REVIEW

Wilma F. Bergfeld, MD
Director, Dermatopathology Fellowship Program, Department of Dermatology, Cleveland Clinic, Cleveland, OH; Clinical Associate Professor, Cleveland Clinic Lerner College of Medicine of Case Western Reserve University, Cleveland, OH

Daniela Mendez, MD
Postdoctoral Research Fellow, Department of Dermatology, Cleveland Clinic, Cleveland, OH

Shedding: An updated guide to a common cause of hair loss

ABSTRACT

Telogen effluvium is a common, nonscarring type of diffuse hair shedding that results from a temporary disruption of the normal hair growth cycle and is typically reversible, with gradual regrowth over time. It can be triggered by physiologic or emotional stressors such as illness, surgery, childbirth, nutritional deficiencies, medications, or systemic infection, though a cause cannot always be found. Diagnosis is primarily clinical, and management focuses on identifying potential triggers, educating and reassuring the patient, and offering supportive therapies when appropriate.

KEY POINTS

- Shedding is not a disease—it is just a clinical sign.
- Shedding may be traceable to a trigger, such as physiologic stress (eg, illness, surgery, nutrient deficiency), emotional stress, or drug therapy. It can also represent the early stages of hereditary (androgenetic) alopecia.
- Reassurance regarding the reversibility of the condition, empathetic communication, and patient education are key components of care.
- The benefit of treatments such as topical minoxidil or nutritional supplements in patients without deficiencies is uncertain.

doi:10.3949/ccjm.93a.26008

Telogen effluvium, or hair shedding, is a common type of hair loss in which hair sheds evenly across the scalp without leading to scarring or permanent hair loss. It happens when hair goes into its resting phase (telogen) too early and falls out sooner than it should, and it is one of the most common reasons people see a doctor for hair loss.[1,2]

Telogen effluvium can affect people of all races and backgrounds. It can be triggered by things that stress the body, such as major surgery, serious illness, having a baby, poor nutrition, certain medications, or strong emotional stress. Sometimes, the exact cause is not known, or more than one trigger is involved.[1]

This condition can be short-term (acute) or long-lasting (chronic).

Acute telogen effluvium can happen at any age, including in children,[3] and is usually self-limiting, with management consisting of identifying the trigger and reassuring and educating the patient (**Figure 1**).[1] Women are more likely than men to seek evaluation for acute hair shedding, and the associated psychological distress is often more pronounced among women.[4,5]

Chronic telogen effluvium is less common and is most often seen in women between 30 and 60 years old. In these cases, further medical evaluation and therapy may be necessary.[6,7]

THE NORMAL HAIR CYCLE

In a healthy scalp, each hair follicle goes through 3 stages on its own: a growth phase (anagen), a short changing phase (catagen), and a resting phase (telogen) (**Figure 2**).[1] After about

