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Abstract

Trichoscopy has limited value in diagnosing telogen effluvium. Frequent, but not specific, findings include the presence of empty hair follicles, a predominance of follicular units with only one hair, perifollicular discoloration (the peripilar sign), and upright regrowing hairs. There is no significant difference between the findings in the frontal area and those of the occipital area, which differentiates telogen effluvium from androgenetic alopecia. However, clinicians should be aware of the frequent coexistence of both diseases.

Keywords

Androgenetic alopecia • Chronic telogen effluvium • Follicular units • Hair shaft thickness heterogeneity • Perifollicular discoloration • Peripilar sign • Telogen effluvium • Upright regrowing hairs • Yellow dots

The term *telogen effluvium*, introduced by Kligman in 1961 [1], refers to a wide range of clinical situations with the common feature of abrupt generalized shedding of telogen hairs. This peculiar type of hair loss is considered very frequent in clinical practice, but very little evidence-based knowledge is available. Two large trichology books, one by Blume-Peytavi et al. [2] and the other by Camacho and Montagna [3], devote only a few pages to telogen effluvium, reflecting the deficit in scientific information about this condition.

Available data indicate that telogen effluvium may be triggered by internal or external factors that cause a large number of hairs to enter the telogen phase at one time. These telogen hairs start shedding about 3–4 months after exposure

to the triggering factor. These factors include acute febrile illness, major surgery, psychological trauma, pregnancy, thyroid diseases, discontinuation of estrogen-containing medications, crash diets, iron deficiency, medications (beta-blockers, anticoagulants, retinoids, propylthiouracil, carbamazepine, vaccines), allergic contact dermatitis, and ultraviolet exposure [4–11].

In 1996, Whiting [12] characterized the chronic form of telogen effluvium as a separate entity. Chronic telogen effluvium may represent a primary disorder or may be secondary to a variety of systemic abnormalities, including malabsorption, chronic dietary deficiencies, chronic thyroid diseases, chronic renal or liver failure, systemic lupus erythematosus, and HIV infection [4]. Of all these potential triggers, only chronic iron deficiency has been studied in detail and has had conflicting results [4].

Clinically, chronic telogen effluvium is characterized by a diffuse loss of telogen hairs involving the whole scalp and continuing for more than 6–8 months. Patients report persistent and severe hair shedding that tends to have a fluctuating course for many years. Hair loss may be associated with progressive hair thinning, which uniformly affects all the scalp hairs. Marked bitemporal recession may be present [11, 13, 14].

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Although telogen effluvium most commonly affects postmenopausal women, 21 % of patients with this condition are premenopausal women and 11 % are men [15].

The most accurate diagnostic aids for acute and chronic telogen effluvium are histopathology and trichogram in combination with a detailed medical evaluation to identify the cause of telogen hair loss [16].

Trichoscopy has limited value in diagnosing telogen effluvium. Frequent, but not specific, findings include the

presence of empty hair follicles, a predominance of follicular units with only one hair, perifollicular discoloration (the peripilar sign), and upright regrowing hairs. There is no significant difference between the findings in the frontal area and those in the occipital area, which differentiates telogen effluvium from androgenetic alopecia. However, clinicians should be aware that both diseases frequently coexist.

Table 18.1 Trichoscopic features of telogen effluvium

- Predominance of follicular units with only one hair
- Upright regrowing hairs
- Perifollicular discoloration (peripilar sign)
- Empty hair follicles/yellow dots
- Lack of features typical of other diseases

Box 18.1

- Trichoscopy is not diagnostic for telogen effluvium
- Coexistence of telogen effluvium and female androgenetic alopecia is very common

Table 18.2 Trichoscopic features of telogen effluvium and androgenetic alopecia

Feature	Telogen effluvium	Androgenetic alopecia	Coexistence of telogen effluvium and androgenetic alopecia
Empty hair follicles (including yellow dots)	+	+	+
Follicular units with only one hair in the frontal area	+	++	++
Upright regrowing hairs	++	+/-	+
Thin terminal hairs	+	+	+
Perifollicular discoloration (peripilar sign)	+	++	++
Vellus hairs	-	+	+
Hair shaft thickness heterogeneity	-	+	+
Predominance of abnormalities in the frontal region	-	++	+

Data from Rakowska et al. [14, 17] and Slowinska [18]

+ present, ++ common, - not present

Fig. 18.1 Telogen effluvium.

