Frequency of Different Patterns of Alopecia Areata in our Population – A Single Tertiary Care Centre Study

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ABSTRACT

Background: Alopecia areata (AA) is an autoimmune disorder characterized by non-scarring, patchy, confluent or diffuse pattern of alopecia without any specific distribution or site of involvement of hair loss. Different patterns of AA include patchy, reticulate, ophiasis, ophiasis inversus (sisaipho), totalis, universalis, barbae, diffusa, triangular and perinaevoid alopecia areata. **Objective:** To determine frequency of different clinical patterns of alopecia areata in our population. **Study Design:** Cross sectional survey. **Settings:** Department of Dermatology, Jinnah hospital, Lahore, Pakistan. **Duration:** Six months from 01-07-2018 to 31-12-2018. **Methods:** 400 patients of both genders and all ages, presented to the Department of Dermatology, Jinnah Hospital, Lahore were enrolled and segregated into different sub-types according to the clinical findings. The results were recorded on predesigned proformas. **Results:** The mean age of the patients was 25.18 years with standard deviation of 8.84 between the age of 15 years and 55 years. This included 239 (59.75%) male patients and 161 (40.25%) female patients. According to this study the most common variety of Alopecia Areata was found to be 'Patchy' comprising of 270 patients (67.5%) followed by 'Universalis' and 'Barbae' comprising 7.5% each. 'Sisaipho' was the fourth with 23 patients (5.8%). 294 (61.6%) patients presented with acute episode of disease i.e. <1 year while 106 (22.2%) patients had chronic disease (>1 year). **Conclusion:** The results of our study showed that the most common pattern of alopecia areata was patchy alopecia areata followed by universalis, barbae, sisaipho, ophiasis, reticulate and totalis. The least common pattern was triangular.

Keywords: Alopecia areata, Clinical patterns, Subtypes.

INTRODUCTION

Alopecia areata is a disorder resulting in non-scarring, patchy, confluent or diffuse pattern of alopecia.[1] The word alopecia is derived from Latin language which means "hair loss" while the word areata means "occurring in patches".[2,3] The hair loss has no specific areas of predilection and can occur on any part of the body; scalp is the most commonly involved site.[1] The course of the disease is unpredictable and variable ranging from self-limiting disease to recurrent disease extending over the span of many years.[2,5] The overall incidence of alopecia areata is estimated to be 0.1-0.2%.[4] The overall risk of developing alopecia areata is estimated to be 1.7%.[6,7,8] It occurs in both males and females without any gender predilection and all age groups without any reported racial variation.[9] The peak age is in early childhood and young adulthood i.e. 15-29 years.[10,11]

Alopecia Areata starts with a sudden onset resulting in patchy areas of hair loss anywhere on the scalp or body.[12] According to literature there are different morphological patterns of the disease including patchy alopecia areata, reticulate alopecia areata, alopecia areata ophiasis, alopecia areata ophiasis inversus (sisaipho), alopecia areata totalis, alopecia areata universalis, alopecia areata barbae, alopecia areata diffusa, triangular alopecia areata and perinaevoid alopecia areata.[13,14]

Patchy Alopecia: In this form one or several coin-sized round or oval shaped patched appear on

the scalp or other hair bearing body areas. It is the most common subtype/pattern.[10,15]

Reticulate alopecia: The hair loss in this subtype is in net-like pattern with formation of irregular areas of hair low interspersed with areas of hair on the scalp.[16]

Ophiasis: In this subtype patient has band-like pattern of hair loss affecting the temporal and occipital regions of the scalp. The frontal region is only rarely affected.[17,18]

Ophiasis inversus (sisaipho): In this subtype the hair loss is in opposite directions as compared to the Ophiasis subtype. Central involvement is more common with relative sparing of the margins of the scalp. It appears similar to androgenic alopecia.[19]

Alopecia totalis: It is one of the recently described variants of AA. The patient has diffuse sudden hair loss. This is more common in women. The hair loss lasts for approximately 3 months followed by rapid regrowth.[20,21] Recurrence can occur in these patients.

