ORIGINAL RESEARCH PAPER
Volume - 12 | Issue - 11 | November - 2023 | PRINT ISSN No. 2277 - 8179 | DOI : 10.36106/ijsr
INTERNATIONAL JOURNAL OF SCIENTIFIC RESEARCH

ASSOCIATION OF ALOPECIA AREATA WITH AUTOIMMUNE DISEASES – A CLINICAL STUDY IN A TERTIARY CARE CENTRE

Dermatology

Dr Praveena Thiriveedhi — Associate Professor, Dept. of DVL, Santhiram Medical College and General Hospital, Nandyal.

Dr. Srividya — Resident, Dept. of DVL, Santhiram Medical College and General Hospital, Nandyal

Dr Madhavi Latha Midde — Professor, Dept. of DVL, Santhiram Medical College and General Hospital, Nandyal

ABSTRACT

Alopecia areata (AA) is a common cause of non-cicatricial alopecia that occurs as a patchy, confluent, or diffuse pattern. Autoimmune etiology is proposed due to its association with other autoimmune diseases. The aim of the current study is to determine the association of alopecia areata with autoimmunity.The current study includes 80 patients of Alopecia areata. The patchy type was most common and thyroid disorders were the most common association followed by diabetes mellitus and vitiligo. Among the thyroid disorders, hypothyroidism was the most frequent association. As the association is statistically significant, it is important to screen alopecia areata patients for thyroid disorders.

KEYWORDS

alopecia areata, thyroid disorders, autoimmune diseases

INTRODUCTION

Alopecia areata (syn: pelade, Area celsi), described for the first time by Celsus (AD 14-37) is a common form of non-scarring alopecia involving the scalp and body, characterized by hair loss without any clinical inflammatory signs[1]. It may affect any hairy area of the body and is usually reversible. The disease can occur at any age between the second and fourth decade.[2] It affects 1% of the general population.

Alopecia areata is a T cell-mediated organ-specific autoimmune disease. despite the presence of this inflammatory infiltrate, the follicle retains its potential to produce hair, implying that the stem cells of the hair follicle remain intact. Autoimmunity plays a major role in the pathogenesis, conditions that can associated with AA are Vitiligo, Atopy, Down syndrome, Pernicious Anemia, psoriasis, lupus, Celiac disease, Diabetes mellitus, Atopic dermatitis, Hashimoto's thyroiditis, lichen planus, Morphea, Hypothyroidism, Addison's disease, Down syndrome, and others[3].

More studies are warranted to better understand the prevalence of autoimmune diseases in alopecia areata. In view of the autoimmune etiology of AA, a prospective clinical study was carried out to determine the association between alopecia areata and other autoimmune disorders.

METHODOLOGY

The present study was a prospective observational study conducted over 1 year in 80 patients of clinically diagnosed alopecia areata in a tertiary care hospital. After obtaining consent from the patients and excluding the patients who were on treatment, a detailed history and clinical examination were done. Clinical photographs and trichoscopy images were taken. Salt score (Severity of Alopecia tool score) was used to assess the severity. Investigations like Complete blood picture, serum ferritin, VDRL, KOH examination, and trichogram were done when necessary.

Thyroid profile including TSH, T3, T4, TPO Ab, peripheral smear, and anemia panel were done in all cases. Skin biopsy and autoimmune panel were done in cases where required.

RESULTS

In the present study, out of 80 patients, 44 were males and 36 were females. The majority of patients belonged to the age group of 11-20 years. 61 patients (76.3%) had a duration of < 1 year. 6 (7.5%) cases with duration 1-2 years, 3 (3.8%) with 2-3 years, 5 (6.3%) with 3-4 years, and 5 (6.3%) with 4-5 years of duration. History of Atopy was present in 7(8.8%) of the 80 patients.

Among the 80 patients, the scalp was the most commonly involved site affecting 71(88.8%) patients. 2 patients had involvement of mustache, and 5 patients had involvement of scalp, eyebrows, eyelashes, truand nk, extremities. 1 patient had involvement of beard, eyebrows, and eyelashes.

Among the 80 patients, the most common type of involvement was patchy 63(78.8%), 8 (10%) had a diffuse pattern, 5(6.3%) had alopecia universalis, 2(2.5%) had ophiasis, 1.3% had each alopecia totalis and sisiapho patterns.

