

## A CLINICO-INVESTIGATIVE STUDY OF ALOPECIA AREATA WITH SPECIAL REFERENCE TO ITS ASSOCIATION WITH VARIOUS SYSTEMIC AND DERMATOLOGICAL DISORDERS

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### ABSTRACT

#### BACKGROUND

Alopecia areata is an immunologically mediated disorder characterized by focal to diffuse hair loss. AA is hypothesized to be an organ specific autoimmune disease mediated by T lymphocytes directed against the hair follicles. Although genetic predisposition and environmental factors may trigger the initiation of the disease, the exact cause is still unknown.

#### METHODS

100 clinically diagnosed cases of Alopecia Areata attending DVL department, attached to GGH Kurnool, were studied. A detailed proforma was taken, which included- 1) Detailed history including chief complaints related to skin and hair. 2) Complete physical and systemic examination. 3) Relevant investigations were done in patients. A prospective, descriptive study on Alopecia Areata subjects was conducted over a period of 22 months from December 2014 to September 2016, attending the Out-Patient Department of DVL, Government General Hospital attached to Kurnool Medical College, Kurnool.

#### RESULTS

In the present study the incidence of alopecia areata in patients attending DVL outpatient department is 1.9.

#### CONCLUSIONS

In the study period of 22 months, percentage of AA cases observed is 1.9% among all cases attending DVL OPD, GGH, Kurnool. Among study subjects, most common age group affected is 20-40 years. In this study, systemic disorders associated with AA are atopy (12%), thyroid abnormalities (11%), diabetes mellitus (5%), hypertension (2%), dental caries (7%), iron deficiency anaemia (6%), down's syndrome (1%), right maxillary sinusitis (1%), jaundice (1%) and CSOM (1%).

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#### Aims and Objectives

To know incidence of AA among the outpatient population attending DVL OPD, Government General Hospital, Kurnool. To study various clinical patterns of Alopecia areata. To study various systemic and dermatological disorders associated with AA.

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#### Inclusion Criteria

1. All patients of both sexes clinically diagnosed as Alopecia Areata.

#### Exclusion Criteria

1. Cicatricial Alopecia/Scarring Alopecia.
2. Congenital Alopecia /Ectodermal dysplasia.
3. Drug induced Alopecia.
4. Trichotillomania.
5. Moth eaten Alopecia in Secondary Syphilis.
6. Patients having active infection.

7. Patients on chemotherapy and radiotherapy.
8. Non co-operative patients.

**RESULTS**

**Sample Size**

One hundred clinically diagnosed cases of Alopecia areata attending the Out-Patient Department of DVL, Government General Hospital attached to Kurnool Medical College, Kurnool were chosen after consent. Parenteral consent was taken in children less than 18 years of age.

**Exclamatory mark hairs and pull test:**

In the present study acutely presented cases showed pull test positive of >6 hair follicles. Exclamatory mark hairs are present in almost all of the cases presented acutely.

In the present study the incidence of Alopecia areata in patients attending DVL outpatient department is 1.9.

Male	59	59%
Female	41	41%
Total	100	

**Table 1. Sex Distribution in Total Cases**

In the present study there is male preponderance.

Age	No.	Percentage
<20	38	38%
20-40	54	54%
>40	8	8%
Total	100	

**Table 2. Age Distribution in Total Cases**

In the present study most common age group involved is 20-40 years (54%).

In the present study AA is higher among low socioeconomic group accounting for about 60% of cases.

Site of Lesion	No.	Percentage
Occiput	48	39.3%
Vertex	33	27%
Temporal	21	17.2%
Frontal	8	6.5%
Beard	7	5.7%
Eyebrow	5	4%

**Table 3. Site of Involvement**

According to the present study occiput is the most commonest site accounting for 39.3% cases followed by vertex 27% and temporal area 17.2% of cases.

**Systemic Involvement**

The present study showed 3% of Allergic rhinitis cases in contrast to Thomas et al study where it was 4.2%. Association of BA in present study (2%) was comparable to Thomas et al (4.2%) study.

	Present Study	Thomas et al
Allergic rhinitis	3%	4.2%
Bronchial asthma	2%	4.2%
DM	5%	7.1%
HTN	2%	2.8%
Hypothyroidism	10%	14.1%
Hashimoto's thyroiditis	1%	-
Iron deficiency anaemia	6%	8.4%

**Table 4. Associated Systemic Disorders- Comparison of Different Studies**

**Investigations**

Thyroid abnormality is noted in 11% of cases.