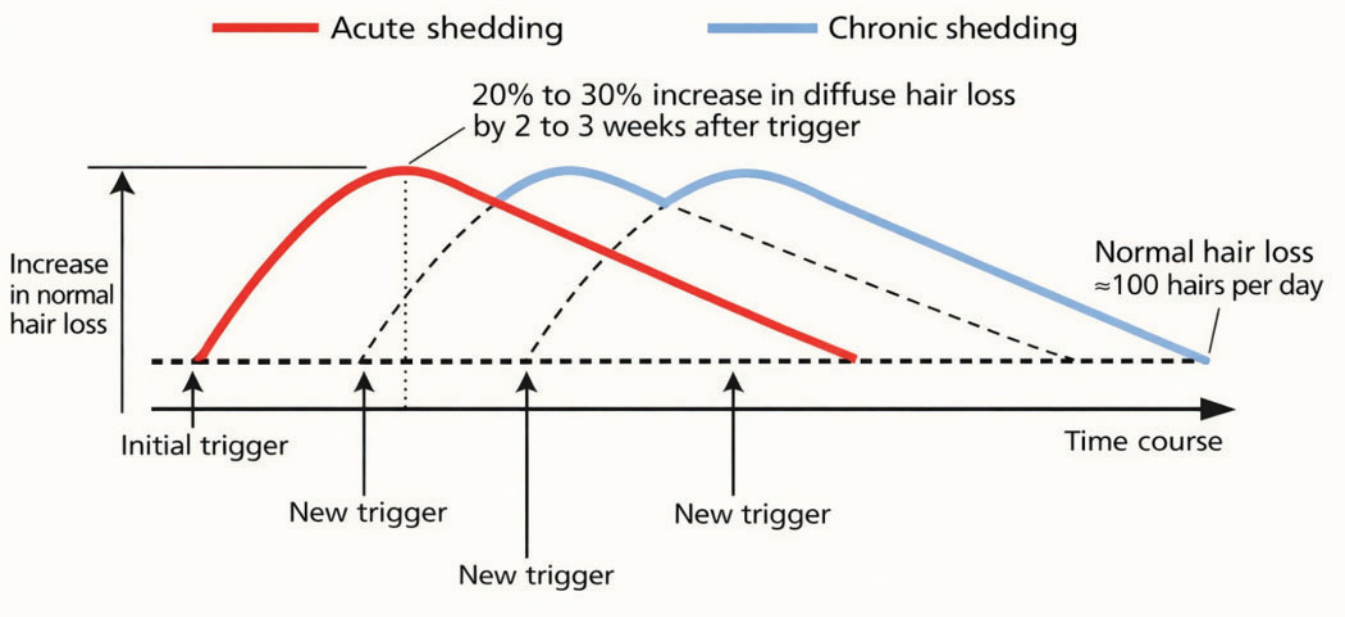

Figure 1. Acute vs chronic telogen effluvium (shedding).

Reproduced from Bergfeld WF, Mulinari-Brenner F. Shedding: how to manage a common cause of hair loss. Cleve Clin J Med 2001; 68(3):256–261. doi:10.3949/ccjm.68.3.256

3 months in the resting (telogen) stage, the hair naturally falls out.[4] About 10% of hair follicles are normally in the resting phase at any given time, 90% are in the growing phase (anagen), and fewer than 1% are in the short changing phase (catagen).[8]

Hair follicles on the scalp do not all grow and shed at the same time, and normally, large amounts of hair do not fall out at once. Instead, a small number of hairs are shed every day—about 50 to 150 hairs every day in healthy people without hair or scalp problems.[9]

Triggers that disturb the hair's normal cycle

Often, a clear cause of shedding cannot be identified in people with sudden (acute) telogen effluvium. Determining the cause of long-lasting (chronic) telogen effluvium can be even more difficult, but a careful review of the patient's medical history and recent life events often helps uncover potential triggers. Many things can trigger hair shedding (**Table 1**):

- Acute or chronic medical illnesses such as febrile illness and systemic rheumatic disease (collagen vascular disease)[10]
- Major surgery[1]
- Childbirth, miscarriage, abortion, or menopause[11]
- Strong emotional stress[1]
- Changes in diet (eg, diets designed for rapid weight loss, eating too little protein or calories, or having low levels of important nutrients such as iron, zinc, or vitamin D)[11]
- Hormonal problems (eg, thyroid disorders, androgen excess)[11,12]
- Certain medications or supplements (eg, vitamin A—as little as 25,000 IU daily may lead to hair shedding)[13]; see **Table 2**[11,13–16]
- Exposure to toxins (eg, heavy metals)[17]
- Systemic infections (eg, COVID-19)[18]
- Scalp conditions such as dandruff or psoriasis
- Infections of the scalp.

Low vitamin D and iron levels have been proposed as possible contributors to telogen effluvium; however, current evidence remains insufficient to establish the underlying mechanism.[19–22]

DIAGNOSIS: IDENTIFYING THE TRIGGER

Acute telogen effluvium is typically diagnosed on the basis of a detailed patient history, scalp examination, and a hair pull test. If the diagnosis remains uncertain or chronic telogen effluvium is suspected, a scalp biopsy may be considered.[10] When no clear trigger is identified on history or physical examination, laboratory testing is often performed to look for contributing factors. However, no laboratory test definitively diagnoses telogen effluvium.

