

# Diffuse Hair Loss in Women

## Which One Does Your Patient Have?

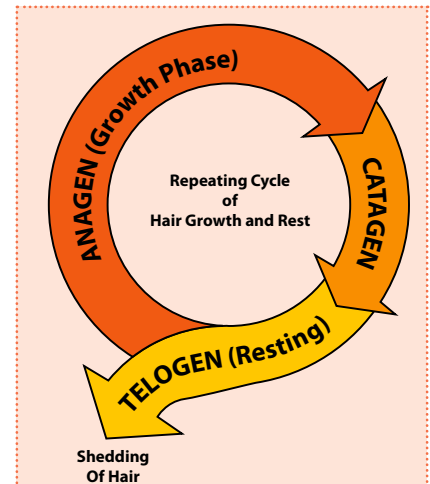
*Dr Harneet Ranu Eriksson*

**Diffuse hair loss** is a common complaint and a cause of significant emotional distress particularly in women. It is paramount to address this symptom systematically. The diagnosis should be established with a detailed history focusing on the chronology of events, examination of the scalp and pattern of hair loss, a hair pull test with examination of the hair bulbs of the shed hairs, and a few pertinent blood tests and in selected cases a scalp biopsy.

The hair follicle is subject to a constant turnover in the course of perpetual cycles through phases of proliferation, involution and the resting period. Cyclic hair growth activity occurs in a random

mosaic pattern and is influenced by internal factors (eg, hormones, cytokines, growth factors) as well as external factors (eg, environmental factors such as toxins, nutritional deficiencies). Hair grows continuously; however, the life cycle of hair follicles affects overall hair production. No new hair follicles are produced after birth, and the appearance and disappearance of hair is the result of changing ratios in the growth/rest cycle.

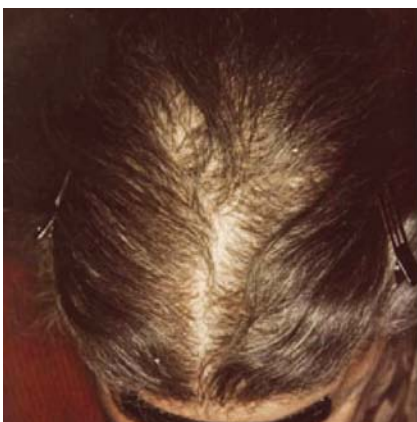
It is important to note that apart from scarring alopecia, all other types of hair loss represent a disorder of hair follicle cycling [Figure 1].



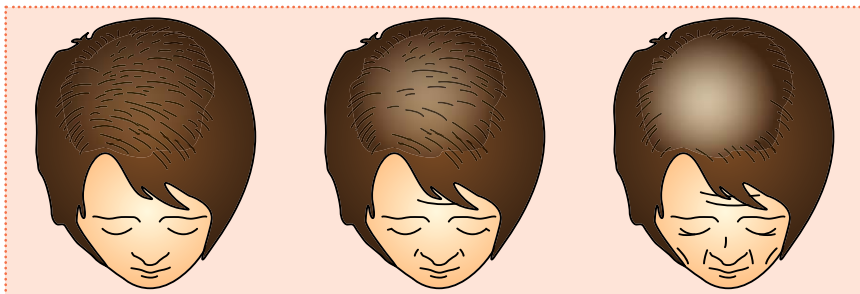
**Figure 1.** Hair follicle cycling

### Hair Pull Test

A simple technique for evaluation of hair loss is to tug gently on the patient's hair with your thumb and index finger. A normal hair pull test would constitute hair loss of less than five hairs. Anything more than five hairs is considered pathological hair loss. In diffuse hair loss the hair pull test is positive in both the vertex area and the margins of the scalp. Diffuse hair loss is further classified based upon whether the hairs shed are anagen hairs (anagen effluvium) or telogen hairs (telogen effluvium).



**Figure 2.** Telogen effluvium six months before (left) and after (right) oral supplementation therapy with vitamin B complex



**Figure 3.** Ludwig classification of female pattern hair loss

### Differential Diagnosis

The differential diagnoses of diffuse hair loss in women are:

- telogen effluvium;
- female pattern hair loss;
- diffuse alopecia areata;
- dystrophic anagen effluvium; and
- psychogenic pseudoefluvium.

#### Telogen effluvium

This group constitutes most patients seen with hair loss in clinical practice. Hair loss generally affects less than 50% of the scalp. There is overall thinning all over the scalp and no predilection for certain areas. Acute telogen effluvium is a diffuse patterned hair loss that occurs three months after the triggering event. It is self-limiting within six months. Common trigger factors include a severe febrile illness, childbirth, accidental trauma, surgery, crash dieting and severe emotional stress.

Chronic telogen effluvium is classified as diffuse hair loss that

persists beyond six months and is usually secondary to systemic disorders, eg, iron deficiency and other dietary deficiencies, thyroid disease, metabolic diseases such as liver and renal failure, advanced malignancy, HIV infection, and connective tissue disorders. Treatment is with vitamin B complex oral supplementation therapy [Figure 2].

#### Female pattern hair loss

This is the most common cause of hair loss in an otherwise healthy woman. In early stages the pattern is not apparent and patients complain of diffuse hair loss. Eventually hair loss becomes obvious on the top of the scalp. In some women there is a triangular diminution in hair density in the frontal scalp with preservation of the frontal fringe. There is usually a genetic basis with two peaks for the age of onset, which are the third and fifth decades. A positive family

history has been noticed in both male and female members and the pattern of inheritance is thought to be polygenic.

