopecia Areata patients.

Table 4: Alopecia Areata with Age and Clinical Findings Relation

Age	Black Dots(BD)	Yellow Dots(YD)	Broken Hairs(BHs)	Exclamation Mark Hairs	Short-Villus Hairs	Pigtail Hairs	Pohl constriction
10-15	51(6.4%)	139(17.4%)	54(6.8%)	51(6.4%)	48(6.0%)	49(6.1%)	55(6.9%)
16-20	90(11.3%)	141(17.6%)	90(11.3%)	90(11.3%)	75(9.4%)	69(8.6%)	48(6.0%)
21-25	98(12.3%)	174(21.8%)	101(12.6%)	98(12.3%)	74(9.3%)	87(10.9%)	66(8.3%)
26-30	44(5.5%)	54(6.8%)	25(3.1%)	44(5.5%)	13(1.6%)	12(1.5%)	22(2.8%)
31-35	29(3.6%)	36(4.5%)	48(6.0%)	29(3.6%)	49(6.1%)	04(0.5%)	13(1.6%)
36-40	28(3.5%)	15(1.9%)	20(2.5%)	28(3.5%)	02(0.3%)	02(0.3%)	03(0.4%)
p-value	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.014

4. Discussion

Alopecia Areata is an autoimmune condition that causes non-scarring, patchy, confluent, or widespread alopecia, resulting in hair loss. It affects both males and females equally, as reflected in our with 52.7% female and 47.1% male patients. This aligns with Atluru et al. (2019), who reported 58.97% female and 40.02% male patients. However, our findings differ from Hegde et al. (2013), who found a predominance of AA in males.[11]

In the present study, most of the patients had a duration of AA one (36.9%) to two weeks (42.5%) and presented with one lesion (61.8%).

In the current study, most patients were less than 30 years old, with the age group 21-25 comprising 28.1%, age group 16-20 comprising 27.1%, and age group 10-15 comprising 22.4%. These findings collude with Al Chalabi et al. (2021), who observed that most AA Patients were in the 2nd and 3rd decade of life.[12] However, our results were contrary to Atluru et al., (2019) who found a higher incidence of AA in children than the general population.[13]

The scalp was the most common site of AA among affected patients (89.9%). This is consistent with other studies, such as Farajzadeh et al. (2016) and Fatima et al. (2020), which reported scalp involvement in 82% of AA patients.[8,14]

Based on the SALT scoring of the scalp, the distribution of S1 severity (20.9%), S2 severity (23.1%)severity S3 severity (24.1%) was found almost equal among the studied patients. Our findings are in line with Bains, P., & Kaur, S. (2020), who reported S1 severity in 26.9% and S2 severity in 21.2% of patients, whereas, Al Chalabi et al. (2021) observed S2 severity in 45% and S1 severity in 31% of their studied patients.[3,12]

In this study, among the various dermoscopic findings of AA, 79.9% (n=559) of patients had yellow dots. This is consistent with the findings of Chandrashekar et al. (2014), who also identified yellow dots as the most common dermoscopic feature of AA.[15] However, our results were contrary to Peter CV et al., (2013) who found black dots were common among studied patients.[16]

The present study found that 33.1% (n= 265) of AA patients have black dots. Our results were in line with Al Chalabi et al., (2021) who found that 34% of patients with AA had black dots.[12] However, our results differ from Peter CV et al., (2013) who found black dots as the most common among the studied patients[16]. In the current study, 42.5% (n=340) of AA patients exhibited exclamation mark hairs. Our findings are consistent with Gómez-Quispe et al. (2022), who reported a prevalence of exclamation mark hairs(EH) ranging from 12% to 71%, with an average of 39%.[17] However, our results are contrary to Bhardwaj et al., (2021) who found only 14% EH among the enrolled subjects.[18]

We found 32.6% (n=261) of AA patients with short villus hairs in this study. Our results are in line with (Zeinab Aryanian et al., 2024) who found 32.3% SVH among AA participants.[19] Another study by Waśkiel et al., (2018) found 34-100%. However, our results were not in line with Daneshpazhooh et al., (2018) who showed 62.6 % of AA patients with SVH. In the current study, 25.9% (n=207) of patients have Pohl-pinkus constriction. These results were contrary to Vijay et al., 2020) showed only 1 AA patient with Pohl-pinkus constriction.[20]

In the current study, 42.3% (n=338) of AA patients presented with broken hairs, It is consistent with Al-Dhubaibi et al. (2023), who reported a 40.0% prevalence of broken hairs among AA patients.[21] However, the results were contrary to Bains, P., & Kaur, S. (2020) with an incidence percentage of 69.2%[3].In this study, 27.9% (n=223) of AA patients were presented with pigtail hairs. These results are with Bains, P., & Kaur, S. (2020) who found 28.8% of patients with

PTH.[3] In contrast, Al Chalabi et al., (2021) found 13.4% PTH.[12].

5. Conclusion

The study concludes that alopecia areata affects equally to males and females. Affected patients are mostly young between 10-30 years old and the scalp is the common site of AA. Dermoscopic findings such as YDs, EMs, BHs, etc are good indicators for the diagnosis of AA.

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Contributions:
M.A, - Conception of study
- Experimentation/Study Conduction
M.A, - Analysis/Interpretation/Discussion
M.A, D.Z.Z, A.N, - Manuscript Writing
M.A, A.N, M.H, N.A, I.Z.Z - Critical Review
All authors approved the final version to be published & agreed to be accountable for all aspects of the work.

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