Atopy is seen in 12% of cases.

**Haemoglobin and Peripheral Smear**

In present study microcytic hypochromic type of anaemia is seen in 6% of cases which was comparable to Thomas et al study in which anaemia was present in 8.4% of cases.

ESR was normal in all most all cases.

Fasting blood sugars are elevated in 5 cases corresponding to Diabetes mellitus in history. Liver and renal function tests are normal in almost all cases.

Biopsy Punch Biopsy was taken in 20 cases. Histopathology report showed both anagen and telogen follicles with perifollicular lymphocytic infiltrate which was in concordance with previous studies.

**Relapses**

In the present study recurrences are seen in 14% of total cases. There were no comparative studies available for this parameter. In childhood cases 11.7% cases showed recurrence which was comparable to the study conducted by Viswanath et al study where recurrences were seen in 14% cases.

**Treatment**

The aim of AA treatment is to suppress the activity of the disease. The high rate of spontaneous remission and the paucity of randomized, double-blind, placebo-controlled studies make the evidence-based assessment of these therapies difficult.

Topical	Systemic	Miscellaneous
Corticosteroids	Corticosteroids	Cyclosporine
Minoxidil	Sulfasalazine	Methotrexate
Anthralin	PUVA	Azathioprine
Immunotherapy		Capsaicin
Phototherapy		Bexarotene 1% gel
		Camouflage

**Table 5. Different Treatment Modalities**



**Figure 1. Alopecia Universalis**



**Figure 5. AA- Reticulate Pattern**



**Figure 9. Nail Pitting**



**Figure 2. AA Involving Frontal Region of Scalp**



**Figure 6. Ophiasis**



**Figure 10. Nail Dystrophy**



**Figure 3. AA- Patchy Type**



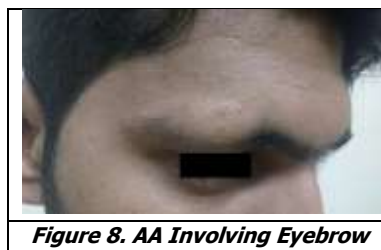
**Figure 7. Sisaipho**



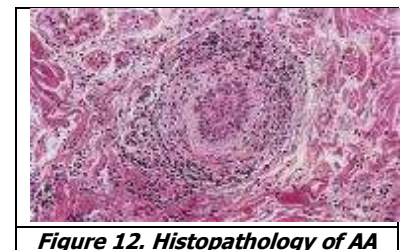
**Figure 11. AA With Vitiligo**



**Figure 4. AA Involving Fronto Temporal Region of Scalp**



**Figure 8. AA Involving Eyebrow**



**Figure 12. Histopathology of AA**

**DISCUSSION**

Alopecia Areata (AA) is a condition affecting hairy areas of the body, in which hair is lost from some or all areas of the body usually from the scalp sometimes from other areas like beard, eye brows etc., It is a disease with multifactorial aetiology and associations. Prompt recognition of the disease at the earliest and looking for associated conditions are important in treatment and counselling the patients

**Incidence**

In the present study percentage of AA in patients attending DVL OPD is 1.9%, which was comparable to Dawber et al<sup>1</sup> study which showed 2% incidence of AA among outpatient attendees.

**Sex Incidence**

The study showed a slight preponderance of AA in males (59%) compared to females (41%). This was in concordance with observation made by Sharma et al<sup>2</sup> study which showed slightly higher incidence among males but Tan et al study

showed higher incidence among females<sup>3</sup> and Wasserman et al study showed equal incidence among both sexes.<sup>4</sup> In the present study among children there was male preponderance (63% were males, 37% females) but Viswanath et al<sup>5</sup> study showed 54% were females and Sharma et al<sup>6</sup> study reported 58% were female cases.

**Age Incidence**

In this study most patients belonged to the age group of 20-40 years (54%). In this study second common age group was < 20 years age, 38% of patients belonged to this group but in Wasserman et al study 60% cases had AA before 20 years of age.

Most patients develop AA before 40 years of age,<sup>6</sup> with 11% to 20% of all cases occurring in children.<sup>7,8</sup>

**Occupation**

Most of the patients attending the outpatient of Government General Hospital, Kurnool belonged to low socio-economic

group (Income group of less than Rs. 5,000, per month). Probably anaemia or deficiency of nutrients may play a role in the higher incidence of AA observed in low socioeconomic groups.