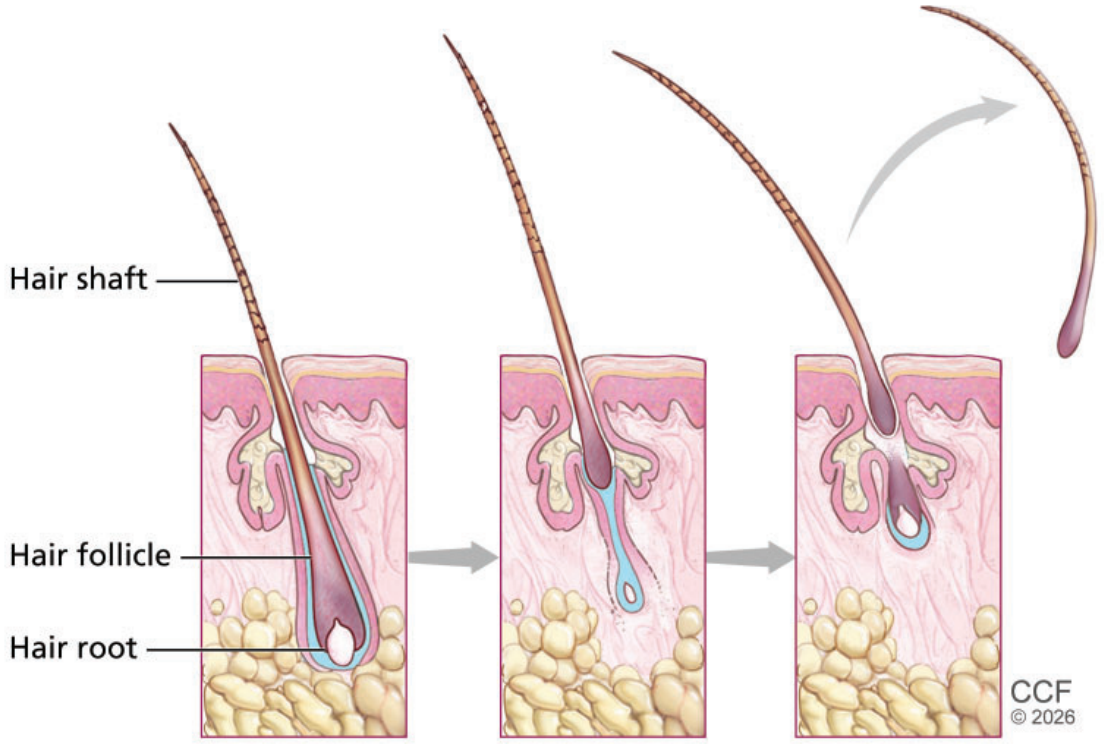

Figure 2. The hair growth cycle and shedding.

Patient history

The patient's medical history is essential. It helps confirm that the pattern of hair loss is consistent with telogen effluvium, identify possible triggers, and rule out other causes of hair loss. Clinicians typically ask about the following:

- **Course of hair loss:** when the shedding began, how long it has lasted, and any possible triggering events
- **Hair shedding features:** estimated daily hair loss and the appearance of shed hairs
- **Medical history:** recent or chronic illnesses; major surgery; rapid weight loss; restrictive diets; recent childbirth, miscarriage, or abortion; iron-deficiency anemia; nutritional deficiencies (eg, iron, ferritin, zinc, protein, vitamin D); thyroid disease; and a review of systems to identify underlying conditions[11]
- **Psychological stressors**
- **Medication and supplement use**
- **Exposure history:** possible toxic or chemical exposures
- **Family history of hair or scalp disorders.**

A detailed medical history can also point to a coexisting hair disorder or more than one contributing factor. In women, reviewing menstrual and reproductive history may help identify androgen-related hair loss or hormonal abnormalities.[11]

Physical examination

Evaluation of hair loss includes careful examination of the scalp, hair, and nails.

Scalp. The entire scalp is checked to see how much hair has been lost and to look for signs of other scalp problems. In telogen effluvium, the scalp usually appears healthy. Redness, thick scaling, pus, or scarring are not typical and may suggest another condition, such as dandruff or psoriasis.[11]

Hair strands. The hair itself usually looks normal in telogen effluvium. If many hairs appear broken, this may point to damage from heat or chemicals, frequent hair pulling, or a different hair condition.[23]

Nails are also examined because they can give clues about overall health. For example, Beau lines (grooves or ridges running across the nails) may indicate a recent significant systemic illness, while koilonychia, characterized by spoon-shaped nails, points to iron deficiency.[11]

Hair pull test

A gentle hair pull test may be performed to check for active hair shedding[11]:

- Hold about 50 to 60 hairs close to the scalp
- Gently pull the hairs from the roots toward the ends
- Repeat this test in different areas of the scalp, such as the sides and front
- Examine the shed hairs under a microscope to confirm that they are telogen (resting) hairs, which have a small, club-shaped bulb at the root; other hair changes may suggest different hair conditions.