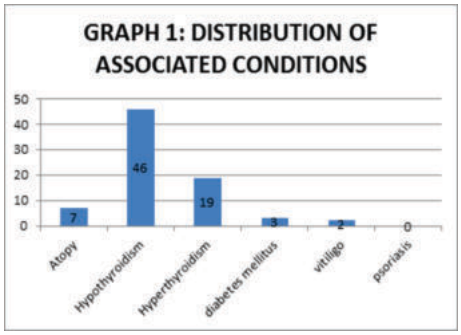
Five patients (6.25%) had nail involvement. the most common nail finding was pitting, noticed in 3 (3.75%), 1 had leukonychia, and 1 had trachyonychia.

In the present study, the trichoscopic findings in patients with alopecia areata, the most common finding was white dots 71(24.7%), followed by black dots 47 (16.4%), perifollicular halo 39 (13.6%), scaling 32 (11.1%), broken hair 20(7%), yellow dots 19 (6.60%), empty follicles 17 (5.90%), graying 13 (4.50%), hidden hair 7(2.40%), coiled hair 6 (2.10%), bent hair 7 (2.40%), exclamatory mark 6 (2.10%), pustules 3 (1.0%).

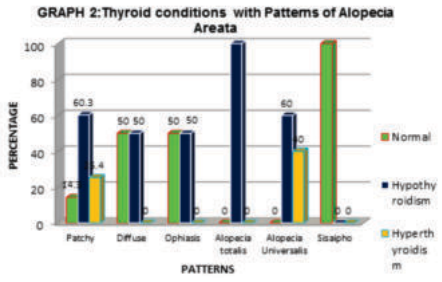
TABLE 1 - Distribution of Trichoscopy Findings

Trichoscopy Findings	Number Of Cases	Percentage
White dots	71	24.70
Yellow dots	19	6.60
Black dots	47	16.40
Perifollicular halo	39	13.60
Empty follicles	17	5.90
Greying	13	4.50
Pustules	3	1.00
Broken hair	20	7.00
Scaling	32	11.10
Hidden Hair	7	2.40
Coiled hair	6	2.10
Exclamatory Mark	6	2.10
Bent Hair	7	2.40

In the present study, 65 had thyroid dysfunction. Out of 65 patients, 46 (59.7%) had Hypothyroidism, 19 (24.7%) had Hyperthyroidism. 7 (9.1%) had Atopy, 3 (3.9%) had Diabetes mellitus, and 2 (2.6%) had Vitiligo. The most common illness was Hypothyroidism followed by hyperthyroidism.



Out of 80 patients, 47 (58.8%) with hypothyroidism, with the most common pattern patchy type 38, 4 diffuse, 3 alopecia universalis, and 1 each with ophiasis and alopecia totalis. 18 (22.5%) patients with hyperthyroidism with most common patchy 16, 2 alopecia universalis. out of 15 normal patients, 9 had a patchy type, 4 had diffuse, 1 with ophiasis, and 1 with sisaipho. (p-value -0.12).



Out of 80 patients, 65 (81.3%) had Thyroid disease. Thyroid disease was most commonly seen in the age group of 11-20 years (27.6%) and followed by 0-10 years(21.53%).

Table 2 - Salt score Severity				
	Number Of Patients	Percentage	Mean	S.D
Mild	26	32.5	15.18	5.86
Moderate	40	50.0		
Severe	14	17.5		
Total	80	100.0		

Out of the eighty patients who had involvement of the scalp, the majority had moderate involvement (50%), 26 (32.5%) had mild involvement & 14 (17.5%) had severe involvement, with a mean SALT score of 15.18 & standard deviation of 5.86.