Telogen effluvium is characterized by the abrupt onset of hair loss involving the whole scalp. Marked bitemporal recession may be present (covered by hairs from the frontal area in this photograph). Alopecia in the temporal area results from the fact that baseline hair density in this area is normally low. In hair loss affecting the whole scalp equally, this area will appear alopecic at first. Differential diagnosis of telogen effluvium from early androgenetic alopecia may be difficult. Frequently, both diseases overlap

**Fig. 18.2 Empty hair follicles in telogen effluvium.**

This feature rarely is seen in the form presented here (*arrows*) because normally, the shedding of telogen hairs (exogen phase) is followed almost immediately by the regrowth of new anagen hairs. If there is no hair regrowth, the hair follicle opening is filled with keratosebaceous material and appears as a yellow dot ($\times 70$)

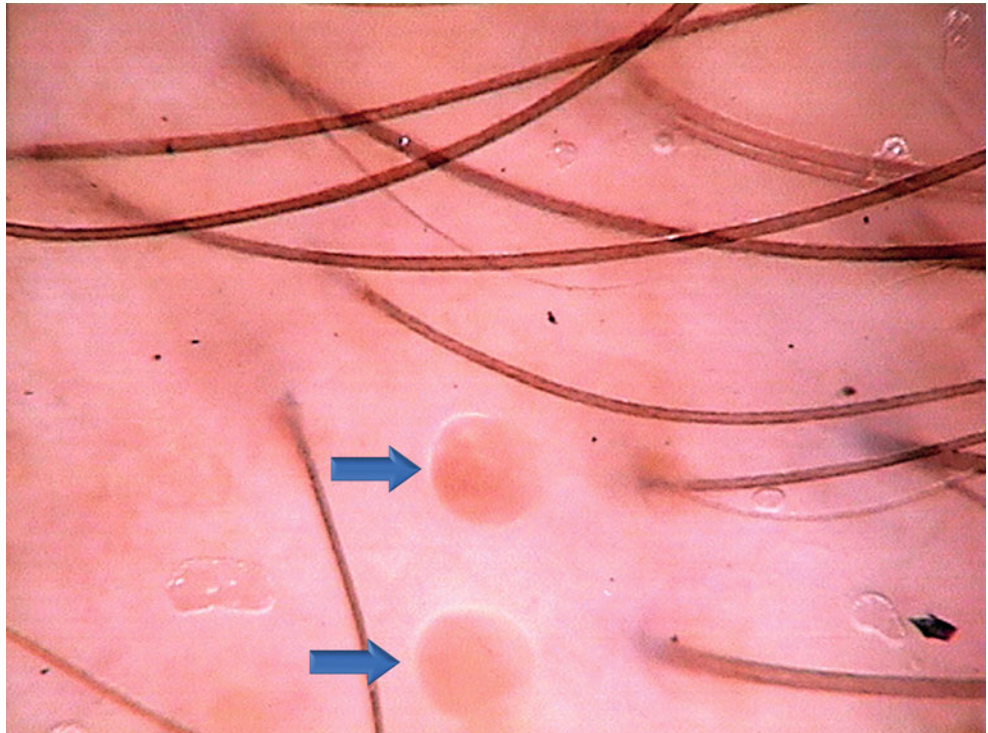


Fig. 18.3 Empty hair follicles in telogen effluvium. Shown are empty hair follicles filled with keratosebaceous material (*arrows*). They are indistinguishable from the yellow dots seen in androgenetic alopecia. Note that there are no features of androgenetic alopecia in this patient. Telogen effluvium was confirmed by trichogram ($\times 70$)