Finding 5 or more telogen hairs in 1 pull, or more than 15 telogen hairs after 3 pulls, supports a diagnosis of active telogen effluvium.[11]

The hair pull test may give a false-negative result if the hair was washed or heavily groomed on the day of the examination. For best results, the test should be done 2 to 3 days after shampooing. On the other hand, a false-positive result can occur if the hair has not been washed or combed for several days.[11]

Dermoscopy

Dermoscopic findings in telogen effluvium are generally nonspecific. In acute telogen effluvium, dermoscopy may reveal empty follicles and numerous upright regrowing hairs of normal thickness. Importantly, dermoscopy can aid in differentiating chronic telogen effluvium from female pattern hair loss, in which the diameter of the hair shafts typically varies more.[14,24]

Wood's light examination

A Wood's (long-wave ultraviolet) light may help identify seborrheic dermatitis, which can be associated with telogen effluvium, and detect hyperpigmentation, a feature more suggestive of scarring hair loss.[11] In seborrheic dermatitis, scalp scales may become more visible and *Malassezia* yeast can fluoresce orange under ultraviolet light.[25]

Scalp biopsy

Scalp biopsy can help distinguish telogen effluvium from other causes of hair loss. Biopsies are typically obtained using a 4-mm punch and include subcutaneous fat. Many dermatopathologists prefer taking 2 samples—1 vertically and 1 horizontally sectioned—to allow comprehensive follicular assessment. Samples should be taken from areas of hair thinning rather than complete alopecia, and bitemporal, frontal, and vertex scalp regions should be avoided to reduce overlap with androgenetic alopecia.[11]

TABLE 1
Triggers of telogen effluvium

Physiologic and systemic stressors
Acute or chronic medical illness
Major surgery
Childbirth, miscarriage, or abortion
Psychological or emotional stress
Dietary changes or nutritional deficiencies, including rapid weight loss or iron, vitamin D, or zinc deficiency
Hormonal causes
Thyroid disorders
Androgen excess
Other endocrine or hormonal imbalances
Toxins, chemical exposures
Medications, supplements
Toxin exposure (heavy metals)
Infectious causes
Systemic infections, including COVID-19
Scalp infections
Inflammatory causes
Inflammatory scalp conditions

Additional tests

Less commonly used tests for telogen effluvium are usually performed in specialized hair clinics or research settings.[11]

Hair collections. This method measures how much hair is being shed over time. Patients collect shed hair during daily grooming for 2 weeks and store the hair in labeled containers. Shedding of more than 100 to 150 hairs per day supports a diagnosis of telogen effluvium. The hairs can be examined under a microscope to confirm they are telogen hairs, and the process may be repeated to track improvement or progression.[11]

Trichograms and phototrichograms. The phototrichogram is a noninvasive photographic technique, while trichograms involve physically plucking 50 to 60 hairs from the scalp for microscopic examination. These tests estimate the proportion of hairs in the growth (anagen) and resting (telogen) phases on the scalp.[11]

TABLE 2
Drug classes commonly associated with hair shedding (telogen effluvium)[a]

Category	Representative agents
Anticoagulants	Heparin, warfarin, low-molecular-weight heparin; possibly direct oral anticoagulants (rivaroxaban, apixaban)
Retinoids, vitamin A	Isotretinoin, acitretin, excess vitamin A supplementation (as little as 25,000 IU/day)
Antihypertensives	Beta-blockers (propranolol, metoprolol), angiotensin-converting enzyme inhibitors
Anticonvulsants, mood stabilizers	Valproic acid (11%–28% incidence, dose-dependent), carbamazepine, lithium
Antidepressants	Selective serotonin reuptake inhibitors (fluoxetine, sertraline, paroxetine), tricyclics
Hormonal agents	Oral contraceptives (on discontinuation), hormone replacement therapy, androgens
Antithyroid drugs	Propylthiouracil, methimazole
Antifungals	Itraconazole, fluconazole
Immunosuppressants, biologics	Interferons, tumor necrosis factor-alpha inhibitors, methotrexate
Cytotoxic chemotherapy agents[b]	As a drug class (eg, taxanes, alkylating agents)
Nonsteroidal anti-inflammatory drugs	Ibuprofen, naproxen

[a]This is not a comprehensive list. Many additional drugs have been reported to cause telogen effluvium. For a complete list, see reference 14.

[b]Chemotherapy agents more classically cause anagen effluvium, but can also produce a telogen-effluvium pattern, particularly at lower doses or when used with targeted or hormonal cancer therapies.

