Consultant360 Multidisciplinary Medical Information Network

HAIR LOSS

PEER REVIEWED

Telogen Effluvium

Authors:

Abigail Gauthier

University of Alabama School of Medicine, Birmingham, Alabama

Leslie Castelo-Soccio, MD, PhD

Section of Pediatric Dermatology, The Children's Hospital of Philadelphia, and University of Pennsylvania Perelman School of Medicine, Philadelphia, Pennsylvania

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An otherwise healthy 2-year-old girl presented with acute hair loss that her mother had noticed 6 weeks before presentation (**Figure 1**). The mother had noticed significant hair loss in the girl's hairbrush. Approximately 3 months prior to the diffuse hair thinning, the child had had a case of severe gastroenteritis. The mother reported that the child eats a relatively diverse diet, and she reported no new medications or other prior hair loss. There was no known family history of autoimmune disease or other hair loss.

Figure 1. *The patient at presentation.*

The differential diagnosis for this patient included telogen effluvium, alopecia areata, androgenetic alopecia, and anagen effluvium. The presentation of hair loss approximately 3 months after an episode of gastroenteritis was most consistent with telogen effluvium. The diffuse loss of hair from the scalp does not strongly support the diagnosis of alopecia areata, which more commonly presents in discrete patches. Similarly, androgenetic alopecia is typically seen during puberty or adulthood and is characterized by miniaturization of hair follicles leading to the appearance of thinning. While anagen effluvium can present in a similar manner to telogen effluvium (diffuse nonscarring hair loss), anagen effluvium typically is a result of toxins or chemotherapy, neither of which were indicated in the patient's history.

Telogen effluvium is a condition that results in diffuse hair loss with a nonscarring appearance on scalp examination. Hair cycles through 3 phases: anagen, catagen, and telogen. Anagen is the growing phase of the cycle. Approximately 90% of hair follicles on the scalp will be in this phase.[1] Catagen is a transitional phase, lasting approximately 10 days, that follicles pass through between anagen and telogen. Less than 1% of hairs are in this transformative phase.[1] Telogen is the resting phase of the hair cycle and lasts 3 to 4 months. Typically, 10% of follicles are in this phase.[1] Under normal circumstances, the scalp sheds between 50 and 150 hairs daily.[1] In a state of effluvium, up to 300 hairs can be shed per day.[2]

The mechanism of telogen effluvium is driven by the premature progression of hair follicles into the telogen phase, which can cause a transient loss of hair. The progression of a follicle through these phases can be affected by triggers such as serious illness, surgery, childbirth, emotional distress, and malnutrition. The result of this change can cause up to 30% of hair follicles to prematurely enter the telogen phase.[2] The disproportionate number of hair follicles in telogen causes increased shedding and loss of 30% to 50% of hair after 3 months.[3] Triggers of telogen effluvium can cause the

body to divert available nutrients to essential organs and processes, which leaves hair follicles susceptible to weakening.

Illness accompanied by a high-grade fever is the most common documented cause of telogen effluvium in children, followed by iron deficiency anemia.[4] A complete blood cell count can be evaluated to determine whether low iron levels may be contributing to hair loss. The mechanism by which low iron levels cause hair loss is not well understood, but it is thought to be related to iron's role as a cofactor in DNA synthesis and the rapidly dividing nature of hair follicle matrix cells.[5] An increase in hair shedding usually begins 2 to 4 months after an inciting event,[4] as illustrated in this patient's case.

Telogen effluvium is a self-limiting type of hair loss that does not require treatment. Whenever possible, the trigger for the hair loss should be identified and addressed to restore normal growth. Patients should be counseled that while density changes may occur, they will not lose all their hair.

In some patients, minoxidil (2% or 5%) therapy for 3 to 6 months can be considered. Minoxidil is a topical medication applied to the scalp that may stimulate hair growth. It is approved by the Food and Drug Administration for male and female pattern hair loss, and its use for this purpose is therefore an off-label use. There are, however, documented cases of the use of minoxidil improving hair density in children with other conditions such as alopecia areata and short anagen syndrome.[6,7] Minoxidil functions as a vasodilator and inducer of vascular endothelial growth factor. It is thought to work by increasing the blood flow and nutrient delivery to hair follicles and underlying mesenchymal tissue, which helps to reset the hair growth cycle and restore normal shedding patterns by prolonging the anagen phase of growth.[8]

The patient did not receive any treatment for her telogen effluvium due to the condition's self-limiting nature. At a 6-month follow-up visit, the patient was doing well and had no further complications (**Figure 2**).

Figure 2. *The patient at a 6-month follow-up visit.*

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