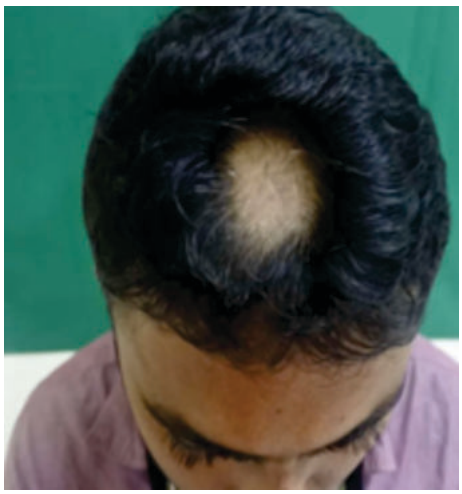


Fig 1. Patchy AA

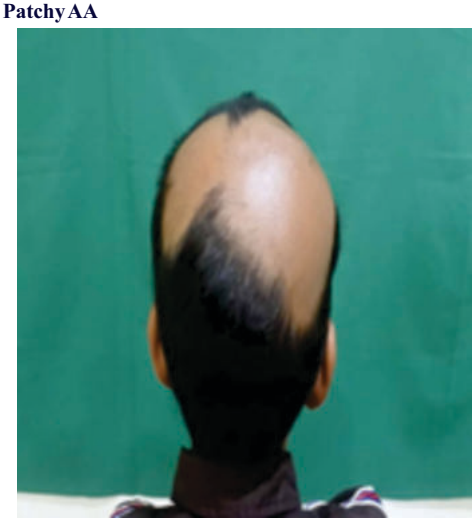


Fig 2. Diffuse AA

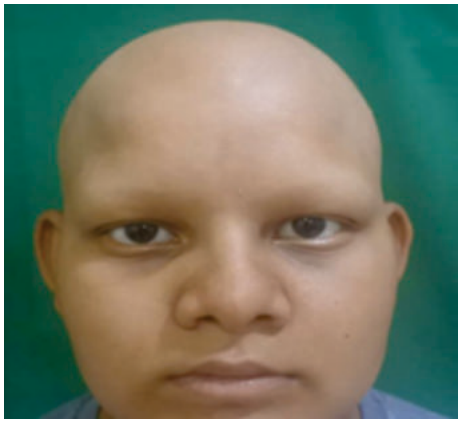


Fig3. Alopecia Universalis

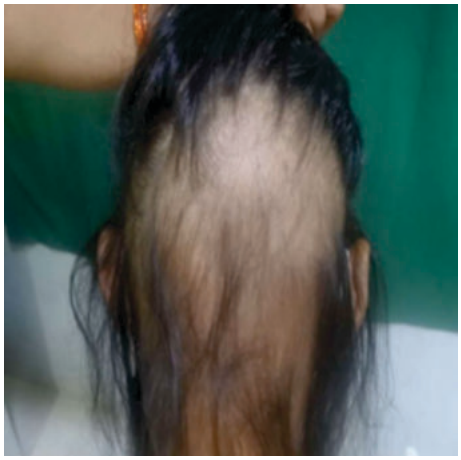


Fig 4. Ophiasis

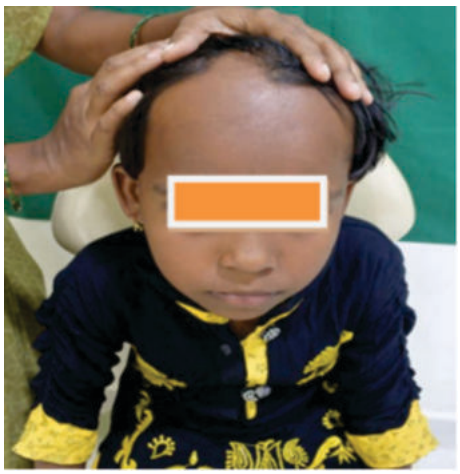


Fig 5. Sisaphio

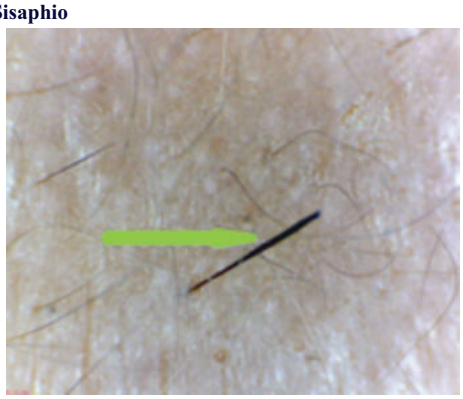


Fig 6. Exclamatory Mark Hair

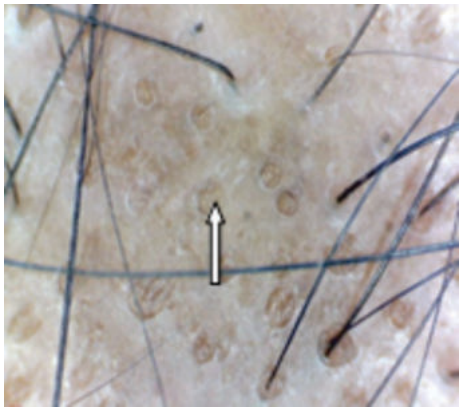


Fig 7. Empty hair follicles

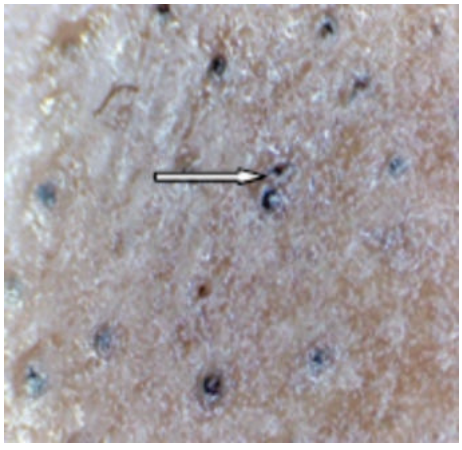


Fig 8. Black dots

DISCUSSION

Alopecia areata is caused by autoreactive lymphocytic infiltrations around the hair follicles and due to IFN-γ.[4] Autoimmune etiology can be supported by its association with other autoimmune diseases, the presence of auto-antibodies, and due to its response after correcting thyroid disorders. Its chronicity and high rate of recurrence represent a continuous reactivity of the pilar units. Genetic factors determine the capacity of hair to react in clinically recognized patterns.[5] Thyroid disease is probably the most common association, with an incidence between 8 – 28%. Vitiligo, diabetes, and atopy are other associated conditions with alopecia areata.

In the present study, Thyroid dysfunction was present in 65 patients (81.3%) out of the total 80 cases. Hypothyroidism was the most common in 47 (58.8%) patients and Hyperthyroidism was seen in 18 (22.5%) patients respectively, 7 (9.1%) had Atopy, 3 (3.9%) had Diabetes mellitus, 2 (2.6%) had Vitiligo.