Based on information from references 11 and 13–16.

Screening laboratory evaluation

- **Complete blood count** to evaluate for anemia
- **Comprehensive metabolic panel** to screen for underlying systemic disease
- **Thyroid-stimulating hormone** to assess for thyroid dysfunction
- **Ferritin** to evaluate iron stores.

Additional laboratory testing is selected based on the patient's history, symptoms, and physical findings. Further studies may be used to rule out other causes of hair loss, including nutritional deficiencies (especially 25-hydroxyvitamin D), toxin exposure, hormonal disorders, or autoimmune disease.[11,21,26]

For example, a hormonal evaluation may be appropriate in women with signs of androgen excess, such as acne, virilization, or obesity. Testing for antinuclear antibodies may be considered when clinical features suggest an underlying immune-mediated disorder.[11]

MANAGEMENT STRATEGIES

Address the underlying cause

Telogen effluvium often improves on its own, especially when triggered by a single event such as childbirth or illness. When hair shedding is caused by an ongoing factor, the trigger should be identified and treated, if possible (**Table 3**).[1] This may include managing associated medical conditions, correcting nutritional deficiencies, addressing psychological stressors, which may require therapy or other supportive interventions, stopping a suspected medication (with reassessment after at least 3 months), and treating other scalp conditions such as seborrheic dermatitis.[11,27]

Psychological support and education

Hair loss can cause significant emotional distress, even when the amount of hair loss is small. Reassurance regarding the reversibility of the condition, empathetic communication, and patient education are key components of care. Patients benefit from a simple explanation of the hair growth cycle, emphasizing that telogen effluvium causes temporary shedding—not complete hair loss—and that regrowth typically becomes noticeable within 6 to 12 months once the trigger is removed or treated. Scheduled follow-up visits can help provide reassurance and identify patients with persistent shedding who may need further evaluation.[28,29]

Cosmetic support

Cosmetic strategies can help reduce the visible impact of hair loss. These may include hairstyling techniques, hair coloring, scalp camouflage products, or hairpieces. Hair transplantation is not appropriate for telogen effluvium.[11]

Medical treatments

The benefit of treatments such as topical minoxidil or nutritional supplements in patients without deficiencies is uncertain. Some clinicians use **topical 5% minoxidil** once daily, particularly in chronic telogen effluvium, to support hair density and regrowth, although strong evidence is lacking.[11] Patients should be counseled that results take months to assess and that shedding may temporarily increase when starting or stopping minoxidil.[2,30]

Low-dose oral minoxidil (0.25–5.0 mg) has led to improvement in small retrospective studies of chronic telogen effluvium, but more research is needed.[31–33] Possible side effects include unwanted hair growth, low blood pressure, and swelling.[34]

Minoxidil is not routinely recommended for acute telogen effluvium, particularly when a reversible trigger is identified or remains unaddressed, given limited evidence of benefit and the potential for unnecessary cost, burden, and false expectations. Counseling should instead emphasize reassurance, the often self-limited course, and correction of contributing factors.

Common nutritional supplementation

Iron supplementation is recommended for patients with iron-deficiency anemia.[2,35] Its use in patients without anemia remains controversial, though some clinicians aim to maintain ferritin levels within the higher end of the normal range based on clinical experience. The benefit of supplements such as zinc, biotin, or vitamin D in the absence of deficiency is unclear (although Sattar et al[36] reported positive results with vitamin D_3 in a study of 40 women in Pakistan), and their routine use is not supported by strong evidence.[11]

TABLE 3
Management of telogen effluvium

Identify triggers
Remove the trigger(s)
Educate patient about hair growth and life cycle
Treat underlying conditions (eg, nutrient deficiencies, hormonal disorders)
Support regrowth (anti-inflammatory and antiandrogen shampoos such as ketoconazole or zinc pyrithione; topical or low-dose oral minoxidil)

Treatment of androgen-driven processes

Of note, early androgenetic alopecia can also present with increased shedding, and telogen effluvium is sometimes an early sign or unmasking of androgenetic alopecia rather than a completely separate condition. When androgenetic alopecia is identified as the cause of persistent hair loss, treatment should address the androgen-driven process with therapies such as spironolactone or finasteride, often together with minoxidil to support hair growth. Recognizing this overlap is important because hair loss may continue to progress if the underlying androgenetic alopecia is not treated.

