Original Article

Histological Features Of Alopecia Areata and its Associated Diseases

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Abstract :

Background: *Alopecia areata (AA) is an autoimmune disease that presents as nonscarring hair loss, although the exact pathogenesis of the disease remains to be clarified. AA can affect any hair-bearing area. It often presents as well demarcated patches of nonscarring alopecia on skin of overtly normal appearance. The presence of AA is associated with a higher frequency of other autoimmune diseases.* ***Objective:*** *To evaluate the histological features of alopecia areata and its associated diseases.* ***Materials and methods:*** *It was a cross sectional study carried out in the Department of Dermatology and Venereology, KYAMC, Enayetpur, Sirajgonj during the period of January 2020 to December 2020. Patients suffering from alopecia areata of scalp with or without involvement of other sites. Total 50 sample were included in this study. Data were collected by structured questionnaire. statistical analysis was performed with SPSS (Statistical package of social science) windows version 25.* ***Results:*** *This study found that alopecia areata is more common among the age group of 21-30 years. Among respondents 27(54%) were within this group. Mean age of this study participant was 28.42±7.85 years with a range of 18 to 50 years. Among them 29(58%) were male and 21(42%) were female. Majority (78%) were seen on the scalp and 22% were seen in face. Majority (92%) were duration of disease 1-3 years and only 8% were 3-5 years. Most of the patients, 39 (78%) were in the chronic stage. It was revealed that 16% respondent had autoimmune disease.* ***Conclusion:*** *This study shows most common associated skin disease in hypothyroidism among the systemic diseases and chronic stage. Early diagnosis and treatment of alopecia areata can reduce the burden of associated diseases.*

Key words: Biofilm, tissue culture plate method

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Introduction:

Alopecia areata (AA) is a non-scarring hair loss with an unpredictable course and a wide spectrum of manifestations. It affects both genders equally with a cumulative lifetime incidence of about two percent and no significant racial predominance[1-2]. It is an autoimmune disease with a variable, typically relapsing or remitting especially when hair loss is extensive. Alopecia areata is the second-most frequent non-scarring alopecia, after male and female pattern alopecia. Clinical patterns of hair loss in alopecia areata are usually very distinct. The most common pattern is a small annular or patchy bald lesion (patchy alopecia areata), usually on the scalp to total loss of scalp hair only (alopecia totalis), and total loss of all body hair[3].

The pathophysiology of alopecia areata remains unknown. The most widely accepted hypothesis is that alopecia areata is a T-cell mediated autoimmune condition that is most likely to occur in genetically predisposed individuals[4]. In the histological assessment of scalp biopsy specimens from alopecia areata, the diagnostic pathologic feature is peribulbar lymphocytic inflammation ("Swarm of bees") affecting anagen follicles or follicles in early catagen. The normal structural features of the anagen follicle and of the hair follicle cycle is needed for study of the abnormal changes involved in the histopathology of alopecia areata[5]. Alopecia areata is a multifactorial disease with autoimmune components, which although seen in genetically predisposed individuals, the real causes have yet to be determined and various factors should be considered. There are indications for a T-cell-mediated autoimmune process directed against an unknown autoantigen of the hair follicle. T lymphocytes that have been shown to be oligoclonal and autoreactive are predomi-

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nantly present in the peribulbous inflammatory infiltrate. Alopecia areata frequently occurs in association with other autoimmune disorders such as vitiligo, lichen planus, morphea, lichen sclerosis, pemphigus foliaceus, atopic dermatitis, Hashimoto's thyroiditis, hypothyroidism, endemic goiter, Addison's disease, pernicious anemia, lupus erythematosus, diabetes mellitus, Down's syndrome and others[6]. The purpose of this study was to evaluate the pathological changes of alopecia areata and it's associated with disease.

Materiais and Method

It was a cross sectional study carried out in the Department of Dermatology and Venereology, KYAMC, Enayetpur, Sirajgonj during the period of January 2020 to December 2020. Patients suffering from alopecia areata of scalp with or without involvement of other sites. Total 50 sample were included in this study. Data were collected by structured questionnaire. A careful history was taken from each patient regarding the presence of atopy or other autoimmune diseases. A family history of alopecia areata, atopy and autoimmune diseases were also recorded. Data were collected by structured questionnaire. Statistical analysis was performed with SPSS (Statistical package of social science) windows version 25.

