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A Clinical Study of Diffuse Hair Loss in Women in Tertiary Care Hospital

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Abstract: ***Background: Diffuse hair loss is a common complaint encountered by dermatologists in their daily clinical practice. About one-third of women experience hair loss (alopecia) at some time in their lives, as many as two-thirds suffer hair thinning or bald spots. Alopecia can severely affect a woman's emotional well-being and quality of life. Various underlying factors individually or in combination contribute to the pathogenesis. Objectives: To determine causes of diffuse hair loss in women and to find the association between probable causes and relevant laboratory parameters, wherever applicable. Materials and Methods: One hundred and seven women with diffuse hair loss were included in the study. Detailed history and clinical local examination including hair pull test and hair dermoscopy, microscopy, investigations including semi-investigative tests were done in all study subjects. Specific laboratory investigations were done. Results: Among 107 patients, 36 (33.6%) presented with acute onset hair loss while rest had chronic hair loss. Acute telogen effluvium, telogen effluvium, Chronic Telogen Effluvium(CTE), Female Pattern Hair Loss (FPHL) were common presentations. Telogen Effluvium (TE) (49.5%) was the commonest type of diffuse hair loss. Incidence of ATE were highest in the age group of 18-30 years (52.6%), whereas CTE (52.3%) and FPHL (60%) in 30-40 years. Psychological stress (11.2%) and iron deficiency anaemia (10.3%) were the most common underlying aetiological factors for TE. Most cases of CTE were idiopathic. No significant relationship was observed between CTE, haemoglobin level and serum ferritin level. Out of 10patients with FPHL, low haemoglobin level was observed in 3 (33.3%) and low serum ferritin level in 8 (80%). 43 patients with menstrual irregularities underwent hormonal workup and USG Pelvis. PCOS on USG was found in 17 patients. FSH: LH ratio abnormality was most common finding on hormonal workup. Conclusion: Diffuse hair loss is a multifactorial condition. A detailed history, thorough clinical examination and appropriate investigations help to identify the causative factors and treat them accordingly.***

Keywords: Anagen effluvium, Alopecia areata, Chronic telogen effluvium, Female pattern alopecia, Scarring alopecia

1. Introduction

Hair is a cutaneous appendage typical to mammalian skin. In the present day, hair has lost much of its biological significance but its cosmetic and psychological value is much enhanced. Hair loss is a common complaint for which patients of both sexes and any age present to the skin specialist. Alopecia defined as "absence or loss of hair" [1] is a benign condition but it causes substantial psychological damage. It reduces the quality of life of patient and leads to profound emotional suffering, personal, social and work related problems. [2] Female patients presenting for hair loss are grave sufferers. While loss of hair from scalp in women is no less distressing than growth of body or facial hair in excess of the culturally acceptable norm; even subtle loss in women may be much greater problem than overt loss in man. [3] The impact of hair loss in women is so high that about 40% women report marital problems, 63% women claim to have career related problems. They also suffer lower self-esteem, poorer quality of life and poorer body image. [2]Anything that interrupts the normal cycle of hair growth can trigger diffuse hair loss. Triggers include wide variety of psychological or emotional stress, nutritional deficiencies, endocrine imbalances and others. In addition, hair loss may be a manifestation of more general medical problem. It can be a manifestation of systemic disease and its study leads to insight into many systemic disorders. [3] The first step in effective management of hair loss is to identify the cause, which may be complicated by one or more secondary factors; the second is to find effective treatment options and the third is to establish plans for long term management.[4]

2. Materials & Methodology

This study was done on 107 female patients presenting in skin OPD of a tertiary care hospitalbetween September 2016 to August 2019. All female patients above 18 years of age who presented for chief complaint of scalp hair loss were included in the study. Patient data were recorded on a standard proforma. The demographic data included age, marital status, religion, diet and occupation. Other relevant data recorded were height, weight and habits. Complains of the patients recorded were onset and duration of hair loss, diffuse or patchy hair loss, visible thinning, patchy hair loss or decrease in hair density or combination of any of these. Important history points recorded were duration of hair loss, origin and progress of hair loss, associated symptoms like scalp itching, seborrhoea, headache were recorded. History also included acute or chronic blood loss, atopy, stress,