Cunliffe et al[6]. reported Thyroid disease in 38% of patients. Marahatta S et al[7] reported among all AA patients with thyroid dysfunction, 13 (17.3%) AA patients, 12 (16%) had Hypothyroidism, and one patient (1.3%) had Hyperthyroidism. Lyakhovitsky et al[8] had reported in which Hypothyroidism was more frequent among AA patients. In that study, out of 78 AA patients, 15 (19%) had Thyroid dysfunction, and of those 15 patients, 14 (18%) had hypothyroidism, and one (1%) had Hyperthyroidism.

A study by Ahmed et al[9]. reported out of 10 AA patients with Thyroid dysfunction, 9 (90%) had Hypothyroidism, and one (10%) had Hyperthyroidism. A study conducted with 736 patients suffering from alopecia areata by Muller and Winkelmann[10] pointed to 59 patients (8.01%) having a clinical Thyroid abnormality. These 59 patients included 14 cases of Hyperthyroidism, 27 cases of simple goiter, seven cases of Myxoedema, six cases of Hashimoto's thyroiditis, and five cases of the previous Thyroidectomy.

The most common age group in the present study with thyroid disease was between 11-20 years, followed by 0-10 years, and the least common association was seen between the age group of 51-60 years. Goh et al.[11] noticed more in patients above 40 years and least in less than 20 years of age group.

An association between alopecia areata and atopy has been observed in several studies. Alopecia areata in atopic subjects tends to have an earlier age of onset and be more severe than in nonatopic subjects.

Atopy was found to be associated with 7 (8.8%) of patients in the present study. The frequency of atopy ranged between 10-20%. Shellow et al[12]. (12%), and Thomas et al[13]. (11.5%), had reported no significant correlation between atopy and severity of alopecia areata.