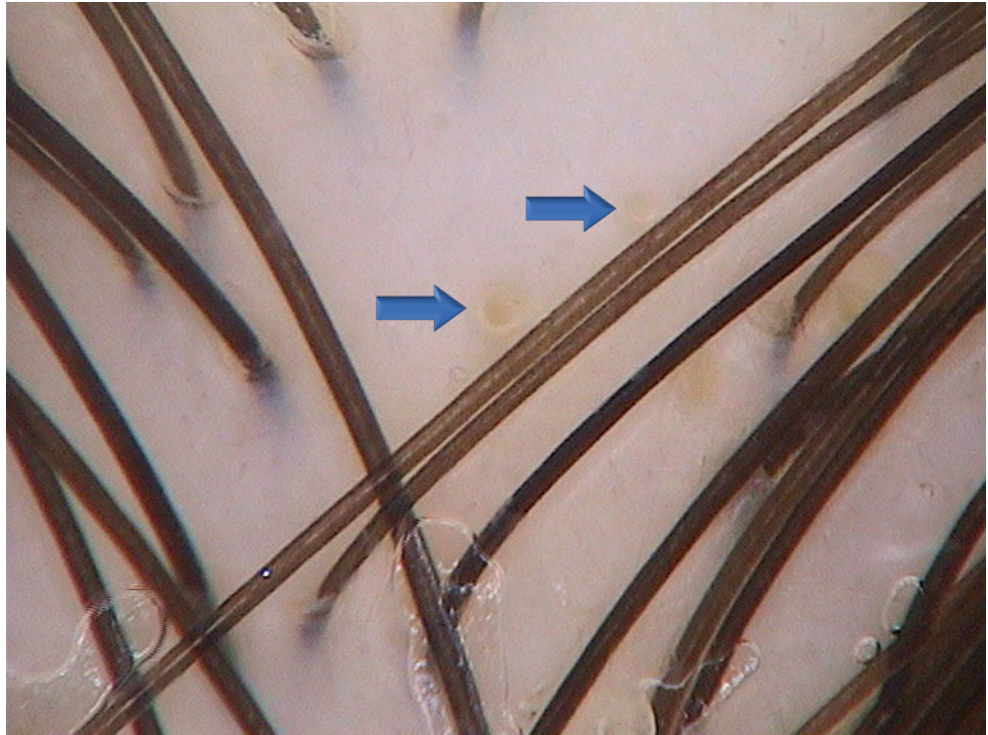


Fig. 18.4 Empty hair follicles in telogen effluvium. This image was taken from the temporal area of a patient with severe telogen effluvium due to chronic iron deficiency. Most of the empty follicular openings appear as yellow dots (*arrows*). Evaluation of the temporal area may be misleading for the beginner trichoscopist because this area generally contains the highest proportion of thin hairs and a great number of follicular units with only one hair. These characteristics may lead to the misdiagnosis of androgenetic alopecia if one tries to establish the diagnosis based on evaluation of the temporal area only ($\times 20$)

