

**Clinico-epidemiological study of alopecia in tertiary care hospital - A cross sectional study**

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**Abstract**

Hair disorders are a common complaint in dermatology clinics and can be caused by a number of conditions, reflected in a specific diagnosis. Hair types vary from region to region and this may affect various causes hair loss.

Therefore, this study was conducted to determine the types of hair problems in our region. The objective of the study is to determine various patterns and causes of hair loss in patients attending outpatient department of dermatology, venereology & leprosy. This was a cross-sectional study conducted over a period of 4 months.

The patients attending the dermatology outpatient department presenting with alopecia, irrespective of age were screened after obtaining a written consent from

them. Detailed history of the patient including name, age, sex, family and past history were taken. The general clinical and local examination of the patient were done. Clinical pattern of hair loss is broadly divided into scarring, non-scarring alopecia, diffuse and patchy alopecia.

A total of 400 patients were included in the study. Range of age group is from 5 to 80 years. Among them non-scarring alopecia were seen in 94% and scarring alopecia were seen in 6% of patients. Diffuse hair loss is seen in 56% and patchy hair loss seen in 44%.

Among non-scarring alopecia, most common is telogen effluvium (41%), followed by alopecia areata (31%), androgenic alopecia (13%), tinea capitis (6%), female pattern baldness (1.3%), alopecia universalis (1.3%) and

trichotillomania (0.5%). Among scarring alopecia DLE (4%) and lichen planopilaris (2%) were noted. In conclusion, prevalence of various conditions causing hair loss determines the disease burden of each cause. In our study we found non scarring alopecia was more common than scarring alopecia.

**Keywords:** Alopecia, non-scarring, scarring, diffuse, patchy

### **Introduction**

Hair disorders are a common complaint in dermatology clinics and can be caused by a number of conditions, reflected in a specific diagnosis.<sup>1</sup> Hair has no vital function in humans, yet its impact on the psychology of humans is deep, as any clinical dermatologist or cosmetician can readily attest.<sup>2</sup>

Alopecia is the most common presentation of scalp and hair disorders have negative impact on the quality of life of patients.<sup>3</sup> It is associated with loss of self-confidence, low self-esteem and heightened self-consciousness.<sup>4</sup>

The various patterns of hair loss include diffuse and patchy, non-scarring and scarring alopecia. The various causes of hair loss are androgenetic alopecia, telogen effluvium, female pattern hair loss, alopecia areata, cicatricial alopecia, trichotillomania, tinea capitis and traction alopecia.

Hair types vary from region to region and this may affect various causes of hair loss. To the best of our knowledge there are very less research on clinico-epidemiological study of hair disorders in our region. Therefore, this study was conducted to determine the types of hair problems in our region.

### **Materials and method**

#### **Source of data**

This was a prospective cross-sectional study conducted over a period of 4 months. All the patients, irrespective

of their age, attending the DVL OPD in tertiary hospital, Hassan with the clinical findings of alopecia were screened and included after obtaining a written consent from them.

Institutional ethical clearance was taken before undertaking study.

A detailed history of the patient including name, age, sex, family history and past history was taken. The general clinical and local examination of the patient was done.

Investigations were done only when necessary like KOH mount, Woods lamp examination.

Based on the age, patients were divided into 4 subgroups 0-12 years, 13-18 years, 19-40 years, 41-80 years. Clinical pattern of hair loss were broadly divided into scarring, non-scarring, diffuse and patchy alopecia

#### **Statistical analysis**

The data was tabulated in Microsoft Excel v.2017 and was analysed in trial version of SPSS.

Proportions, frequencies were used to summarize categorical data. Chi-square test of significance was applied to test the association.

#### **Results**

A total of n=400 patients were enrolled for the study in a period of 4 months. The most common age of presentation of patients attending the OPD for hair loss in this study was 19-40 years ranging from 6 – 80 years.