Alopecia universalis: There is a rare condition which is characterized by complete loss of hair including scalp and body.[10,22]

Alopecia areata barbae: This type of hair loss is limited to region of beard.[23]

Alopecia areata diffusa: There is diffuse hair loss with general thinning of hair on the scalp. No specific pattern of hair loss can be identified.[24,25]

Triangular alopecia areata: There is a well circumscribed triangular patch of hair loss which is non-scarring and is usually limited to the temporal region.[26,27]

Perinaevoid alopecia areata: This refers to loss of hair around the pigmented nevi. The removal of nevi however does not affect the hair loss.[19]

Alopecia areata is mostly idiopathic and no obvious cause is identified in most of the cases but some of the indirect causative factors include patient's genetic constitution, emotional status, atopic state, nonspecific and organ specific immune reactions.[28] Antigen presenting cells, such as Langerhans cells, are increased in the bulb of the affected follicles. They present the responsible epitome to the peri bulbar lymphocytes. This leads to a cascade of immunologic events with increased interleukins-2 (IL-2), gamma interferon (gamma IFN) and intercellular adhesions molecules (ICAM). This series of events helps to induce hair loss. This is considered to be a Type I helper T-cell response.[29]

There are different morphological patterns of the disease i.e. patchy alopecia, reticulate alopecia, ophiasis, ophiasis inversus (sisaipho), alopecia totalis, alopecia universalis, alopecia areata barbae, alopecia areata diffusa, and triangular alopecia areata and perinaevoid alopecia areata.[13]

The only available study done in Pakistan by Amer et al in 2009 concluded that patchy alopecia areata was the most common pattern seen in 73.6% patients followed by ophiasis in 12% and totalis in 3.6%.[28] In another study done by Saeedeh Farajzadeh in Iran the scalp was the predominant site of involvement (82%), with the most common clinical pattern being patchy alopecia in 84.1%, Ophiasis in 8.5%, Reticular in 2.4%, Sisaipho in 2.4% and Totalis in 2.4%.[30]

As the local data is deficient, the present study was planned to ascertain different patterns of alopecia areata in our population. This would help to establish common and uncommon verities of the disease. Treatment strategy can then be formulated for various types of alopecia areata prevalent in our population.

METHODS

This was cross sectional survey conducted at Department of Dermatology, Jinnah hospital, Lahore, Pakistan. The duration of study was 6 months from 01-07-2018 to 31-12-2018.

A total of 400 cases were enrolled, with 95% confidence level, 1.5% margin of error and taking expected percentage of alopecia totalis i.e. 2.4% 30 in patients with alopecia areata. Patients were selected by non-probability, consecutive sampling technique.

Patients diagnosed with any pattern of alopecia areata, patients of age 15-60 years and patients of both genders were included in the study.

Patients having Alopecia secondary to drug intake, patients with history of diagnosed connective tissue diseases and patients with scars over bald patch were excluded from the study.

After approval from hospital ethical committee, 400 patients of alopecia areata presented to the out-patient Department of Dermatology, Jinnah Hospital and fulfilling the inclusion criteria were approached and an informed consent was taken before enrolling in the study. All the patients of alopecia areata were examined and their clinical patterns were noted as described in the operational definitions. All data was entered in the approved proforma. Confounders such as age and gender of the patients were also noted. Confidentiality of the data was ensured.

All the collected data was entered in SPSS-version 16.0 for analysis. Mean and standard deviation were calculated for quantitative variables like age. Frequency and percentage were calculated for gender, duration of illness and clinical patterns of Alopecia Areata (Patchy, totalis, universalis, sisaipho, ophiasis, barbae, reticulate, triangular). Data was stratified for age, gender and duration of illness to address effect modifiers. Chi-square test was applied post-stratification with p-value ≤ 0.05 considered as significant.

RESULTS

Out of the 400 patients, 240 (60%) male patients and 160 (40%) female patients. The mean age of patients was 25.18 years with standard deviation of ±8.84. The minimum and maximum age of the patients was 15 years and 55 years respectively (Table 1).

Table 1: Descriptive statistics of the age of the patients

Total Number	400
Minimum Age (Years)	15
Maximum Age (Years)	55
Mean Age (Years)	25.18
Std. Deviation	± 8.845

The patient data was segregated into different age groups from 15-25 years up to 46-55 years. The most common age groups were 15-25 and 26-35 years comprising more than 80% of the patients. (Graph 1).