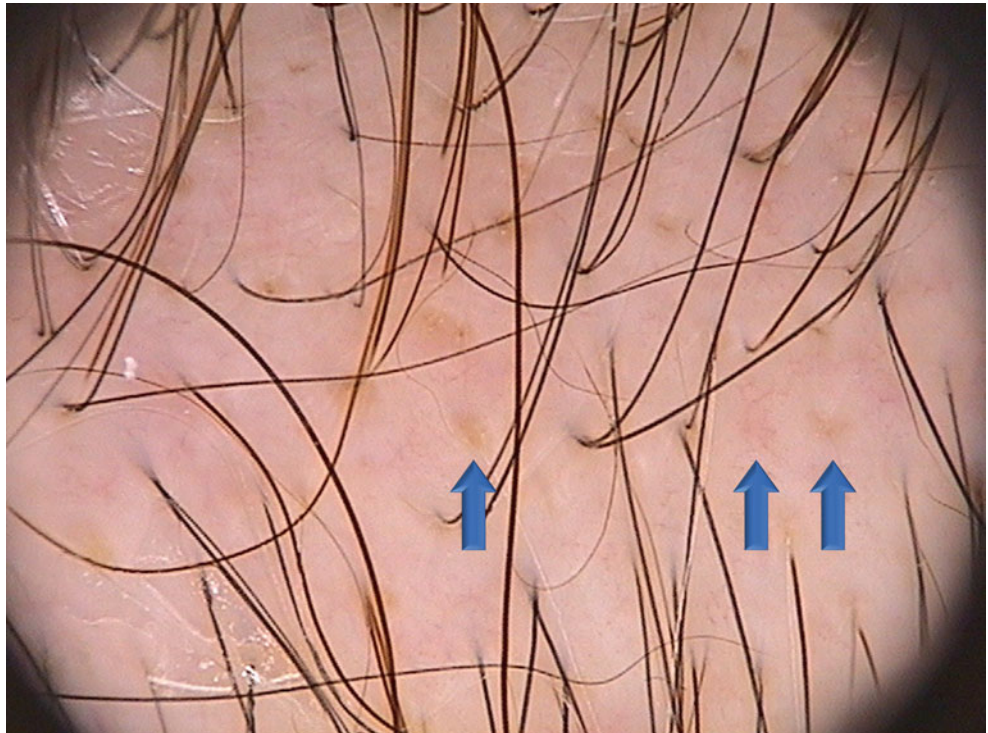


Fig. 18.5 Predominance of follicular units with only hair in telogen effluvium. Hair density is diminished during telogen effluvium. On trichoscopy, this may be seen as a predominance of follicular units with one hair and a significant decrease or absence of follicular units with three or more hairs. Note the absence of other abnormalities. Such images are highly indicative of telogen effluvium, but these findings also may be observed in other disorders, such as loose anagen hair syndrome and congenital hypotrichosis ($\times 70$)

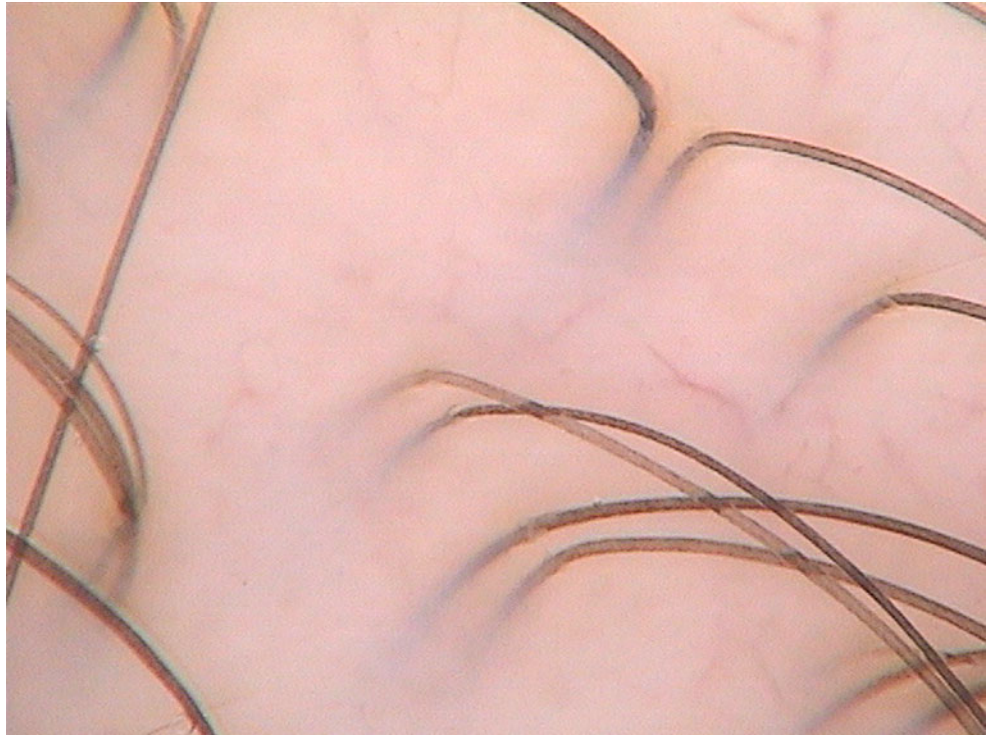


Fig. 18.6 Upright regrowing hair in telogen effluvium. In telogen effluvium, new, regrowing anagen hairs appear normal. They are firm and solid, which determines their upright position and sharp, pointed end (*arrow*). These hairs usually are pigmented similarly to terminal hairs in the area ($\times 70$)

