

Clinical Study of Hair Loss at A Tertiary Care Centre

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Abstract

Background: There are various causes of hair loss and different methods are available for evaluation of a patient presenting with hair loss. **Aims:** The study aims at analyzing various causes and pattern of hair loss. **Methods:** Patients attending the outpatient department with complaint of hair loss disorders were enrolled. Details history and examination were done. Accordingly, blood investigations and skin biopsy were advised for further evaluation. **Results:** The various causes of hair loss as determined and diagnosed on clinical examination in this study are androgenetic alopecia (25%), telogen effluvium (23.5%), female pattern hair loss (17%), alopecia areata (20%), cicatricial alopecia (7%), trichotillomania (2%), tinea capitis (3%), traction alopecia (2%), and woolly hair syndrome (0.5%). The various patterns of hair loss include diffuse (70%) and patchy (30%) and non-scarring (93%) and scarring alopecia (7%). **Conclusion:** The various causes of hair loss encountered in our study were male pattern baldness, telogen effluvium, alopecia areata, female pattern hair loss, cicatricial alopecia, fungal infection of scalp, trichotillomania, traction alopecia, and woolly hair syndrome and various patterns of hair loss being diffuse and patchy and non-scarring and scarring alopecia.

Keywords: Hair loss, causes, patterns

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Introduction

Hair is a filamentous biomaterial, which grows from follicles found in the dermis. It has got a great significance in Indian society. Healthy hair indicates health and youth (important in evolutionary biology). The individuals, who complaint of baldness has much psychological effects which can lead to depression, stress etc. Some people may even lose interest in themselves accepting hair loss as a part of life, and as a result they end up doing nothing about it. Several studies show that women are more likely to suffer than men psychologically and the psychological effects are severe in women than men. ^[1] Thus, a lot of people seek medical advice for hair loss to boost their confidence as well as to maintain their status in society. Much

progress has been made in understanding hair growth, and as a result new treatment for alopecia. There are various causes and etiologies of hair loss. There are various tools for the investigation of hair loss, and few are under process. Thus, keeping in mind the importance of hair and the impact of hair loss on human health, we are doing this study which deals with various clinical aspects of hair loss.

Materials and Methods

The aims and objectives of this study are to study various causes, various patterns of hair loss and to study various spectrums of clinical disorders associated with hair loss. The patients attending the skin OPD at a tertiary care centre and presenting with a complaint of hair loss i.e. alopecia was included in the study.

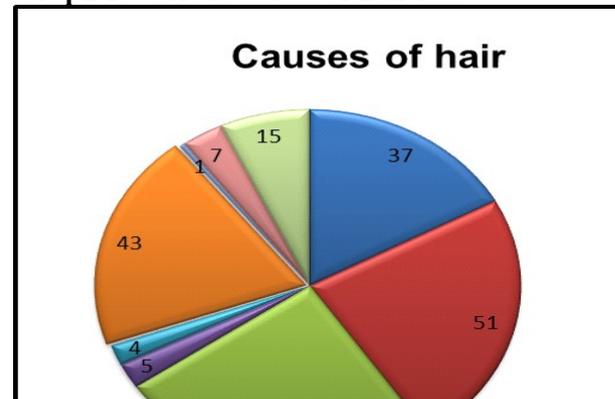
Demographic details in the form of age, sex, address, occupation and marital status were noted. Detail history of the patient was noted. Detail history was elucidated with regards to the onset, duration and progression and pattern of hair loss i.e. diffuse or patchy was asked. Thorough general examination and systemic examination was done. Local examination of the hair over scalp and entire body including pattern of hair loss, hair texture, scaling, erythema, swelling, atrophy, hair structure, color, strength, shininess, hair pull test etc. was done thoroughly to study the hair characteristic and changes attributable for possible etiology. Detailed cutaneous examination was done for any cutaneous manifestation as well as examination of nails, oral cavity, palms, soles and adnexal structures were done. Laboratory investigations including hemoglobin, complete blood count, liver function test, renal function test was done. For further evaluation thyroid function test, serum iron and serum ferritin were done. Some patients were subjected to scalp biopsy for evaluation. KOH mount and wood's lamp examination was done.

