

Original Research Article

Epidemiological and clinical characteristics of alopecia areata: an observational study from South India

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ABSTRACT

Background: Paucity of literature on epidemiological studies of alopecia areata (AA) from Indian subcontinent especially from southern India. The objectives of the study were to study the epidemiological and clinical profile of alopecia areata in a population from northern part of South India.

Methods: The epidemiology including pattern, risk factors and associations were evaluated in all newly diagnosed alopecia areata cases seen from January 2017 to December 2017 in a tertiary hospital in South India.

Results: The incidence of AA was 2% of total dermatology outpatients. 60 new case referrals of AA were seen from January 2017 to December 2017. Male to female ratio was almost equal. Maximum number of patients with AA belonged to the age group of 21-40 years (50%). Occiput was the commonest site involved in AA (36.8%) followed by vertex (27.6%). 30% of the patients gave a past history of AA and 21.7% gave a family history of AA. 15% of AA patients had history of atopy. Nail changes were found in 30% of patients. 5% of AA patients had associated vitiligo. On microscopic examination of plucked hair early dystrophic anagen hair predominated (70%) as against (16.7%) of dystrophic telogen hair.

Conclusions: The clinical characteristics of alopecia areata throws light from a data sparse geographical region but warrants further detailed studies for improved understanding.

Keywords: Alopecia areata, Atopy, Vitiligo, Anagen

INTRODUCTION

Alopecia areata (AA) is a common cause of circumscribed non scarring alopecia.¹ It is a disease that baffles dermatologists because its cause is often difficult to pinpoint, poor response to treatment, unpredictable course and lack of effective treatment. AA not only causes cosmetic disfigurement but also leads to psychological disturbances like lack of self-esteem, feeling of vulnerability of self etc.² Studies from different parts of the world helped to understand AA better.³⁻⁵ Our study aims to find the clinical and demographic factors of people with AA from northern part of Kerala state, South

India. Moreover, we could not find any literature about AA from this part of the world.

METHODS

Patients attending outpatient clinic of dermatology department at Kannur Medical College, Kannur, a tertiary care medical teaching institution in Kerala state, South India for a period of 1 year from January 2017 to December 2017 with patchy alopecia were selected for the study. Alopecia areata was diagnosed clinically. Detailed demographic data, clinical history, family history, clinical examination data and laboratory data

were collected from the subjects. Further, any preceding causes known to have related to AA, associated autoimmune problems or any other illnesses in these subjects were probed in detail. Routine blood and urine examination, random blood sugar, VDRL and other relevant investigations including ANA, thyroid function study were done in required cases. Microscopic examination of plucked hair was done in all cases.

Statistical analysis

Simple statistical methods were used to quantify and analyse data. Frequencies and percentages were calculated for necessary data and 95% confidential intervals of the percentages were also given.

RESULTS

Incidence

Of the 31,216 new patients who attended the dermatology outpatient department during January 2017 to December 2017, 60 patients (2%) were found to have AA.

Age and sex distribution

Our study had 32 males and 28 females (Total-60) with an almost equal male to female ratio. 30 subjects were aged between 21 years and 40 years (50%) and 16 subjects between 1 year and 20 years of age (36.6%). Youngest patient was 2 years old and the oldest 70 years (Table 1). In the <10 years of age group all patients affected were boys, 6 patients (10%).

Table 1: Age and sex.

Age group	Male	Female	Total	Percentage (%)
0-10	6	-	6	10
11-20	8	8	16	26.7
21-30	7	8	15	25
31-40	5	10	15	25
41-50	5	1	6	10
51-60	1	-	1	1.7
61-70	-	1	1	1.7

Duration

Majority of patients (83.3%) had less than 1 year duration of illness, out of which 63.3% had less than 6 months duration. 6.7% of patients had duration >3 years (Table 2).

Onset

At the time of presentation, except for 3 patients who complained of mild itching, none had any symptoms other than loss of hair. Most subjects did not give history of any preceding illness known to precipitate

circumscribed alopecia. 8% admitted they had stressful life or life events in the preceding 6 months before hair loss started.

Table 2: Duration.