### Graph 1: Number of patients in each age group
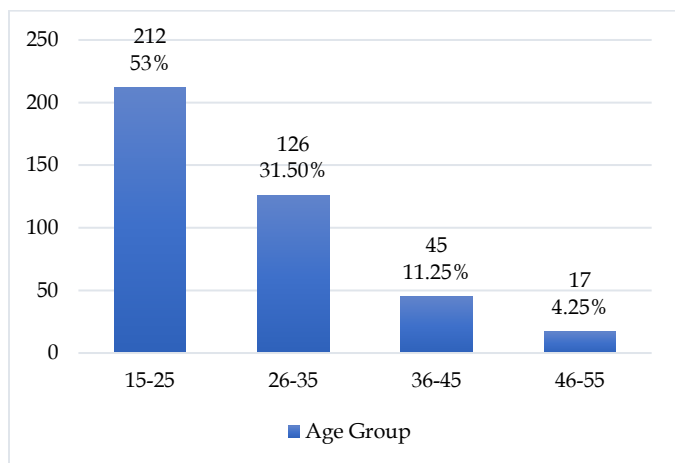
The patients were distributed according to the pattern of Alopecia Areata (Graph 2). The patient distribution in each subtype according to the gender showed that the most common subtype i.e. patchy subtype is more common in male population (Graph 3).

The Universalis subtype has predilection for female gender, while the 'barbae' type was noted in males only. The frequency of each pattern was calculated in our population study. It was found that 'Patchy" pattern was the most common including 270 patients (67.5%) and the least frequent types included "totalis" and "triangular" comprising of 2.5% and 0.8% respectively. The most common site of involvement in patients with patchy alopecia areata was scalp noted in 94.81% while the rest had other sites of involvement including eyebrows.

Graph 2: Bar chart showing clinical patterns of Alopecia Areata
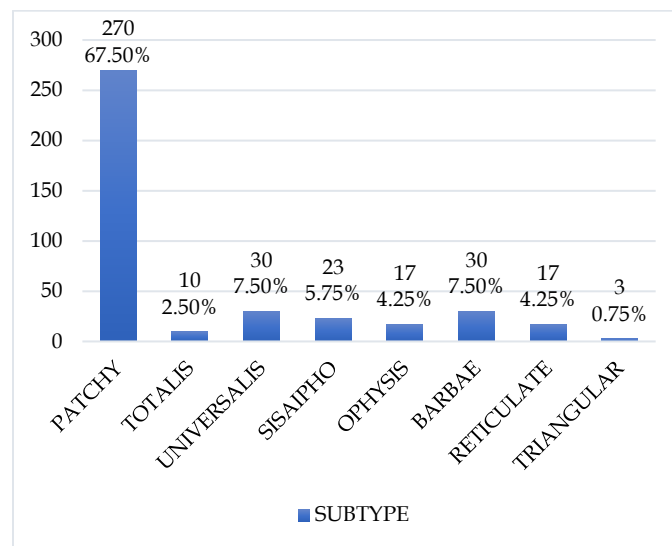
Graph 3: Bar chart showing distribution of patients according to gender in each subtype
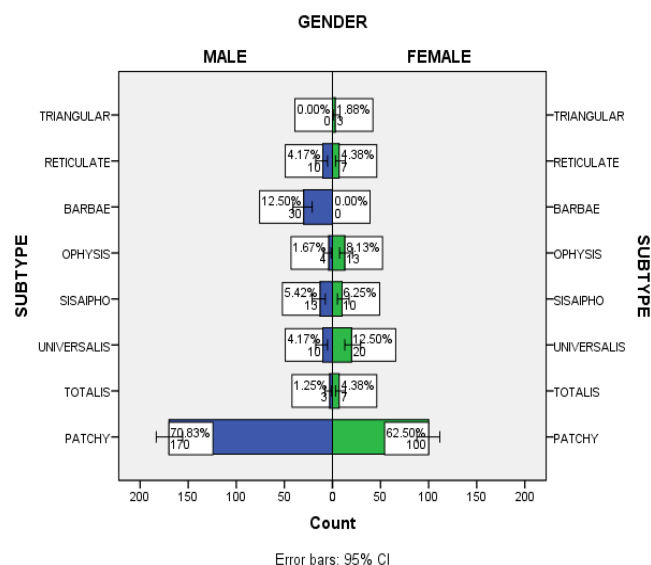
Stratification of the data was done by applying Chi square test for gender in each subtype / pattern and p values were calculated accordingly (Table 2)