Results

A total of n=217 patients were enrolled for the study in a period of 1 year. The most common age of presentation of patients attending the OPD for hair loss in this study is 31-40 years. The male to female ratio is 1:1.2 indicating hair loss is more in females as compared to males. Looking at the occurrence of hair loss in various occupations grouped according to Kuppaswamy system, the unemployed group of people constituted 54.37% followed by skilled worker (17.97%), unskilled (14.74%), semi-professional (6.91%), clerical, farmer, shopkeeper (3.68%) and professional (2.30%). Of the n=217 patients seeking attention for hair loss, 60% were married, 38% were single and 2% were widow. The most frequent duration of hair loss in this study is 0-3 months followed by 4-6 months, 7-9 months, 10 -12 months. On enquiring a set of questions, the most common positive history for triggers given include generalized weakness (3.22%) followed by abortion, malaria, childbirth, stress, thyroid disease, tuberculosis, major surgery, drug intake and typhoid. While enquiring about the past history, 5 patients gave a positive history of thyroid disease, 3 patients

were hypertensive, 3 patients were diabetic, and 2 patients had tuberculosis. Of the n=217 patients, n=17 patients gave a positive family history of hair loss and n=3 patients had taken past treatment for hair loss. Examination findings revealed n=1 patient had a systemic involvement, n=8 patients had cutaneous involvement apart from scalp lesions and 5 patients had nail involvement. In this study, examination of scalp revealed diffuse hair loss in 70% and patchy hair loss in 30% of the patients. Of these, 98% had hair loss localized to scalp while 2% had generalized hair loss. Detailed scalp examination revealed 19% of patients had scaling, 3% had follicular plugging and atrophy, 1% had erythema and crusting. 15 patients of 217 patients had positive hair pull test. Hair texture was normal in 89% of patients while 6% had oily texture and 5% had dry texture. Hair ends were normal in 94% of the patients while 6% of the patients had split ends. Detailed investigations in this study showed 65% patients had low hemoglobin, 1% had low serum ferritin, 0.4% patients had high thyroid stimulating hormone, 8% had positive biopsy findings and 3% had positive finding on KOH mount. The various causes of hair loss are given in Graph 1.

Graph 1: various causes of hair loss



The diagnosis on clinical examination in this study are androgenetic alopecia (25%)(figure 1), telogen effluvium (23.5%), female pattern hair loss (17%)(figure 2), alopecia areata (20%)(figure 3), cicatricial alopecia (7%) (figure 4), trichotillomania (2%)(figure 5), tinea capitis (3%)(figure 6), traction alopecia (2%)(figure 7), and woolly hair syndrome (0.5%). The various patterns of hair loss (table 2 a,b) include diffuse (70%) and patchy (30%) and non-scarring (93%) and scarring alopecia (7%).



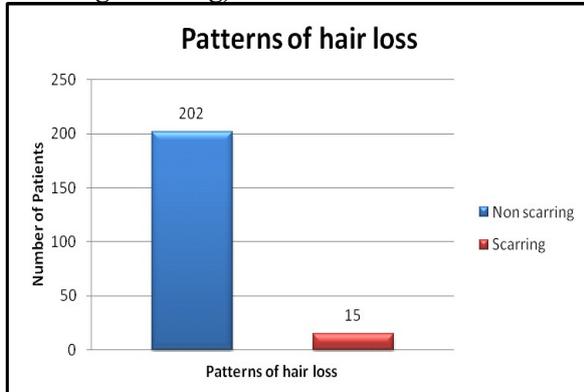
Figure 1: Male pattern hair loss
 Figure 2: Female pattern hair loss
 Figure 3: Alopecia areata
 Figure 4: Trichotillomania
 Figure 5: Tinea capitis
 Figure 6: Trichotillomania
 Figure 7: Traction alopecia

The various patterns of hair loss given in the Graphs 2a and table 2b includes diffuse n=152 cases and patchy n=65 cases and non-scarring n=202 cases and scarring alopecia n=15 cases

Graphs 2 (a): patterns of hair loss (diffuse/Patchy)