Results

Table I: Demographic characteristics of the patients

Characteristics	Frequency	Percent
Age in years		
≤20	7	14.0
21-30	27	54.0
31-40	12	24.0
41-50	4	8.0
Mean±SD	28.42±7.85	
Sex		
Male	29	58.0
Female	21	42.0
Male female ratio	1.3:1	

Table II: Clinical presentation of the study subject

Clinical presentation	Frequency	Percentage (%)
None	7	14.0
Patch (1-2)	36	12.0
Patch (3-4)	9	18.0
Patch (5-6)	4	8.0

Table III: Distribution of Alopecia Aerata according to site

Site of hair loss	Frequency	Percent
Scalp	39	78.0
Face	11	22.0

Table IV: Distribution of duration disease in study subject (n=50)

Duration	Frequency	Percentage
1-2 years	46	92.0
3-5 years	4	8.0

Table V: Distribution of duration disease in study subject (n=50)

Stages of alopecia areata	Frequency	Percentage
Acute	4	8.0
Subacute	7	14.0
Chronic	39	78.0

Table VI: Associate with systemic disorders of the study subject (n=50)

Systemic diseases	Frequency	Percentage
Hypothyroidism	2	4.0
Diabetes	1	2.0
Anaemia	2	4.0
Bronchial Asthma	1	2.0
Leukonychia	1	2.0
Lichen Planus	1	2.0
None	42	84.0

Discussion

Alopecia areata (AA) is a clinically distinctive form of 'non-scarring' alopecia that is rarely biopsied and hence, many pathologists are unfamiliar with its interpretation. The role of a pathologist is vital when dealing with atypical presentations, such as patients progressing to scarring, use of topical medications that alter the picture and of late, in trying to provide prognostic information[7]. This present study demonstrated that the histological features of alopecia areata and its associated diseases. The present study findings were discussed and compared with previously published relevant studies.

This study found that alopecia areata is more common among the age group of 21-30 years. Among respondents 27(54%) were within this group. Mean age of this study participant was 28.42±7.85 years with a range of 18 to 50 years. These findings consistent with other studies[8,9].

In this study shows among them 29(58%) were male and 21(42%) were female. These findings consistent with Husain et al. they revealed that males (56.7%) were predominant than that of females (43.3%). This result also supported by Sharma et al[8]. They showed that 61.2% patients were male and 38.8% were female in their study.

This study shows majority (78%) were seen on the scalp and 22% were seen in face. Therefore, the findings of the study are in well agreement with the findings of the other research works[10]. Similar study Sharma et al. they reported eyebrows alopecia in 5.2% of their patients along with scalp alopecia. This result is not consistent with the present study[9].

This study shows majority (92%) were duration of disease 1-3 years and only 8% were 3-5 years. Similar study Chaitra et al. the duration of the lesions at the time of biopsy ranged from 3 months to 5 years[7].

Present study revealed that most of the patients, 39 (78%) were in the chronic stage. Therefore, the findings of the study are in well agreement with the findings of the other research works.10 Similar study Whiting11 they studied 50 patients among them 31 (62%) patients were in chronic stage of alopecia areata.

From the present study it was revealed that 16% respondent had autoimmune disease. Therefore, the findings of the study are in well agreement with the findings of the other research works[10]. Similar study Whiting[11]. found that in 20% to 30% of patients were associated with other autoimmune disease. Bronchial asthma was seen in 1.0 % cases which is lower to the prevalence reported by Gopal et al.12 (4.2%). Diabetes mellitus was seen in 1.0 % cases. Hypothyroidism was seen in 5% cases, while Gopal et

al[12]. reported 2.5 % cases with hypothyroidism. Lewinski and Broniarczyk-Dyla et al[13]. also confirmed the frequent coexistence of alopecia areata and thyroid abnormalities. Hypothyroidism, bronchial asthma and diabetes mellitus have a proposed autoimmune etiology. Muller and Winkelman[14] studies showed association of alopecia areata with atopy in 18% of children and 9% of adults. These associations trends are available that could indicate that alopecia areata could be an autoimmune disorder. But further studies are needed in this regard.

Conclusion

The present study concludes alopecia aerata is more prevalent in males with scalp and face are the most common areas involved. Most common associated skin disease and hypothyroidism among the systemic diseases. It can be recommended that transverse histologic section of the biopsy specimen may be taken to see the alterations of terminal and vellus hair ratio which is also helpful to differentiate the chronic stage from other stages of alopecia areata. Thus, this study recommends that there is a need for early diagnosis and treatment of alopecia areata which can reduce the burden of various dermatological and systemic diseases.

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