## Clinical Types

### 1. Classic forms

- A. Alopecia Areata in Single or Unifocal Plaque  
In this form there is a single round or oval smooth alopecic plaque, in which the skin coloration is normal with hair of a normal appearance in the periphery of the plaque that is easily plucked by traction (demonstrating activity of the process). Typical exclamation mark hair can be present.
- B. Alopecia Areata in Multiple or Multifocal Plaques  
In this form, typical alopecic plaques occur that affect the scalp or other pilar areas.
- C. Ophiasic Alopecia Areata  
In this presentation, the hair loss occurs along the line of temporo-occipital implantation giving rise to an extensive alopecic area in a band that reaches the inferior margins of the scalp.
- D. Alopecia Totalis  
There is total loss of terminal hair of the scalp with or without involvement of eyebrows and eyelashes without affecting other body hair.
- E. Alopecia Universalis  
There is total loss of body hair, involving the scalp, eyelashes, eyebrows, beard and moustache, armpits and genital areas. Besides these forms that are considered classic, there are atypical presentations of Alopecia areata.

### 2. Atypical Forms

- A. Sisaipho Type AA (Inverse Ophiasis)  
In this form, the hair loss involves the entire scalp except for the lower margins along the line of temporo-occipital implantation. It is the inverse clinical image of the ophiasis form.
- B. Reticular AA  
In this form multiple alopecic plaques occur separated by narrow bands of preserved hair conferring a reticulated aspect to the picture.
- C. Diffuse AA  
In this form hair loss is acute and widespread. It can be the initial form, mainly among children and adolescents or can develop from plaque forms.

## Aetiology

The exact aetiology of AA is not known. Family history is positive in 10 to 20% of cases. Family history of AA is more

common in those with disease onset before the age of 30 years. The aetiology and pathogenesis of Alopecia areata is still uncertain but many factors have been described in its pathogenesis e.g. genetic, family history, the atopic state, non-specific immune and organ specific autoimmune reaction, possible emotional stress, infectious agents and neurological factors.

## Associated Symptoms

Alopecia Areata (AA) is a condition affecting hairy areas of the body, in which hair is lost from some or all areas of the body usually from the scalp sometimes from other areas like beard, eye brows etc.

## Associated Diseases

### A. Dermatological Associations

In the present study Atopic dermatitis is present in 12 cases accounting for 12% of study population. Lichen planus was seen in 1% of cases in the present study, which was comparable with Thomas et al<sup>9</sup> study where LP was seen in 1.4%. Lichen planus was seen in 1% of cases in the present study, which was comparable with Thomas et al<sup>9</sup> study where LP was seen in 1.4% of cases but in Sharma et al study only 0.7% cases had Lichen planus.<sup>2</sup>

### B. History of Other Disorders

In the present study disorders like diabetes mellitus, Hypertension, Atopy, Thyroid disorders were assessed. In this study Atopy is most commonly associated with Alopecia areata, seen in 12% of cases, observations were comparable with Sharma et al study where atopy was observed in 18% of cases. In the present study 11% of childhood cases showed history of Atopy comparable to Viswanath et al study where Atopy was positive in 10% of cases.

In present study caries tooth are noted in 7% of cases. There are some case reports of AA associated with dental caries.<sup>10</sup> The pathogenesis of AA of dental origin is usually based on a trigemino-sympathetic reflex.<sup>11</sup> Some studies have demonstrated the presence of systemically circulating immune complexes especially in acute dental infections.

## CONCLUSIONS

- In the study period of 22 months, percentage of AA cases observed is 1.9% among all cases attending DVL OPD, GGH, Kurnool
- Among study subjects most common age group affected is 20-40 years.
- Among children who were included in the study, most of the children belonged to the age group of 11-16 years.
- There was a slightly higher incidence among males than females in total study population.

- Almost 60% of cases belonged to low socio-economic status.
- Present study noted stress as a triggering factor in 12% of cases.
- Almost 50% of patients presented with lesions on occipital area.
- Recurrences are present in 14% of cases indicating the need for counselling patients/parents before initiation of therapy.
- In this study, systemic disorders associated with AA are atopy (12%), thyroid abnormalities (11%), diabetes mellitus (5%), hypertension (2%), dental caries (7%), iron deficiency anaemia (6%), Down's syndrome (1%), right maxillary sinusitis (1%), jaundice (1%) and CSOM (1%).
- Importance of association of AA with other autoimmune disorders reflects the role of autoimmunity in the pathogenesis.
- AA can have enormous psychological impact especially in severe cases. Nearly 100% of severe cases had depression which indicates the need for counselling.

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