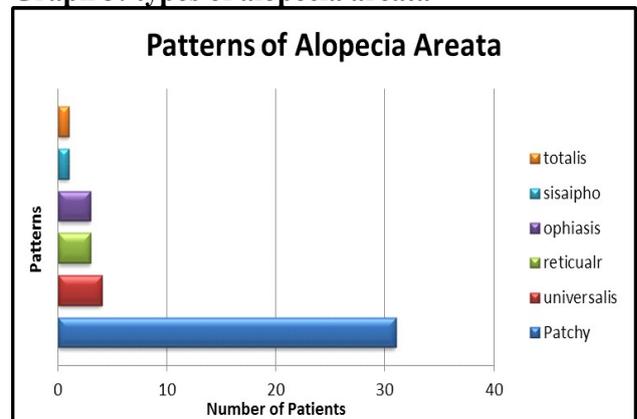


Graph 2 (b): pattern of hair loss (non-scarring/scarring)



The most common pattern of alopecia areata was patchy in 32% cases followed by universalis in 5% cases reticular pattern and ophiasis pattern in 4% cases and sisaipho and totalis in 1% cases each Graph 3.

Graph 3: types of alopecia areata



Discussion

This study was conducted at a tertiary care center over a period of about 12 months where a total of 217 patients with alopecia were enrolled after consent, of which 98 (45%) were males and 119 (55%) were females with male to female ratio being 1:1.21. Hair is considered as an ornament of beauty by our society; hence higher number of patients seeking health attention is females. The most common age at presentation in this study is 31-40 years. The various causes of hair loss encountered in this study were male pattern baldness (24.88%),

telogen effluvium (23.50%), alopecia areata (19.81%), female pattern hair loss (17.05%), cicatricial alopecia (6.91%), fungal infection of scalp (3.22%), trichotillomania (2.3%), traction alopecia (1.84%), and woolly hair syndrome (0.46%). The various patterns of hair loss observed in this study are diffuse (70%) and patchy (30%) as well as non-scarring (93%) and scarring alopecia (7%).

Alopecia areata

In this study, male to female ratio is 2.07:1 which corroborates with previous studies. Previous studies by Anderson et al in 1950 and Muller SA et al in 1963 [2] have revealed that AA affects both sexes equally but in a study of Futterweit W, Yeh HC et al [3] have reported a male preponderance (2:1). The most common age group is from 11-30 years which is similar to previous studies. Alopecia areata affects any age [4] and Chantal Bolduc et al in 2006 [5] showed a peak incidence to be 15-29 years. The average age for alopecia areata is 26.77 years. 3 patients had a positive family history i.e. 6.97%. Family members having AA has been reported in 10 to 20% of patients. [6] While in a study by YJ Kim et al in 1996-2000 [7] showed a positive family history in 9%. Nail involvement in this study is 6.97% in the form nail pitting. Alopecia areata can have nail involvement in 10-20% [8], usually in severe hair loss. One of the main associations of AA is with thyroid abnormalities [2]. The incidence of thyroid disease has varied from 8 to 28% in patients with AA. [2] Conversely, in 1994 Puavilai et al. estimated that the prevalence of thyroid disease is relatively low (7.2%), [9] While in this study, only one patient i.e. 2.32% is found to be hypothyroid of all the patients. The most common patterns of alopecia areata (table 3) found in this study was patchy (72%), followed by universalis (9.30%), reticular (6.97%), ophiasis (6.97%), sisaipho (2.32%) and totalis (2.32%).

Cicatricial alopecia

Cicatricial alopecia is permanent areas of hair loss that are associated with destruction of hair follicles. In this study, 15 patients i.e.7%. of cicatricial alopecia were encountered. In Whiting's series of 5860 patients of hair loss, 427 (7.3%) had cicatricial alopecia [10]. In this study, the male to female ratio is 1:1.4 while

Whiting observed it to be 1:2.6 [10]. The average age of presentation for cicatricial alopecia was 29.6 years and the most common age group was 21-30 years. The mean age of presentation is lesser in males than in females and range is 3-79 years. [11] In this study, the various causes for cicatricial alopecia are Lichen pilopilaris (60%), DLE (13%), Psuedopalede of brocq (20%) and traumatic alopecia (7%). According to Whiting, pseudopelade predominated (40.6%), followed by lichen planopilaris (12.6%) and folliculitis decalvans (11.2%). [10] Tan et al reported DLE as the foremost diagnosis (33.9%), followed by pseudopelade (24.1%) and lichen planopilaris (22.3%). [12]

Trichotillomania

Trichotillomania is an impulse control disorder characterized by conscious pulling of one's own hair. Siddappa K et al in 2003 [13] thought it to be quite rare, now appears to be far more common than previously believed. It is noted predominantly in children, especially girls. [13] Women are four times more likely to be affected than men. [14] Similar findings are present in this study with male to female ratio of 1:4. The average age of presentation was 41.8 years. Out of the 5 patients, 4 gave a positive history of some psychological stress and hair pulling.

