







## Rational evaluation of patients with COVID-19-related hair loss

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Hair loss has been noted to be a frequent complaint during or after infection caused by the coronavirus disease 2019 (COVID-19). During the current viral pandemic, it has become frequent for dermatologists to evaluate hair loss after infection caused by COVID-19<sup>1</sup>. Following systemic illness, especially after febrile diseases, patients commonly experience a diffuse, but self-limited hair shedding, probably due to the impact of cytokines over the hair follicle circle, picturing what is called telogen effluvium (TE)<sup>1</sup>. Even though there is no pattern of alopecia attributed to TE on physical examination, reduced hair density over the temporal areas is typically seen in severe cases<sup>2</sup>.

Hair loss has been addressed by several authors during the current pandemic, and cases of alopecia areata, trichotillomania (TTM), and androgenetic alopecia have somehow been linked to COVID-19 infection, either in association with or as being possibly triggered by the viral infection<sup>3,4</sup>. Nonetheless, scientific discussions regarding differential diagnosis and initial management for such cases are still scarce in the published literature.

In fact, not all cases of diffuse hair loss after COVID-19 are simply TE. Since hair shedding can be seen in many other medical conditions and considering that establishing a diagnosis does not automatically rule out others, it is wise to consider possible associations for every patient.

For instance, TTM, one of diseases listed in the *Diagnostic and Statistical Manual of Mental Disorders (DSM-5)*, can be sparked by social and environmental stressors and may present as any given type of hair loss<sup>2</sup>. Recently, Dutra Rezende et al. have commented on the psychological impacts caused by the pandemic on female patients who suffer from hair loss and how stressful it can be for them to cope with hair shedding while facing pandemic issues<sup>5</sup>.

Dutra Rezende and co-authors have also described a case of a middle-aged woman with acute and diffuse hair loss who was being treated for isolated TE for over 8 months with no

clinical response<sup>6</sup>. Careful examination of the scalp with dermoscopy and trichogram showed black dots, broken hairs, and dystrophic hair shafts pointing to the diagnosis of diffuse alopecia areata, which was confirmed by histopathology. Diffuse alopecia areata pictures yet another possibility for patients with diffuse hair loss and may be mistreated as TE. In addition, alopecia areata is also related to stress, though the exact mechanism by which it affects the hair follicle cycle remains unclear<sup>2</sup>.

In 2012, the World Health Organization has implemented the pre-exposure prophylaxis (PREP) in order to control HIV infection. Despite the good results that this strategic plan seems

**Table 1.** How can dermoscopy help differentiate diffuse hair loss during the COVID-19 pandemic.

Clinical condition	Dermoscopic findings
Androgenetic alopecia	- Anisotrichia
	- Miniaturized hairs
	- Yellow dots
	- Single-hair units
Secondary syphilis	- Yellow dots
	- Black dots
	- Broken hairs
Trichotillomania	- Hairs broken at different lengths
	- Trichoptilosis
	- Coiled hairs
	- Black dots
Diffuse alopecia areata*	- Black dots
	- Exclamation mark hairs
	- Yellow dots
	- Dystrophic hairs
	- Pig tail hair (repilation)

\*Diagnosis lies on histopathologic findings.

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**Table 2.** Proposed initial blood screening for patients with diffuse hair loss following COVID-19 infection.

Blood tests
Complete blood count
Iron tests
Erythrocyte sedimentation rate (ESR)
Thyroid function tests
Serum creatinine and urea
Vitamins D and B12
Glucose test
Liver enzymes
Treponemal and nontreponemal tests

to be reaching, PREP does not prevent patients from having syphilis, chancroid, and other sexually transmitted diseases<sup>2</sup>. As already known, diffuse hair loss can be the only clinical manifestation of secondary syphilis and the diagnosis is likely to be overlooked if proper laboratory examinations are not taken.

Up to now, no dermoscopic clue is enough for the diagnosis of TE<sup>2</sup>. In addition, most patients with isolated acute TE will show no remarkable dermoscopic features. In contrast, if TE is associated with androgenetic alopecia, syphilis, diffuse alopecia areata, or TTM, other visual elements are very likely to be found by dermoscopy (Table 1). Moreover, a general blood screening is right at any given new-onset diffuse hair loss so that comorbidities and hormonal imbalances, especially in women, can be ruled out, as shown in Table 2.

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Finally, hair loss following COVID-19 infection is frequent and should not be evaluated solely based on clinical grounds. If the attending physician is not acquainted with dermoscopy, an initial blood screening should be requested, and the patient should also visit a dermatologist for specialized help.

## AUTHORS' CONTRIBUTIONS

**HDR:** Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation Visualization, Writing – original draft, and Writing – review & editing. **GM:** Data curation, Investigation, Methodology, Project administration, Software, Validation Visualization, Writing – original draft, and Writing – review & editing. **MC:** Data curation, Investigation, Methodology, Project administration, Software, Validation Visualization, Writing – original draft, and Writing – review & editing. **SD:** Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, and Writing – review & editing. **MFRGD:** Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, and Writing – review & editing. **RR:** Conceptualization, Data curation, Formal Analysis, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing – original draft, and Writing – review & editing.

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