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Platelet-Rich Plasma Therapy with Excelents Results in the Treatment of Post-Infectious Telogen Effluvium

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Abstract: Telogen Effluvium is defined as diffuse hair loss without scarring of the scalp which occurs after a stressful event. The storm of inflammatory cytokines can lead to the premature interruption of the anagen phase, resulting in excessive hair loss. The diagnosis is clinical. A 67-year-old woman with a previous diagnosis of stabilized androgenetic alopecia was infected with SARS-CoV-2 and, two months later, sought dermatological care due to intense hair loss. Telogen Effluvium was diagnosed in addition to her existing condition. Treatment involved the infiltration of active agents, combined with red LED and Fraxel laser in the affected area of the scalp, alternating with intralesional Platelet-Rich Plasma (PRP) injections into the scalp. Daily use of finasteride and oral biotin, along with topical minoxidil, was also part of the therapy. The result was significant hair recovery. Further research is needed to better define treatment guidelines.

Keywords: Alopecia, Telogen Effluvium, Platelet-Rich Plasma

Introduction:

Telogen Effluvium (TE) is defined as diffuse hair loss without scarring of the scalp which occurs approximately 3 months after a stressful event, such as stress, fever, drug use, organic dysfunctions, post-pregnancy, among others. It is usually self-limiting and lasts for about 6 months. TE involves a premature interruption of the anagen phase, rapidly progressing to the catagen and telogen phases, leading to excessive hair loss[1].

The diagnosis of acute TE is predominantly clinical, involving a detailed personal history and clinical signs, such as an increased number of telogen hairs in the frontal, temporal, and occipital regions, since laboratory tests, histopathology, or trichoscopy tests may not reveal relevant changes[2]. Among relevant personal history, a history of recent infections in the preceding months is an important factor to consider.

Post-infection TE can be explained by different pathophysiological mechanisms. The storm of pro-inflammatory cytokines that occurs during the infection, such as IL-6 (interleukin-6) and TNF-α (Tumor Necrosis Factor Alpha), may be responsible for inducing the catagen phase. Additionally, some agents, such as SARS-CoV-2, can cause direct damage to the hair follicle through antibody-mediated attack and the formation of microthrombi that can obstruct the blood supply to the follicle and result in cell death[3].

Therefore, this paper aims to highlight the importance of discussing the TE condition associated with post-infectious states, contributing to a better understanding of this condition and assisting in its treatment.

Case Report:

A 67-year-old woman sought dermatological care in April 2021 with a complaint of severe hair loss. She reported that, in February of the same year, she had COVID-19, with a high fever for 9 days and a weight loss of 9 kg. Tests performed in March were positive for IgM antibodies, IgG ANTI S1, and ANTI S2 SARS-CoV-2. One month before the infection, the patient was diagnosed with androgenetic alopecia induced by cutaneous hyperandrogenism, with a two-year history, but stabilized. With this diagnosis, she underwent treatment involving the infiltration of active agents (finasteride, minoxidil, growth factors, biotin), combined with red LED and Fraxel laser in the affected area of the scalp, as well as daily finasteride, biotin, and topical minoxidil. Due to the viral infection, this treatment was interrupted for 3 months. The patient returned due to hair fragility, intense hair loss, and bald spots on the scalp. ET was added to the previous diagnosis. The recommended treatment was the same as the previous one, associated with intralesional Platelet-Rich Plasma

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(PRP) injections into the scalp, administered monthly for 3 months, alternating with the previous therapy. Favorable results were achieved, with significant hair recovery (see photos in Figure 1, 2, 3 and 4).

Figure 1: Patient's scalp in the first consultation, before SARS-CoV-2 infection.

Figure 2: Patient's scalp in April 2021, 3 months after COVID.

Figure 3: Patient's scalp in July 2021, 3 months after therapy.

Figure 4: Patient's scalp in august 2021, 4 months after therapy.

Discussion:

The case report of the 67-year-old patient who developed Telogen Effluvium (TE) after an acute SARS-CoV-2 infection illustrates an important example of the interaction between acute viral events and hair health. Acute TE is a non-scarring alopecia characterized by significant hair loss (more than 100 hairs lost daily) as a result of an abrupt change from the anagen to the catagen and telogen phases of hair follicles, triggered by a stressful event[1].

Approximately 10% of patients infected with SARS-CoV-2 may develop TE in the weeks and months following the infection. Pro-inflammatory cytokines released during the infection are likely the trigger for TE, although drugs (such as heparinoids) may also be involved in the pathophysiology[4]. The pandemic, as a daily stressor for the population, also influences the exacerbation of psychological disorders such as stress, anxiety, and irritability, reinforcing the possible correlation with the worsening of TE cases[5]. In the presented case, the patient experienced severe hair loss after recovering from COVID-19, prompting further clinical investigation.

It is important to consider the context of acute viral infection as a triggering factor for TE. The psychological stress caused by COVID-19, such as prolonged fever and significant weight loss, may have contributed to an imbalance in the hair cycle.

In cases of suspected TE, it is crucial to explore the patient's clinical history for differential diagnosis, correlating the onset of hair loss with a possible previous stressful event, and investigating the preceding months[2].

In the reported case, it is noteworthy that the patient had already had a previous diagnosis of androgenetic alopecia. However, the history of hair loss and the timing of the onset of hair loss in relation to the infection suggest a strong association between COVID-19 and the onset of Telogen Effluvium. Furthermore, the previously prescribed treatment for androgenetic alopecia was interrupted due to the infection, possibly exacerbating the hair cycle imbalance.

The therapeutic management of the patient demonstrates a careful approach to addressing both conditions simultaneously. The combination of topical treatments (finasteride, minoxidil, and biotin) with non-invasive procedures (red LED and Fraxel laser) is indicative of the effort to treat both androgenetic alopecia and Telogen Effluvium, based on literature [6]. In addition, the injection of Platelet-Rich Plasma (PRP) into the scalp, known for its regenerative and cell growth-promoting properties when used concurrently with minoxidil, was incorporated as part of the treatment and is well-associated with increased hair growth and thickness[7]

The results presented after therapy reinforce the efficacy of the adopted protocol documented in the provided images [see image captions]. The intense hair recovery observed after monthly PRP administration, alternating with topical treatment and non-invasive procedures, suggests synergy between these approaches in stimulating hair growth and restoring density.

In conclusion, the presented case offers an important clinical perspective on the interaction between acute viral infection and Telogen Effluvium. The therapeutic approach adopted demonstrates a successful response, highlighting the importance of a multidisciplinary approach for complex cases like this one. However, further research is needed for a complete understanding of the underlying mechanisms involved and to establish well-founded treatment guidelines for patients with post-infectious Telogen Effluvium.

Ethical Considerations

All the authors declare that they have no conflicts of interest, and there was no financing for this study. We declare we have full consent from the patient to expose his data and images. We also declare total privacy at the disclosed data in the current study.
This research was approved by the Research Ethics Committee, authorized in Plataforma Brasil, with the CAAE 55195522.0.0000.5415.

What Does This Study Add to The Current Knowledge?

This study reports a common condition in a patient previously diagnosed with androgenetic alopecia, but who develops post-infectious telogen effluvium with impactful results on her self-esteem. The authors propose an early approach with platelet-rich plasma associated with other therapies, resulting in better results. Thus, the importance of this work is due to the need to address this very common topic in dermatologist care and the therapeutic tools we have, therefore achieving better results and patient satisfaction.

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