Traction alopecia

Traction alopecia involves unintentional hair loss secondary to grooming styles. This type of hair loss is more common among African Americans, Indian Sikhs and Japanese women who tie their hair too tightly. In this study, 4 patients of traction alopecia were encountered. All are female with a positive history hair styling in the form of ponytail and use of hair pins. Average age for traction alopecia in this study is 17.25 years.

Tinea capitis

Tinea capitis is a fungal infection of the scalp caused by Microsporum or Trichophyton. 7 patients of tinea capitis are enrolled in this study. The age group ranges from 5-15 years. This is unlike previous reports that have shown a higher incidence in 4-7 years age group. [15] Beyond this age group, the incidence declines because of the onset of puberty and seborrhea. In this study, the male to female ratio was 1.3:1. While an almost equal number of males and females were affected in a study from north

india by Chander G et al in 2010 [16], similar to previous study by Singal et al. from North India [16], while in a clinicomycological study of tinea capitis in Rajasthan [17], male to female ratio was found to be 1.8:1. In this study, 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%) while a study by G Kalla in Rajasthan in 1995 [17] found that black dot type was more common, but in other studies black dot presentation was not common. The cause could be that clinical presentation of T capitis mainly depends upon the species of dermatophytes causing scalp infection [17].

Telogen effluvium

The most common age of presentation in TE is 31-40 years, range being 11-60 years. Almost 96% patients of TE are female while 4% are male. This indicates that TE is common in females as compared to males and the occurrence of telogen effluvium can be a precursor of AGA. The various triggers that were encountered were generalized weakness followed by malaria, abortion, childbirth, stress, major surgery, thyroid disease, tuberculosis, typhoid and drug intake. In a study by Jain VK et al in 2000, the probable causes were found to be psychological stress in 30%, fever in 33%, abortion and delivery in 21%, trauma and surgical operation in 13%, and hypothyroidism in 10%. [18] In approximately 33% of cases of TE, no trigger can be identified [19] while in this study approximately 40% of cases, no trigger was found. Of the n=50 patients of TE, 34% had low hemoglobin with normal serum iron and ferritin. In a study by Karadag et al in 2010 [20] presence of anaemia was an important risk factor for TE ($P < 0.02$, OR: 4.3) and both acute and chronic TE groups had significantly lower hemoglobin values compared to control patients. Of the 50 patients, 2 patients had low serum iron and serum ferritin with normal hemoglobin i.e. 4%. In a study by R Sinclair in 2002 [21] Twelve patients (6%) out of 194 were found to have a serum ferritin of 20 lg/ L or less.

Androgenetic alopecia

91 patients are of AGA 54 are males and 37 are female indicating that males are more worried about their balding and also seek advice for cosmetic purpose. A study done by Cash et al. in both sexes found AGA to be a stressful

condition affecting the psychological functioning of an individual. [22] The most common age group for AGA both for men and women was 31-40 years. The average age for men is 33.5 years and for women it is 33.8 years. In a study by C L Goh in 2002. [23] most patients presented in their thirties with females presenting earlier than males. The frequency increases with age. By extrapolation of Norwood's data, age of onset of AGA is early in male and later in women. [24] In one study, family history was positive in 10% patients of male AGA and 8% in FPHL. A family history of AGA is present in 20% of males with AGA. [25]

Woolly hair syndrome

In this study, a single patient of this syndrome is seen with an age of 22 years. Similar family history was absent in that patient. Other were absent in this patient. A study reported a family in which most members presented with woolly hair and ectodermal dysplasia. [26]

Conclusion

The various causes of hair loss encountered in our study were male pattern baldness, telogen effluvium, alopecia areata, female pattern hair loss, cicatricial alopecia, fungal infection of scalp, trichotillomania, traction alopecia, and woolly hair syndrome and various patterns of hair loss being diffuse and patchy and non-scarring and scarring alopecia. Most of the findings in this study do not corroborate with the previous studies. This can be attributed to a small sample size and a large sample size would give a fair finding.

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Ethical Permission: Obtained

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