Duration	Male	Female	Total	Percentage (%)
0-4 weeks	5	7	12	20
1-2 months	6	2	8	13.3
2-3 months	2	3	5	8.3
3-4 months	4	1	5	8.3
4-5 months	1	-	1	1.7
5-6 months	3	4	7	11.7
6-12 months	6	6	12	20
1-2 years	2	3	5	8.3
2-3 years	1	-	1	1.7
>3 years	2	2	4	6.7

Site of onset

In males occiput (24.3%) was the commonest site affected followed by vertex (13.6%), parietal region (9.19%), frontal region (8.04%) and temporal area (2.29%) while in females vertex (14.9%) followed by frontal region (13.8%), occiput (12.6%) and parietal region (2.3%) were affected (Table 3). 12 males (20.6%) and 14 females (44.8%) had only single lesion. 24% had 2 lesions at the time of presentation and 25.8% had >3 lesions.

Table 3: Site.

Site	Male	%	Female	%	Total
Vertex	11	13.6	13	14.9	27.6
Occipital	21	24.1	11	12.6	36.8
Frontal	7	8	12	13.8	21.8
Parietal	8	9.2	2	2.3	11.5
Temporal	2	2.3	-	-	2.3

Other sites involved

Apart from scalp, beard region was the commonest site affected in males (7 patients) followed by moustache (3 patients) and eyebrow (2 patients). In females apart from scalp no other sites were involved.

Familial incidence

Among the 60 cases, 13 had family history of alopecia. 11.6% gave history of AA in their parents and 10% gave history of AA in sibling.

Atopy

9 patients (15%) had history of atopy including allergic rhinitis, bronchial asthma and atopic dermatitis.

Nail involvement

Nail changes were observed in 18 subjects (30%). Pitting was the commonest finding, followed by longitudinal ridging (4 patients), leukonychia and twenty nail dystrophy in one patient each.

Associated diseases

In our study 3 subjects (5%) had associated vitiligo, one patient had nodular goiter, one patient had lichen planus, and one had Down's syndrome.

Microscopic examination of plucked hair

Microscopic examination of the plucked hair showed dystrophic anagen hair in 70%, dystrophic telogen hair in 15.5%, normal anagen hair in 10% and normal telogen hair in 4.5% of the patients.

DISCUSSION

The first description of AA has been credited to Cornelius Celsus (AD 14-37) and the term Alopecia Areata was first used by Suavages (1706-67) in the *Nosalgia Medica*.⁶ Pioneering studies have detailed the clinical and epidemiological characteristics of this disease.

AA is widely prevalent all over the world accounting for 2-3% of outpatient dermatological attendance.^{6,7} In our study the incidence (0.2%) is much lower. Another Indian study have reported 0.7% incidence.⁴

Past studies have reported an equal gender incidence in AA.⁷ A male preponderance was reported in a study from India.⁴ A study from Singapore reported slight female preponderance.⁵ Our study showed an almost equal gender distribution with 53.7% males and 47% females affected.

The onset of AA can vary from less than one year of age to late seventies.⁸ In our study the youngest patient was 2 years old and the oldest was 70 years. 50% belonged to the age group 21-40 years of age 36.6% of subjects had the onset of AA before 20 years of age. Studies from different parts of the world including a previous study from India reported similar findings.⁴ Only 13.2% had onset after 40 years of age; Sharma et al had reported 8.8% whereas western literature have reported 19 to 30%.^{4,9} In our study an early childhood onset was exclusively noticed in boys though female preponderance was noted in another study from India.⁴

The duration of AA in our study varied from less than 4 weeks to more than 3 years. 20% were with duration <4 weeks, 63% presented with duration <6 months and 83% with 1year duration. Only 6% presented with >3 years duration. This is in accordance with an Indian study conducted by Jain et al in which 78% presented within 6

months of onset.¹⁰ This probably indicates an early awareness of disease process and the desire to seek medical advice in subjects.

In majority of cases we could not find a preceding history known to precipitate. 8% admitted that they had stressful life events in the preceding 6 months of hair loss. The role of psychological factors in the pathogenesis of AA is debated. Studies have shown ambiguous correlation between psychological factors and AA.¹¹⁻¹³ Since we have not done a detailed psychological evaluation of our patients the significance of the above observation cannot be commented upon.