Table 2: Clinical Pattern of Alopecia Areata and Gender cross tabulation

Clinical Pattern of Alopecia Areata	Gender Male	Female	Total	P value
PATCHY	170	100	270	P = 0.081
	70.8%	62.5%	67.5%	
TOTALIS	3	7	10	P = 0.050
	1.3%	4.4%	2.5%	
UNIVERSALIS	10	20	30	P = 0.002
	4.2%	12.5%	7.5%	
SISAIPHO	13	10	23	P = 0.726
	5.4%	6.3%	5.8%	
OPHYSIS	4	13	17	P = 0.002
	1.7%	8.1%	4.3%	
BARBAE	30	0	30	P = 0.000
	12.5%	0.0%	7.5%	
RETICULATE	10	7	17	P = 0.012
	4.2%	4.4%	4.3%	
TRIANGULAR	0	3	3	P = 0.033
	0.0%	1.9%	0.8%	
Total	240	160	400	
	100%	100 %	100%	

Figure 1: Patchy alopecia areata

Figure 2: Reticulate alopecia areata

Figure 3: Ophiasis alopecia areata

Figure 4: Sisaipho alopecia areata

Figure 5: Alopecia areata universalis

Figure 6: Alopecia areata barbae

Figure 7: Triangular alopecia areata

DISCUSSION

In our study, 400 patients were enrolled who were selected according to the pre-decided inclusion and exclusion criteria. This study included larger patient group as compared to previously performed studies including the study done by Amer et al[28] and a second study done by Saeedeh Farajzadeh[30] which included 83 patients and 100 patients respectively.

The mean age of the patients in our study was 25.18 years with standard deviation of ±8.84. The minimum and maximum age of the patients was 15 years and 55 years respectively; this was comparable with the study done by Amer et al[28] in which the mean age was 21.4 years with the range of 2 to 50 years. However the study done by Saeedeh Farajzadeh[30] included only pediatric population having mean age of 8.9 years with the range of 1 year to 16 years. The most common age group of patients in our study was between 15-35 years while the study done by Amer et al[28] showed common age group of 20-40 years. Alopecia Areata was less frequently seen in older age group (more than 35 years) in our study.

The gender distribution in our study included 240 (60%) male patients and 160 (40%) female patients which is in accordance with the study done by Saeedeh Farajzadeh[30] i.e. male and female patients were almost equally effected (57% males and 43% females). Amer et al[28] however found that male patients were more commonly affected including 60 patients comprising 72.28% while only 27.72% were females. The reason quoted by him was that his patients were mostly young soldiers[28].

All these patients were segregated according to the pattern / subtype of Alopecia Areata.

In our study, the most common variety was found to be 'Patchy' comprising of 270 patients (67.5%). The study done by Amer et al[28] and Saeedeh Farajzadeh[30] also found

patchy type to be the most common comprising 73.6% and 84.1% respectively.

The most common site of involvement in patchy AA in our study was scalp comprising 256 patients (94.81%) while 5.19% had involvement of other sites like eye brows. The study of Amer et al[28] also showed scalp to be the most common site comprising 75% of the patients.

The second most common pattern in our study was found to be 'Universalis' and 'Barbae' comprising 7.5% each of the total sample size. The second most common pattern in the study of Amer et al[28] and Saeedeh Farajzadeh[30] were ophiasis including 12% and 8.5% respectively.

'Sisaipho' was on the third number with 23 patients (5.8%) in our study while the study done by Amer et al[28] showed reticulate to be on the third spot having 8 patients (9.6%) and according to Saeedeh Farajzadeh[30] three patterns including reticulate, totalis and sisaipho were on the third spot having 2 patients each (2.4%).

The least common varieties in our study were triangular and totalis comprising 0.8% and 2.5% respectively while the least common varieties according to Amer et al[28] were diffuse and totalis having one patient each (1.2%). Of note is that we didn't find any patient of diffuse or perinaevoid patterns raising the possibility that these patterns are very less common in our population.

CONCLUSION

Our study showed that the most common pattern of alopecia areata is patchy alopecia areata followed by universalis, barbae, sisaipho, ophiasis, reticulate and totalis. The least common pattern was triangular.

LIMITATIONS

It is a single center study and may not be exact representation of the population.

SUGGESTIONS / RECOMMENDATIONS

The study should be done at multiple center for better sample representation of the whole population.

CONFLICT OF INTEREST / DISCLOSURE

None.

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