thyroid disorder if already diagnosed, crash diets, anorexia nervosa or bulimia. History of recent illness was noted. Any medicines taken in recent past were noted. History related to recent childbirth and abortions were noted. History of use of hair cosmetics, hair products or hair procedures was recorded. History of mood disorder, hair pulling habit etc. was also noted. Any past history of similar complains in patient or family members were recorded. Menstrual and obstetric history of patient was noted. All patients' general examination was carried out. Local examination of scalp was carried out. Loss of eyebrows, eyelashes, loss of hair from any other body site, nail changes, signs of virilisation etc. if present were noted. Depending upon the history, clinical findings and results of semi-invasive investigations; patients were diagnosed as having acute telogen effluvium(ATE), chronic telogen effluvium(CTE), chronic diffuse telogen hair loss(CDTHL), female pattern hair loss(FPHL), alopecia area ta(AA), cicatricial alopecia(CA), traumatic alopecia(TA), local infection induced alopecia, anagen effluvium(AE) and others.

Features	Female pattern hair loss	Telogen effluvium	Chronic telogen effluvium
Cause	Multifactorial, hereditary, hormones, age	Underlying trigger, high fever, parturition, etc.	Idiopathic
Onset	Gradual	Abrupt	Abrupt
Shedding	Minimal	Excessive, diffuse, and generalized	Excessive, alarming
Scalp appearance	Normal or with sparse hairs at central scalp area	Diffuse hair loss	Diffuse hair loss
Thinning	Central thinning with or without widened central parting	Diffuse thinning	Absent, if present, it is all scalp .h/o reduced ponytail volume
Bitemporal recession	Mild to moderate and only in male type FPHL	Absent	Moderate to severe and common
Miniaturized hairs	Present	Absent	absent
Hair pull test	Usually absent, if present, only at central scalp	Strongly present throughout scalp	Present throughout in active phase

CDTHL – history of persistent hair loss for more than 3 months; on investigation iron deficiency or thyroid dysfunctions or zinc deficiency or other causes like drug history, crash dieting, malabsorption disease, liver or chronic renal dysfunction, other chronic illnesses including HIV infection may be found. Hair pull test may ormay not be positive.

AE- history of drug which may cause AE like cytotoxic medicines, allopurinol, colchicine etc.

AA – sudden hair loss which is generally patchy, on examination exclamation mark hair present, no scalp abnormality detected.

Trichotillomania – patchy and uneven hair loss from reachable sites, no scalp abnormality except occasionally signs of scratching, obvious mental disorder like obsessive compulsive disorder.

Cicatricial alopecia – history of itching or tenderness on scalp with patchy hair loss, scalp showing changes of inflammation and atrophy or scarring. History of or signs of lichen planus or discoid lupus erythematosus or other inflammatory disorder.

3. Result

This study was done on 107 patients above 18 years of age presenting to skin OPD with complain of scalp hair loss. 75% women were married and 27% were unmarried; while 8% women were widowed or divorced. Most common age group presenting for complain of hair loss was 30 – 40 years (36.44%). (Table 1)

Table 1: Age Distribution in Percentage (%)

Age in Years	Number of patients (%)
18 – 30 years	32 (29.9%)
30 – 40 years	39 (36.4%)
40 -50 years	27 (25.2%)
50-60 years	7 (6.5%)
Above 60 years	2 (1.9%)
Total	107