44.8% of our AA subjects had a single scalp lesion and 10.3% had 2 lesions. 55.96% were multiple patched AA. Another study from India by Jain et al reported 64.6% and 35.3% as multiple patched and single patched lesions respectively.¹⁰ An increased incidence of single patch in our study may be due to an early awareness of disease process or increased attention to skin cosmetic changes in our population.

Apart from scalp other sites involved with AA in our study were beard, moustache, eyebrows, and eyelash. In 15% scalp and other sites were combined. This finding is similar to the observation made by Jain et al in his study in which 14.6% of patients had combined involvement of scalp and other areas.¹⁰ In our study we found occiput (36.7%) and vertex (27.6%) as the most common sites of involvement followed by frontal area (11.5%). Temporal region was least affected. We also found occipital involvement more commonly in males as reported by Anderson et al whereas contrary to findings of study from Baroda, India were parietal region was more affected.^{7,10}

In our series 15% of patients with AA had history of atopy. Earlier studies had reported frequencies between 10% and 50%.^{4,14-17} A study from Singapore have reported a higher frequency of 60.7%.⁵

In our study 21.6% of patients with AA gave a history of AA in their first degree relative pointing a genetic link in the pathogenesis. Reported familial incidence in western literature varied from 20% to 40%.^{8,15,18} Indian studies have reported an incidence of 1.7% and 8.7% respectively.^{4,15} A study of AA in Singapore have reported an incidence of 4.6%.⁵

Associated vitiligo was noted in 5% subjects suggesting an association between AA and vitiligo. Pioneering studies by Muller et al found a 4% incidence of vitiligo in their 736 AA patients.⁸ Sharma et al reported an incidence of 4.1%.⁴

A number of reports suggested an association of AA with thyroid disorders. Incidence of thyroid disease in AA ranged from 8% to 33%.^{14,19} We had a single subject with associated thyroid abnormality. Our findings agree with studies from a number of countries in this association.^{4,5}

Literature of AA quotes many incidences of association with other autoimmune diseases like lupus erythematoses, pernicious anemia, ulcerative colitis, lichen planus, myasthenia gravis etc.^{18,20,21} Except for a single case of lichen planus we did not have any other associated autoimmune disorder.

Increased frequency of AA in patients with Down's syndrome have been reported.^{22,23} In our study one case had Down's syndrome.

Nail changes were observed in 30%. The reported incidence ranges from 10-66% in literature.^{4,24,25,26,27} Gandhi et al reported superficial pits as the commonest change observed in 28% and was predominantly associated with multifocal variety of AA.²⁷ In our study also superficial pitting of nail was the commonest finding and was predominantly associated with multifocal variety of AA. Other changes observed were longitudinal ridging, leuconychia and twenty nail dystrophy in one patient each.

Microscopic examination of plucked hair in AA patients showed presence of early dystrophic anagen hair in 70%, dystrophic telogen hair in 15.5% and normal anagen hair in 10% and normal telogen hair in 4.5%. The characteristic finding in AA is the presence of dystrophic anagen and telogen hair structures.²⁸ Our study found predominant dystrophic anagen hairs. This may be due to the short duration of alopecia of less than 6 months in majority of patients.

CONCLUSION

This study aimed at a better understanding of AA profile in South Indian population as we have very limited studies in literature. Almost half of our patients belonged to the age group of 21-40 years of age and 63% presented within 6 months of disease onset. AA in less than 10 year age group showed exclusive male affection though a confirmation can be obtained with a further larger sample study. In males occiput was the commonest affected site while vertex was the respective site in females. We found superficial pitting of nail to be predominantly associated with multifocal variety of AA. Atopy was found in 15% of AA subjects in this study while microscopic examination of plucked hair showed predominantly dystrophic anagen hair (70%). Our study confirms that clinically subtle differences exists in AA between different geographical profiles. Further studies incorporating detailed evaluation and exploring more links including psychosocial aspects will better our understanding of this disease.

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