DISCLOSURES

The authors report no relevant financial relationships which, in the context of their contributions, could be perceived as a potential conflict of interest.

REFERENCES

1. **Bergfeld WF, Mulinari-Brenner F.** Shedding: how to manage a common cause of hair loss. Cleve Clin J Med 2001; 68(3):256–261. doi:10.3949/ccjm.68.3.256
2. **Hordinsky MK.** Medical treatment of noncicatricial alopecia. Semin Cutan Med Surg 2006; 25(1):51–55. doi:10.1016/j.sder.2006.01.007
3. **Atton AV, Tunnessen WW Jr.** Alopecia in children: the most common causes. Pediatr Rev 1990; 12(1):25–30. doi:10.1542/pir.12-1-25
4. **Harrison S, Sinclair R.** Telogen effluvium. Clin Exp Dermatol 2002; 27(5):393–399. doi:10.1046/j.1365-2230.2002.01080.x
5. **Cash TF, Price VH, Savin RC.** Psychological effects of androgenetic alopecia on women: comparisons with balding men and with female control subjects. J Am Acad Dermatol 1993; 29(4):568–575. doi:10.1016/0190-9622(93)70223-g
6. **Trüeb RM.** Systematic approach to hair loss in women. J Dtsch Dermatol Ges 2010; 8(4):284–298. doi:10.1111/j.1610-0387.2010.07261.x
7. **Whiting DA.** Chronic telogen effluvium: increased scalp hair shedding in middle-aged women. J Am Acad Dermatol 1996; 35(6): 899–906. doi:10.1016/s0190-9622(96)90113-9
8. **Price VH.** Treatment of hair loss. N Engl J Med 1999; 341(13): 964–973. doi:10.1056/NEJM199909233411307
9. **Paus R, Cotsarelis G.** The biology of hair follicles. N Engl J Med 1999; 341(7):491–497. doi:10.1056/NEJM199908123410706
10. **Cassano N, Amerio P, D'Ovidio R, Vena GA.** Hair disorders associated with autoimmune connective tissue diseases. G Ital Dermatol Venereol 2014; 149(5):555–565. pmid:24975949
11. **Bergfeld WF.** Telogen effluvium. In: Hordinsky M, ed. UpToDate. Waltham, MA: UpToDate Inc.
12. **Bin Dayel S, Hussein RS, Atia T, Abahussein O, Al Yahya RS, Elsayed SH.** Is thyroid dysfunction a common cause of telogen effluvium? A retrospective study. Medicine (Baltimore) 2024; 103(1):e36803. doi:10.1097/MD.0000000000036803
13. **James WD, Berger TG.** Nutritional diseases. In: Andrews' Diseases of the Skin: Clinical Dermatology. 9th ed. Philadelphia, PA: WB Saunders; 2000:606–661.