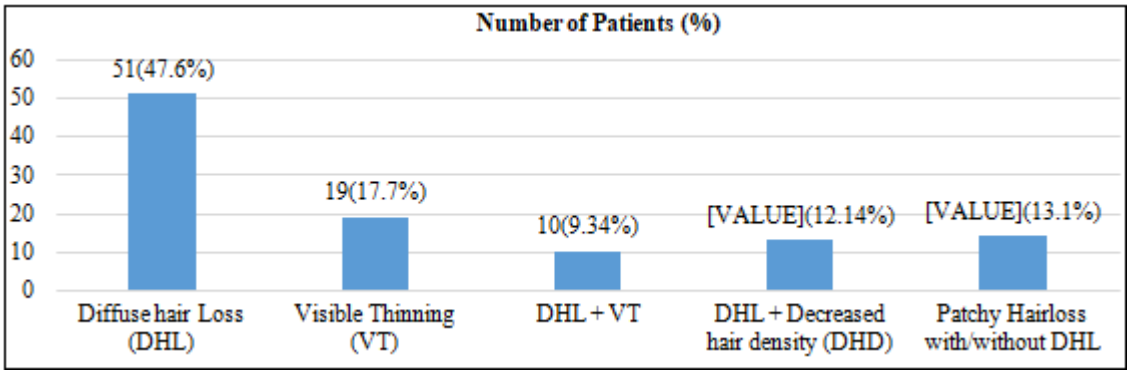

Chart 1: Incidence of Different Clinical presentation of Hair loss:Number of Patients

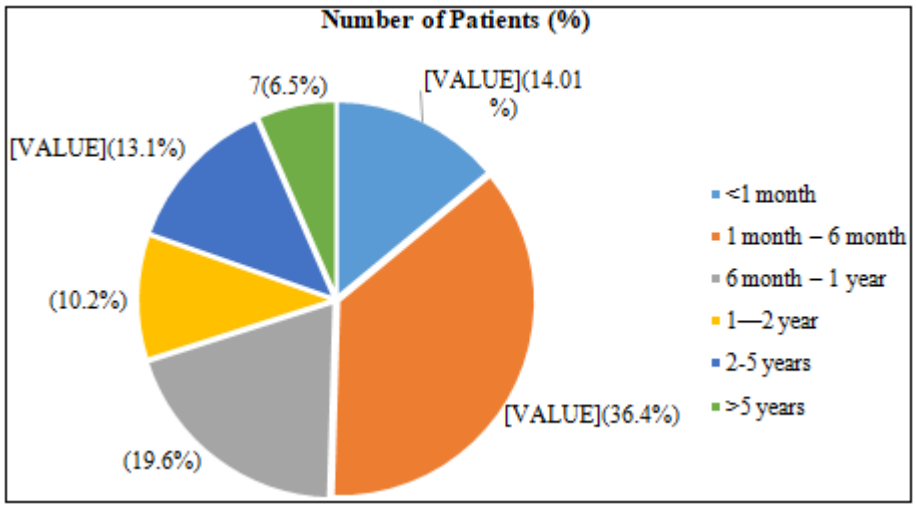

Chart 2: Incidence of Duration of hair loss in Percentage (%)

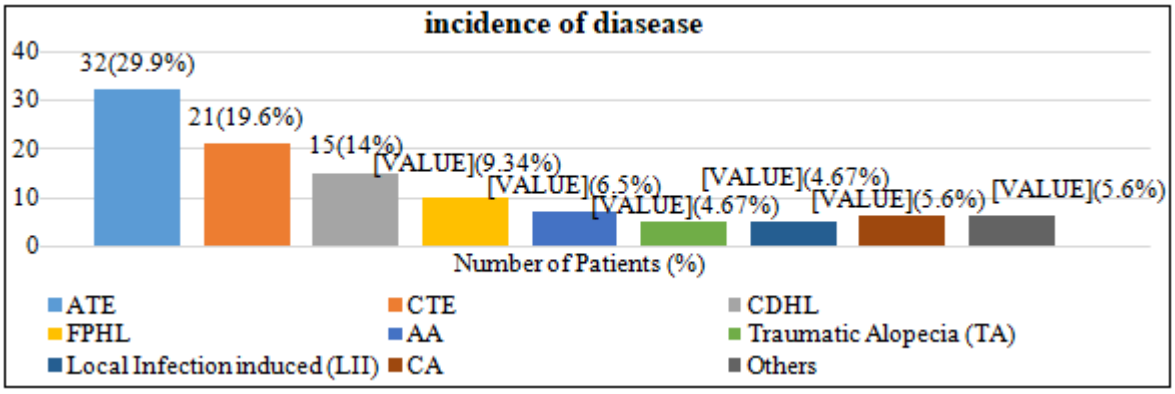

Chart 3: Incidence of disease:

Figure 1: Different types of hair loss
a) Anagen effluvium b) Alopecia areata c) Chronic telogen effluvium d) Female pattern alopecia(mid parting)- olsen pattern
e) Scarring alopecia

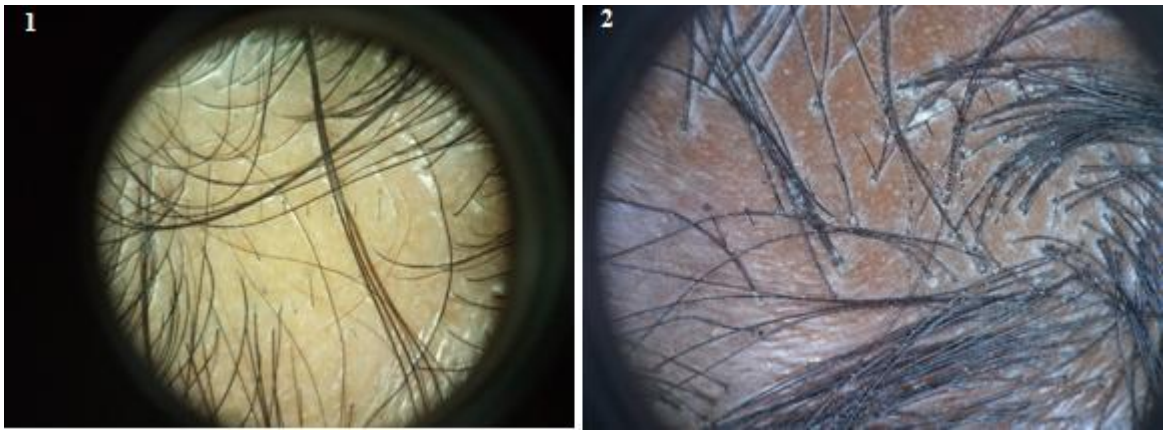

Figure 2: Dermoscopy Findings 1) Alopecia areata dermoscopy 2) Scarring alopecia dermoscopy

Table 2: Age distribution of specific disorders

No of Patients	18-30 years	30-40 years	40-50 years	50-60 years	>60 years	TOTAL
ATE	18	12	1	1	0	32
CTE	6	11	4	0	0	21
CDHL	2	5	8	0	0	15
FPHL	0	6	3	1	0	10
AA	3	2	2	0	0	7
TA	3	1	0	1	0	5

LII(localized infection induced alopecia)	0	1	4	0	0	5
CA(cicatricial alopecia)	0	1	2	2	1	6
Others	0	0	3	2	1	6
Total	32	39	27	7	2	107