The male to female ratio was 1: 1.1 indicating hair loss was more in females as compared to males i.e., 194(49%) were males and 206(51%) were females. (Fig1)

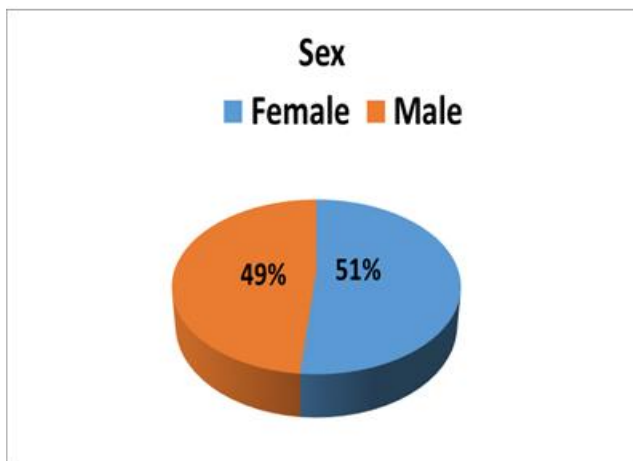


Fig. 1: Male to female ratio.

The most frequent duration of hair loss in this study was 0-3 months followed by 4-6 months, 7-9 months, 10 -12 months. The most common positive history for cause given were generalized weakness, post covid-19, malaria, stress, thyroid disease, tuberculosis, major surgery, drug intake and typhoid. 10 patients gave a positive history of thyroid disease, 6 patients were hypertensive, 10 patients were diabetic, and 2 patients had tuberculosis. 10% had family history of alopecia.

In our study, Out of 400 patients examined, diffuse hair loss was seen in 226 (56%) and patchy hair loss in 174 (44%) patients (Fig 2).

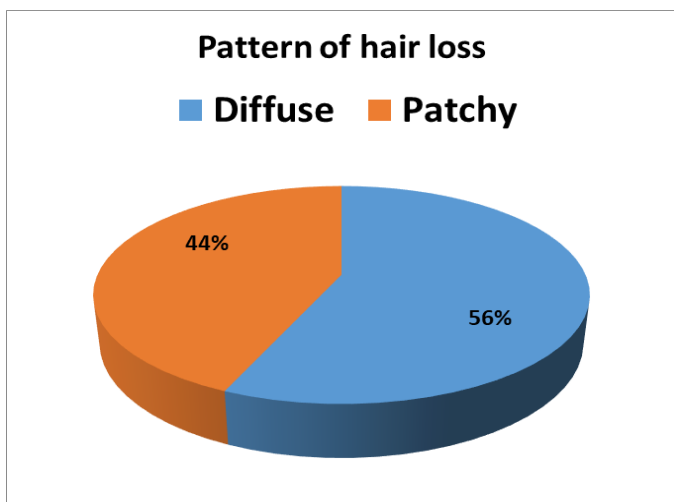


Fig. 2: Diffuse and patchy hair loss percentage  
376 (94%) patients had scarring and 24 (6%) had non-scarring alopecia (Fig 3).

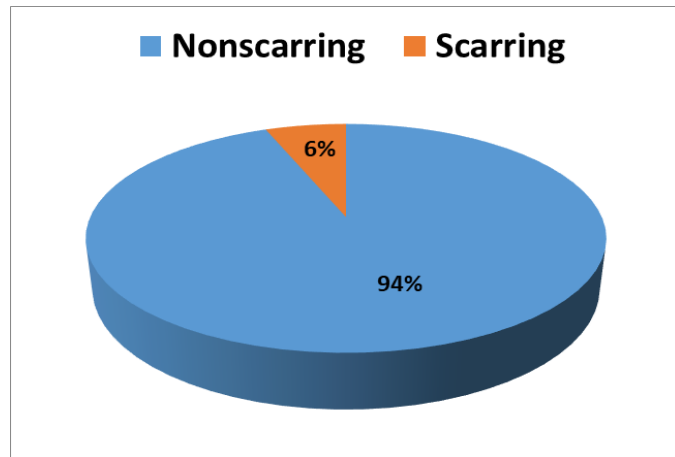


Fig. 3: Non scarring and scarring alopecia percentage.