14. **VisualDx.** Drug-induced alopecia—Hair and Scalp. Updated December 29, 2025. www.visualdx.com/visualdx/diagnosis/drug-induced+alopecia?diagnosisId=52613&moduleId=46. Accessed September 11, 2026.
15. **Zhang D, LaSenna C, Shields BE.** Culprits of medication-induced telogen effluvium, part 2. Cutis 2024; 113(1):11–14. doi:10.12788/cutis.0919
16. **Alhanshali L, Buontempo M, Shapiro J, Lo Sicco K.** Medication-induced hair loss: an update. J Am Acad Dermatol 2023; 89(2S): S20–S28. doi:10.1016/j.jaad.2023.04.022
17. **Yavuz IH, Yavuz GO, Bilgili SG, Demir H, Demir C.** Assessment of heavy metal and trace element levels in patients with telogen effluvium. Indian J Dermatol 2018; 63(3):246–250. doi:10.4103/ijd.IJD_610_17
18. **Sharquie KE, Jabbar RI.** COVID-19 infection is a major cause of acute telogen effluvium. Ir J Med Sci 2022; 191(4):1677–1681. doi:10.1007/s11845-021-02754-5
19. **Rasheed H, Mahgoub D, Hegazy R, et al.** Serum ferritin and vitamin D in female hair loss: do they play a role? Skin Pharmacol Physiol 2013; 26(2):101–107. doi:10.1159/000346698
20. **Cheung EJ, Sink JR, English III JC.** Vitamin and mineral deficiencies in patients with telogen effluvium: a retrospective cross-sectional study. J Drugs Dermatol 2016; 15(10):1235–1237. pmid:27741341
21. **Gerkowicz A, Chyl-Surdacka K, Krasowska D, Chodorowska G.** The role of vitamin D in non-scarring alopecia. Int J Mol Sci 2017; 18(12):2653. doi:10.3390/ijms18122653
22. **Nayak K, Garg A, Mithra P, Manjrekar P.** Serum vitamin D_3 levels and diffuse hair fall among the student population in South India: a case-control study. Int J Trichology 2016; 8(4):160–164. doi:10.4103/ijt.ijt_57_16
23. **Perez S, Nguyen B, Tosti A.** Drug-induced scarring and permanent alopecia. JAAD Rev 2024; 1:42–160. doi:10.1016/j.jdrv.2024.06.002
24. **Miteva M, Tosti A.** Hair and scalp dermatoscopy. J Am Acad Dermatol 2012; 67(5):1040–1048. doi:10.1016/j.jaad.2012.02.013
25. **Mayser P, Stapelkamp H, Krämer HJ, et al.** Pityrialactone—a new fluorochrome from the tryptophan metabolism of *Malassezia furfur*. Antonie Van Leeuwenhoek 2003; 84(3):185–191. doi:10.1023/a:1026042903354
26. **Hillmann K, Blume-Peytavi U.** Diagnosis of hair disorders. Semin Cutan Med Surg 2009; 28(1):33–38. doi:10.1016/j.sder.2008.12.005
27. **Bai JQA, McMullen E, Sibbald C, et al.** The role of psychological stress in hair loss: a review. JAAD Rev 2026; 7:9–19. doi:10.1016/j.jdrv.2025.10.002.
28. **Hadshiew IM, Foitzik K, Arck PC, Paus R.** Burden of hair loss: stress and the underestimated psychosocial impact of telogen effluvium and androgenetic alopecia. J Invest Dermatol 2004; 123(3):455–457. doi:10.1111/j.0022-202X.2004.23237.x
29. **Reid EE, Haley AC, Borovicka JH, et al.** Clinical severity does not reliably predict quality of life in women with alopecia areata, telogen effluvium, or androgenic alopecia. J Am Acad Dermatol 2012; 66(3):e97–e102. doi:10.1016/j.jaad.2010.11.042
30. **Blumeyer A, Tosti A, Messenger A, et al.** Evidence-based (S3) guideline for the treatment of androgenetic alopecia in women and in men. J Dtsch Dermatol Ges 2011; 9(suppl 6):S1–S57. doi:10.1111/j.1610-0379.2011.07802.x
31. **Perera E, Sinclair R.** Treatment of chronic telogen effluvium with oral minoxidil: a retrospective study. F1000Res 2017; 6:1650. doi:10.12688/f1000research.11775.1
32. **de Nicolas-Ruanes B, Moreno-Arrones OM, Saceda-Corralo D, et al.** Low-dose oral minoxidil for treatment of androgenetic alopecia and telogen effluvium in a pediatric population: a descriptive study. J Am Acad Dermatol 2022; 87(3):700–702. doi:10.1016/j.jaad.2022.04.030
33. **Randolph M, Tosti A.** Oral minoxidil treatment for hair loss: a review of efficacy and safety. J Am Acad Dermatol 2021; 84(3): 737–746. doi:10.1016/j.jaad.2020.06.1009
34. **Vañó-Galván S, Pirmez R, Hermosa-Gelbard A, et al.** Safety of low-dose oral minoxidil for hair loss: a multicenter study of 1404 patients. J Am Acad Dermatol 2021; 84(6):1644–1651. doi:10.1016/j.jaad.2021.02.054
35. **Trost LB, Bergfeld WF, Calogeras E.** The diagnosis and treatment of iron deficiency and its potential relationship to hair loss. J Am Acad Dermatol 2006; 54(5):824–844. doi:10.1016/j.jaad.2005.11.1104
36. **Sattar F, Almas U, Ibrahim NA, et al.** Efficacy of oral vitamin D_3 therapy in patients suffering from diffuse hair loss (telogen effluvium). J Nutr Sci Vitaminol (Tokyo) 2021; 67(1):68–71. doi:10.3177/jnsv.67.68

Address: *Daniela Mendez, MD, Postdoctoral Research Fellow, Department of Dermatology, Cleveland Clinic, 9500 Euclid Avenue, Cleveland, OH 44195; mendezd6@ccf.org*