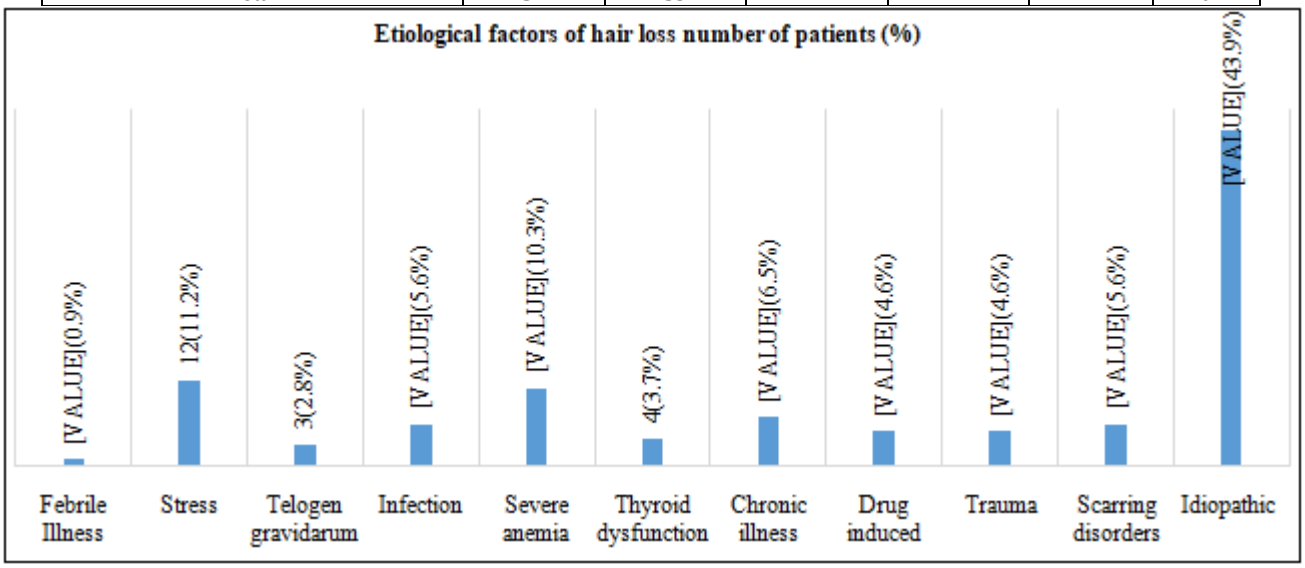

Chart 4: Etiological factors of hair loss:

4. Discussion

In present study, most common age group presenting with complain of hair loss was 30 – 40 years(36.4%) and most of the patients fall under 18-40 year(66.4%) group. In studies by Santamaria et al [5] and Lee et al [6] most frequent age group reported were between 21-40 years and 3rd to 4th decade respectively. Diffuse hair loss was the most common presenting complain in our patients. This highlights the fact that overt baldness is generally rare in female patients though they always fear of the same. Most of the patients in our study presented within 1 year of starting of hair fall which coincides with the finding of appreciable thinning in patients with diffuse hair fall. Only patients presenting within 1 month of starting of symptoms were in ATE or AA and local infection induced hair loss. [7] Average hair loss was above 100 in most of the patients in our study but it is also worthwhile to note that 23% women do not had significant hair loss as per daily hair count still they were concern with diffuse hair loss which again emphasize the importance of hair for psychological well-being. All patients of AA were also falling in younger age group. While patients with CA, TA and LI induced hair loss presented at any age. In various studies telogen effluvium is reported to be 28% - 92% [8, 9, 10] and FPHL is reported to be between 7% to 60% [8, 9, 11] depending upon the age group studied. In present study also we found most of the patients with TE either acute or chronic and patterned hair loss in 10% of our patients. Only 1 of our patient with patterned hair loss had significant temporal and vertex balding while in all other patients' bitemporal or frontal balding associated with diffuse thinning was found. 1 patient with AA rapidly turned into alopecia totalis within 3 months while others had only patchy hair loss. Febrile illness as precipitating factor for TE is found in 2% - 33%[8,12,13]in various studies and telogen gravidarum is found in 9.33 to 21% patients in various studies[7,8,12,13]. In our study febrile illness was etiological factor of hair loss in 0.9% patients while telogen gravidarum was found in 2.8% patients. Most of the women in our society probably accept the post-partum hair loss as natural phenomenon or due to added responsibility of child do not come forward for their own problems. Various causes for hair loss reported in various studies like stress, drugs, thyroid dysfunction, anaemia, childbirth/abortion, hormonal imbalances were also found in our study. In our study mild anaemia was present in majority of study population which could be coincidental finding or added factor for hair loss. As per study Bentley et al [14] in Indian women, 46.5% women of child bearing age were having mild to moderate anaemia. Although moderate to severe anaemia in 10% patients in our study could have hair loss related to anaemia; we could not find any significant association with serum ferritin level in our study. Sinclair reported similar finding in his study.[11] Amongst the rarer causes of hair loss, it is interesting to note that in CA group, apart from Discoid LE and pseudopelade of Brocq which is commonly found in other studies also. In TA, hair straightening was factor responsible for hair loss in one patient, apart from trichotillomania associated with mental disorder.

5. Conclusion

Thus to conclude diffuse hair loss in female patients requires accurate history, clinical examination and investigations to arrive at diagnosis. There could be multiple factors acting upon in one patient which need to be delineated before starting treatment. Investigating patients for hair loss which is generally regarded as more of a psychological importance. Only thorough accurate diagnosis; targeted therapy can be initiated which will give satisfactory results.

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