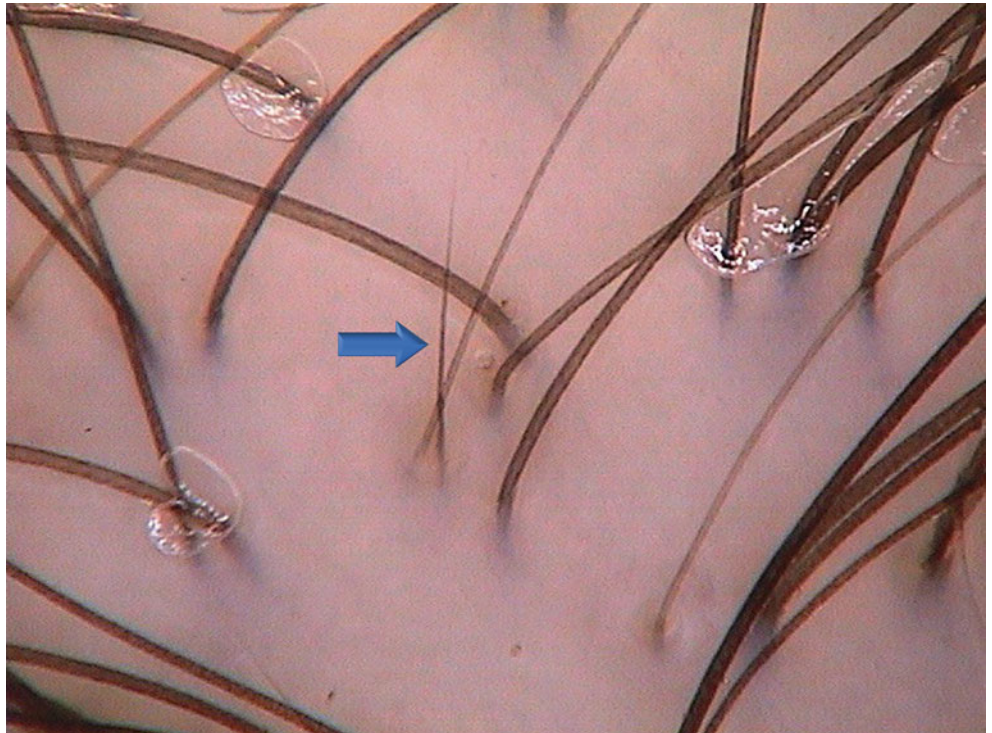


Fig. 18.7 Upright regrowing hairs in telogen effluvium. After telogen hairs shed (exogen phase), new anagen hair grows almost immediately. This regrowth is manifested by multiple upright regrowing hairs with pointed ends (*arrows*). The presence of a very large number of upright regrowing hairs is characteristic of acute, rather than chronic, telogen effluvium. Another feature differentiating acute from chronic telogen effluvium is the presence of thick terminal hairs in acute disease. In longstanding chronic telogen effluvium, the terminal hairs tend to become thinner over the years and the average hair shaft thickness is $48\ \mu\text{m}$ [17], which is about 30–50 % thinner than normal terminal hairs in healthy persons ($\times 20$)