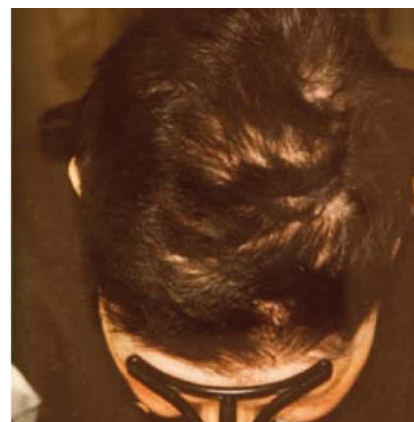
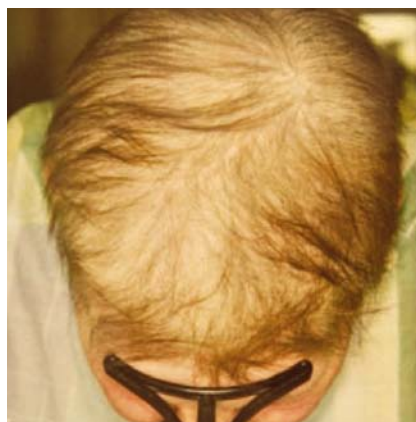
Clinically there is a widening in the central parting width, thinning of hair over the frontoparietal region and vertex with preservation of the anterior hairline. This pattern differs from male pattern hair loss where there is frontal and bitemporal recession and thinning noticed at the vertex. The severity is documented with the Ludwig classification [Figure 3] as opposed to Hamilton classification in males. Histologically both male and female pattern hair loss shows miniaturisation of the hair follicle [Figure 4].

#### Diffuse alopecia areata

This is an immune-mediated condition with largely an unidentified trigger, which stimulates an autoimmune lymphocytic attack on the hair bulb. The inflammation is specific to anagen hairs, causing anagen arrest. Alopecia areata incognita is a variety of alopecia areata characterised by diffuse shedding of hair in the absence of typical patches. It affects women over the age of 40 and is often misdiagnosed as telogen effluvium. A biopsy is required to establish the diagnosis. Treatment is with oral prednisolone [Figure 5].



**Figure 4.** A lady with Ludwig II female pattern hair loss



**Figure 5.** A lady with alopecia areata incognita (a) before and (b) after treatment with oral prednisolone



**Figure 6.** A man with extensive dystrophic anagen effluvium post-chemotherapy

**Dystrophic anagen effluvium**

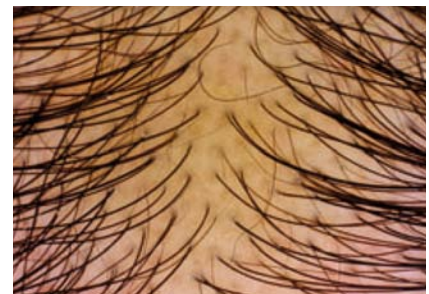
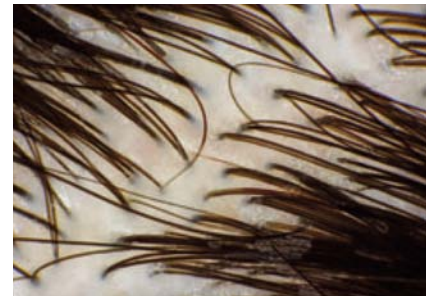
This is diffuse hair loss secondary to antineoplastic drugs. The diagnosis is often obvious from the patient's history. It begins one to three weeks and is complete within one to two months after the initiation of chemotherapy. Since normally 90% of scalp hair is in anagen, hair loss is copious. The incidence and severity of hair loss is variable and related to the particular chemotherapy protocol. Radiation-induced alopecia [Figure 6] may be reversible or permanent. Permanent alopecia occurs with more than 30 Gy(gray) of deep x-rays or more than 50 Gy(gray) of soft X-rays.

**Psychogenic pseudoeffluvium**

This diagnosis should be suspected when there is normal dense scalp hair in the absence of any convincing evidence of hair loss. It is commonly associated with anxiety or depressive disorders, body dysmorphic disorder and delusion of alopecia. There is often a history of ritualistic behaviour spending majority of the day in front of the mirror repeatedly checking the hair. These patients become the most demanding types of patients to manage.

**Value of Trichoscopy**

The standard methods used to diagnose hair disorders (ie, clinical inspection, pull test, trichogram and biopsy) may vary in sensitivity, reproducibility and invasiveness. Recent studies suggest the use of dermatoscopy in the clinical evaluation of hair and scalp disorders improves diagnostic capability. This method allows for the differentiation of telogen effluvium from female pattern hair loss and alopecia areata incognita [Figure 7]. In female pattern hair loss, there is a diversity of hair diameter seen (anisotrichosis), miniaturised hairs and empty follicles. In alopecia areata, yellow dots, dystrophic hairs and regrowing miniaturised hairs are seen. In contrast, in telogen effluvium the trichoscopic findings are entirely normal.



**Figure 7.** Trichoscopy of (a) telogen effluvium, (b) female pattern hair loss, (c) diffuse alopecia areata

**Conclusion**

Diffuse hair loss in females should be evaluated in a systematic manner as the causes are varied, and it can be difficult to differentiate between the various causes on the clinical appearance alone. **MD**



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