The various causes of hair loss were – Telogen effluvium (41%) , alopecia areata (31%) , androgenetic alopecia(13%), tinea capitis (6%), DLE(4%), lichen planopilaris (2%), female pattern hair loss (1.5%), alopecia universalis (1%) and trichotillomania(0.5%) [Fig.4](Table 1)

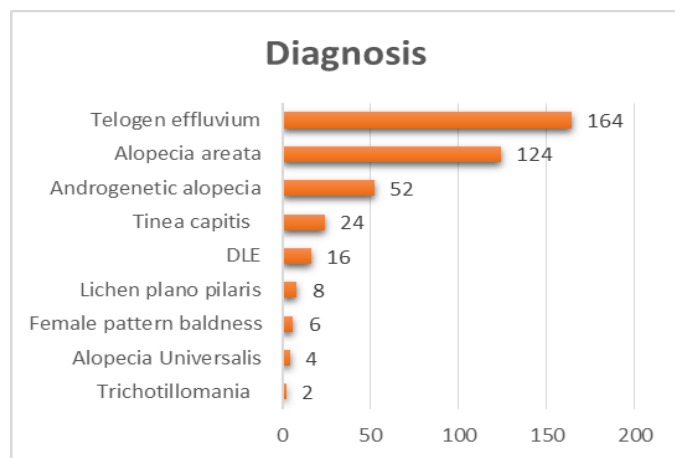


Fig. 4: Various causes of alopecia.

Diagnosis	Frequency	Percent
Alopecia areata	124	31.0
Alopecia Universalis	4	1.0
Androgenetic alopecia	52	13.0
DLE	16	4.0
Female pattern baldness	6	1.5
Lichen plano pilaris	8	2.0
Telogen effluvium	164	41.0

Tinea capitis	24	6.0
Trichotillomania	2	0.5

Table 1: Various causes of alopecia.

Various causes of alopecia among males and females are depicted in Table 2.

Diagnosis		Sex		P
		Female	Male	
Alopecia areata	Count	38	86	<0.001
	%	18.4	44.3	
Alopecia Universalis	Count	0	4	
	%	0.0	2.0	
Androgenetic alopecia	Count	0	52	
	%	0.0	26.8	
DLE	Count	12	4	
	%	5.8	2.0	
Female pattern baldness	Count	6	0	
	%	2.9	0.0	
Lichen plano pilaris	Count	6	2	
	%	2.9	1.0	
Telogen effluvium	Count	130	34	
	%	79.3	20.7	
Tinea capitis	Count	12	12	
	%	5.8	6.1	
Trichotillomania	Count	2	0	
	%	0.9	0.0	

Table 2: Various causes of alopecia among males and females. Various causes of alopecia among subdivided age group are depicted in Table 3.

Diagnosis		Age group (years)			
		0- 12	13-18	19-40	41-80
Alopecia areata	Count	0	6	94	24
	%	0.0	19.3	33.6	34.7
Alopecia Universalis	Count	0	0	2	2
	%	0.0	0.0	0.7	2.8
Androgenetic alopecia	Count	0	4	44	4
	%	0.0	12.9	15.7	5.7
DLE	Count	0	0	2	14
	%	0.0	0.0	0.7	20.2

Female pattern baldness	Count	0	0	6	0
	%	0.0	0.0	2.1	0.0
Lichen plano pilaris	Count	0	2	6	0
	%	0.0	6.4	2.1	0.0
Telogen effluvium	Count	0	16	124	24
	%	0.0	51.6	44.3	34.7
Tinea capitis	Count	22	2	0	0
	%	100	6.4	0.0	0.0
Trichotillomania	Count	0	1	0	1
	%	0.0	3.2	0.0	1.4

Table 3: Various causes of alopecia among subdivided age group

### Discussion

This study was conducted at a tertiary care center over a period of 4 months where a total of 400 patients with alopecia were enrolled, of whom 194 (48.5%) were males and 206 (51.5%) were females with male to female ratio being 1: 1.1. The most common age of presentation in this study was 19-40 years. The various patterns of hair loss observed in this study were non-scarring (94%) and scarring alopecia (6%), diffuse (56%) and patchy (44%). The various causes of hair loss encountered in this study were Telogen effluvium (41%), Alopecia areata (31%), Androgenetic alopecia (13%), Tinea capitis (6%), DLE (4%), Lichen planopilaris (2%), Female pattern hair loss (1.5%), Alopecia universalis (1%) and trichotillomania (0.5%)