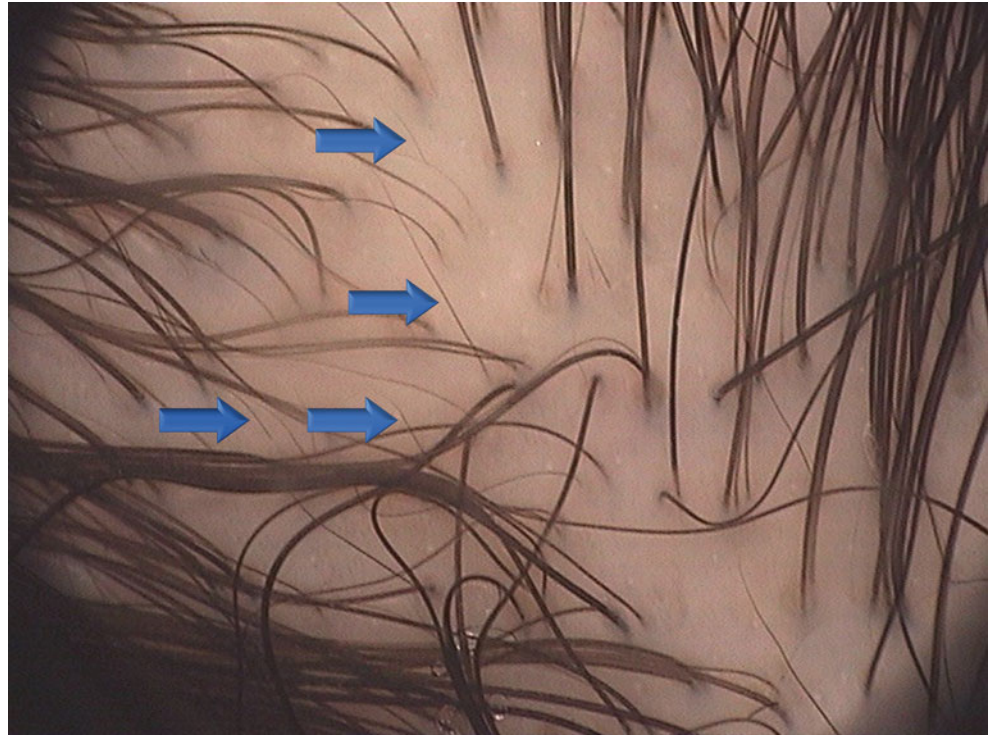


Fig. 18.8 Upright regrowing hairs in acute telogen effluvium. This image shows hair regrowth after severe hair loss in the course of acute telogen effluvium. The hairs are regrowing in follicular units of two to three hairs. These slightly bent (most probably by the dermoscope lens) hairs fulfill the criterion of upright regrowing hairs ($\times 70$)

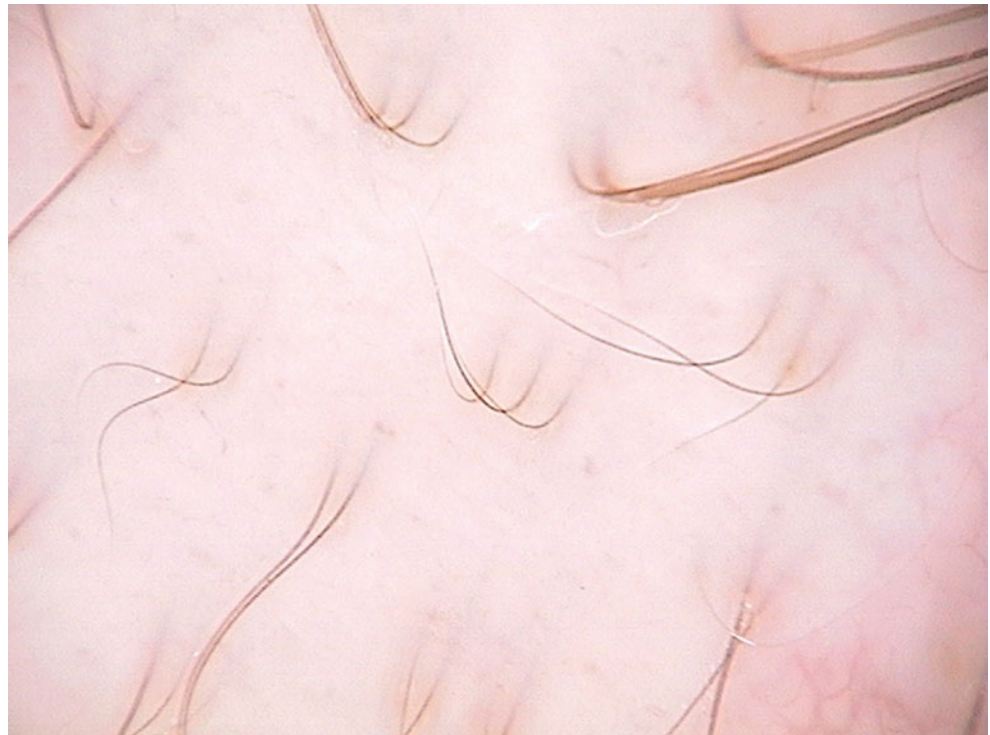


Fig. 18.9 Perifollicular discoloration (peripilar sign) in telogen effluvium. Perifollicular discoloration (the peripilar sign) is brown or brown-gray pigmentation of perifollicular skin. It is believed to reflect the presence of perifollicular lymphocytic infiltrates and was first described in androgenetic alopecia [19]. Perifollicular discoloration also is a frequent finding in telogen effluvium. Note that the terminal hairs are uniform in thickness. Sparse regrowing hairs are upright and sharply ended, which may indicate an early phase of telogen effluvium ($\times 20$)