Muller et al.[10] had reported Vitiligo in 4% of cases. Thomas et al.[13] reported Vitiligo in 2.8% of cases. Sharma et al.[14] had reported vitiligo in 1.8% of cases. Guruprasad et al.[15] reported 1% of patients with Vitiligo.

Diabetes mellitus was detected in 3 patients (3.75%). All these patients were in the 4th and 5th decade of their life. Thomas et al[13]. reported diabetes in 7.1%. In contrast, Tan et al.[16] (3.3%), Goh et al[11]. (4%), and Sharma et al.[14] (0.4%) reported much lower incidence. Other associated conditions are Down syndrome, Addison's disease, Systemic lupus erythematosus, Celiac disease, Ulcerative colitis, and Multiple sclerosis. This present study did not identify any patients with these conditions.

CONCLUSION

Alopecia areata is a nonscarring, common, chronic inflammatory disease characterized by circumscribed areas of hair loss with no surface changes. It is a T cell-mediated disease characterized by peribulbar lymphocytic infiltration. Genetics, Atopy, and autoimmunity play a role in its pathogenesis. The most common clinical pattern of alopecia areata was the patchy type. The most common associated condition was thyroid disease, and other associated conditions like atopy, vitiligo, and diabetes mellitus were observed. The present study found that alopecia areata was associated with thyroid diseases predominantly in younger individuals. The most common thyroid disease was hypothyroidism. The present study found an association between thyroid disease and alopecia areata with a statistically significant p-value of 0.024.

Conflict Of Interest – None

REFERENCES

1. Kolalapudi Anjaneyulu Seetharam, Alopecia areata;An update , Indian J Dermatol venereal leprol , 2013: 79:5,563-575.
2. Sharma VK, Dawn G, Kumar B, Profile of alopecia areata in Northern India. Int J Dermatol 1996;35:22-7.
3. Manzoor S, Masood C. Alopecia areata in Kashmir; A study of 200 patients. L.Indian J Dermatol venereal leprol 2001:67:324-5.
4. Simakou T, Butcher JP, Reid S, Henriquez FL. Alopecia areata: A multifactorial autoimmune condition. J Autoimmun. 2019 Mar;98:74-85.
5. Muller SA, Winkelmann RK. Alopecia areata. Arch Dermatol. 1963;88:290–7.
6. Cunliffe W J, Hall R, Stevenson C J, Weightman D. Alopecia areata, thyroid disease, and autoimmunity.Br J dermatol .1969;81:877-81.
7. Marahatta S,Agarwal S, Mehata KD.Alopecia areata and thyroid dysfunction association –A study from Eastern Nepal.2018;62:161-165.
8. Lyakhovitsky A, Shemer A, Amichai B, Increased prevalence of thyroid disorders
9. in patients with new onset alopecia areata.Australas J Dermatol .2015;56:103-6.
10. Ahmed I, Nasreen S, Jehangir U, Wahid Z. Clinical spectrum of alopecia areata and its association with thyroid dysfunction. J Pak Assoc Dermatol .2012;22:207-12.
11. Muller SA,Winkelman RK.Alopecia areata .Arch Dermatol .1963;88:290-7
12. Goh C, Finkel M, Christos PJ, Sinha AA.profile of 513 patients with alopecia areata: associations of disease subtypes with atopy, autoimmune disease, and positive family history. J Eur Dermatol Venereol .2006;20:1055-60.
13. Shellow WV, Edwards JE, Koo JY.profile of alopecia areata: a questionnaire analysis of patient and family.Int J Dermatol .1992;31(3):186-189.
14. Thomas EA, Kadyan RS. Alopecia areata and autoimmunity: A clinical study. Ind J Dermatol. 2008; 53:70–4.
15. Sharma VK, Dawn G, Kumar B.Profile of alopecia areata in Northern India.Int J Dermatol .1996;35:22-7.
16. P.Guruprasad K.V.Chalam,T.Priyadarshini P, Anila Sunandhini .clinical and investigational study of alopecia areata with special reference to systemic association in 100 patients.Journal of Evolution of Medical and Dental Sciences .2015; vol 4, issue 80, Oct 5;13919-13930.
17. Tan E, Tay YK, Goh CL, Chin Giam Y. The pattern and profile of alopecia areata in Singapore—a study of 219 Asians. Int J Dermatol 2002;41:748-53.