### Telogen effluvium

In our study, 41% patients presented with TE. The most common age group affected was 31-40 years (16- 60) years. 79.3% patients were females while 20.7% were male similar to a study by Ramteke et al<sup>5</sup> which showed 80% were females and 20% were males. The various causes in our study probably were generalized weakness followed by post covid 19, malaria, stress, major surgery, thyroid disease, tuberculosis, typhoid and drug

intake. In approximately 33% of cases of TE, no trigger can be identified<sup>6</sup> while in this study approximately 30% of cases, no trigger was found.

### **Alopecia areata**

In our study 31% patients presented with AA with male to female ratio of 2.26:1 which corroborates with Futterweit W et al<sup>7</sup> study which reported male preponderance (2:1). The most common age group was 18-30 years which is similar to study by Chantal Bolduc et al<sup>8</sup> showed peak incidence of 15-29 years. 7.2% patients had a positive family history while in a study by YJ Kim et al<sup>9</sup> showed a positive family history of 9%. The most common patterns of alopecia areata found in our study was patchy (87%), followed by universalis (3.1%), ophiasis (2.5%), reticular (2.5%), sisaipho (2.5%) and total is (2.5%). Ramteke et al<sup>5</sup> showed patchy (72%), followed by universalis (9.30%), reticular (6.97%), ophiasis (6.97%), sisaipho (2.32%) and total is (2.32%).

### **Androgenetic alopecia**

58 patients were of AGA 52 were males and 6 were female indicating female pattern of hair loss. The most common age group for AGA men and women was 21-40 years. The average age for men was 30.5 years and for women it was 33 years. 10% had family history of AGA. In a study by C L Goh in 2002<sup>10</sup> most patients presented in their thirties with females presenting earlier than males. A family history of AGA was present in 20% of males with AGA.<sup>11</sup>

### **Tinea capitis**

In our study 6% of patients had tinea capitis, male to female ratio was 1:1 similar to study by Chander G et al<sup>12</sup> almost equal number of males and females were affected. The age group ranges from 6-14 years similar to a study by Ramteke et al. In our study, grey patch type

of tinea capitis was found to be common (75%) followed by black dot type (20%) and kerion (5%) similar to a study by Ramteke et al<sup>5</sup> which showed grey patch type of tinea capitis was found to be common clinical presentation (71%) followed by black dot type (14.5%) and kerion (14.5%)

### **Cicatricial alopecia**

In our study 6% of patients had cicatricial alopecia and their age was between 13-80 years and male to female ratio was 1:3.

In Whiting's series<sup>13</sup>, (7.3%) had cicatricial alopecia, age was between 3-79 years and male to female ratio was 1:2.26. In our study, causes for cicatricial alopecia were DLE (66.6%) and Lichen planopilaris (33.3%) Tan et al<sup>14</sup> reported DLE as the foremost diagnosis (33.9%), followed by pseudopelade (24.1%) and lichen planopilaris (22.3%).

### **Trichotillomania**

In our study 0.5% of patients presented with trichotillomania with age being 16 years and 45 years, with a positive history of psychological stress. Siddappa K et al<sup>15</sup> showed it a rare and noted predominantly in children, especially girls. Women are four times more likely to be affected than men<sup>16</sup>.

### **Conclusion**

The various causes of hair loss in our study were, telogen effluvium, alopecia areata, male pattern baldness, female pattern hair loss, cicatricial alopecia, fungal infection of scalp and trichotillomania and various patterns of hair loss being diffuse and patchy and non-scarring and scarring alopecia. A thorough knowledge of its recent clinical profile is required for better patient care. As this was a hospital-based study, further large-scale population-based studies are

warranted to acquire a broad picture of the disease epidemiology

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