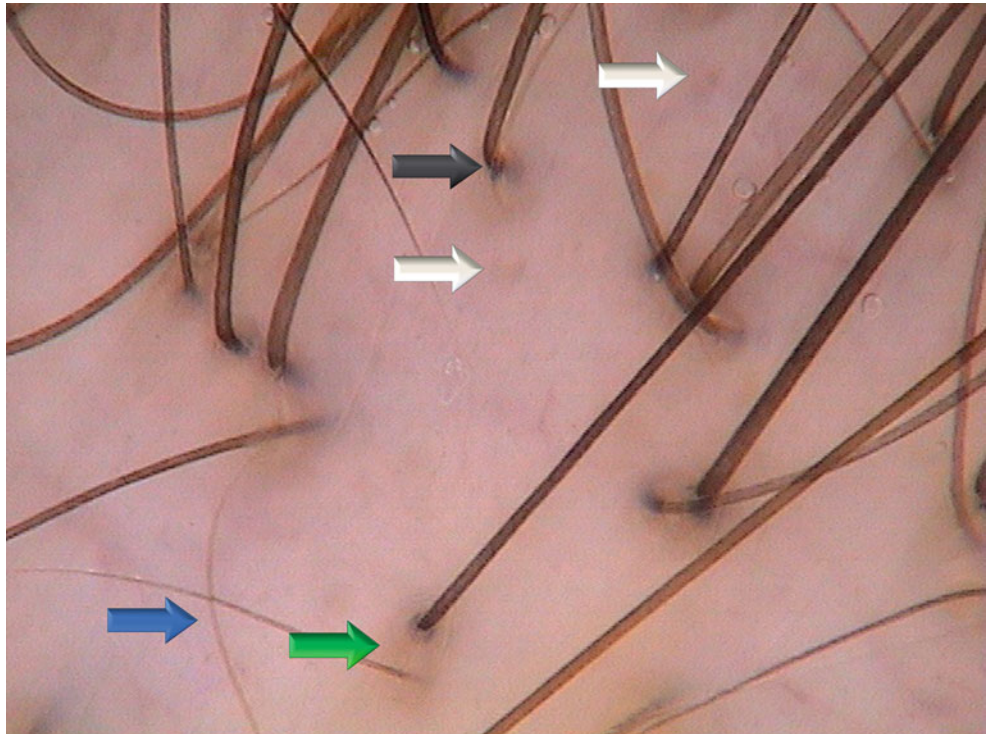
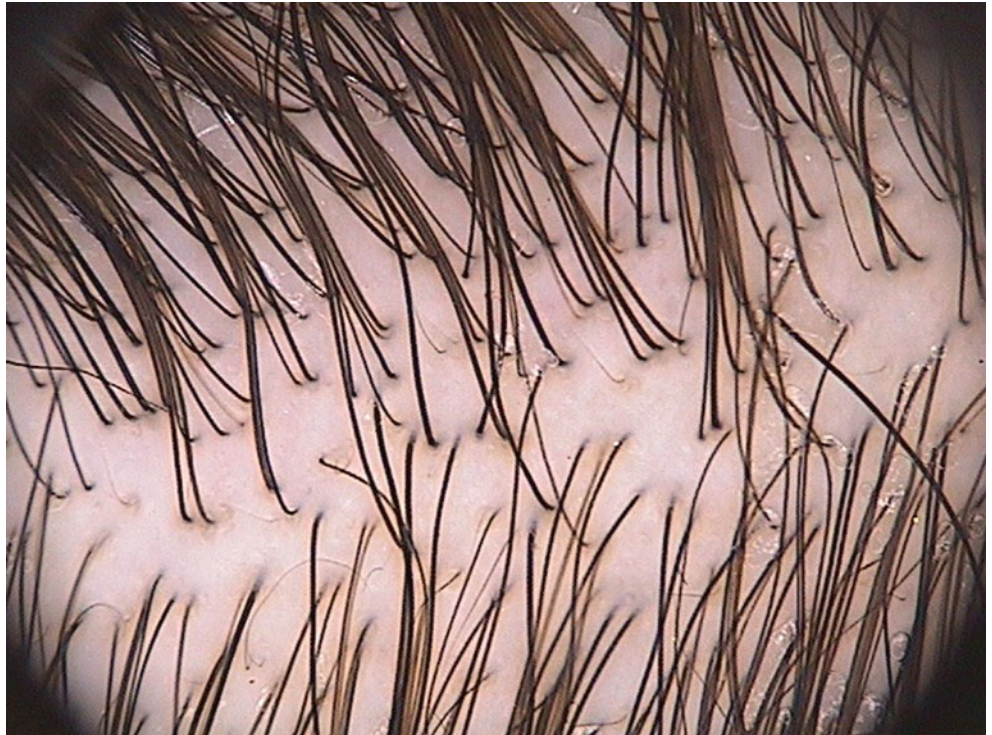
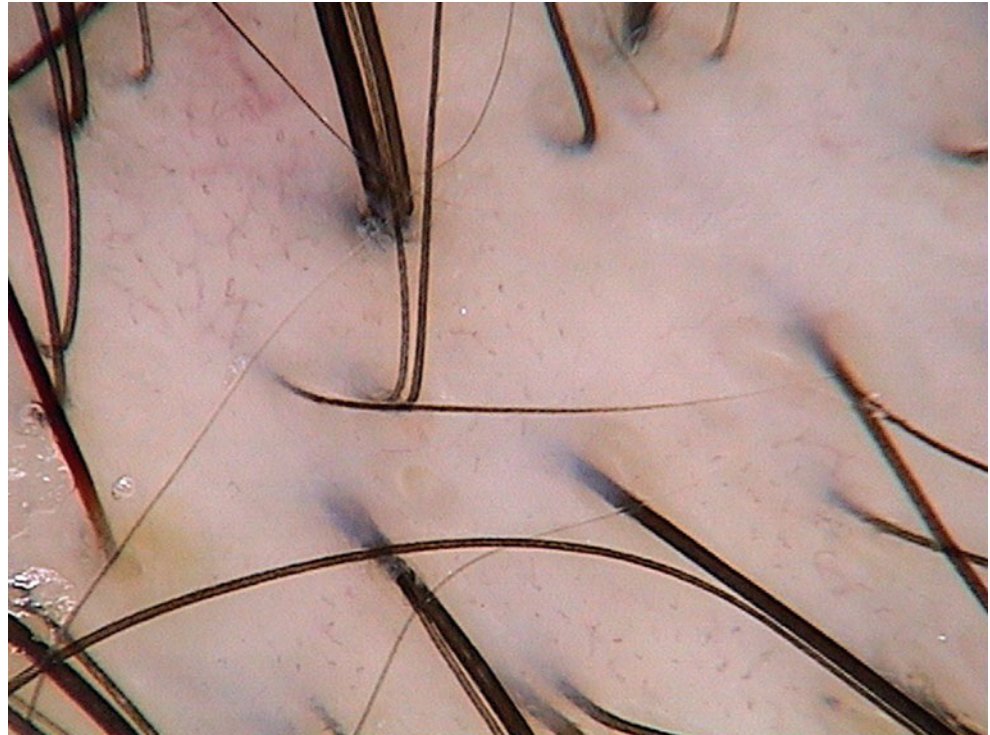


Fig. 18.10 Telogen effluvium. This image presents various trichoscopic features of telogen effluvium: short upright regrowing hairs (*blue arrow*), empty hair follicles (*white arrows*), perifollicular discoloration (*gray arrow*), and follicular units with one hair (*green arrow*) ($\times 70$)

Fig. 18.11 Trichoscopic features of telogen effluvium: short upright regrowing hairs, empty hair follicles, and perifollicular discoloration.

There is no specific vascular pattern in telogen effluvium. Areas of increased visibility of normal vessels, such as in this image, may result from the application of topical therapeutic agents (×70)



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