

Effect of platelet-rich plasma on diffuse effluvium in post-COVID-19 infection

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ABSTRACT

Since the beginning of the COVID-19 pandemic, dermatologists are increasingly often seeing cutaneous changes in patients who are positive or who have already recovered from the disease. What is particularly striking is the increasing number of patients who suffer from increased hair loss sometime after recovery from COVID-19. We present twenty cases of a post-COVID-19 infection with anagen effluvium treated with platelet-rich plasma (PRP). A total of three treatments were performed, one each month. After the second treatment, the patients noticed reduced hair loss and, after the third treatment, the condition had almost returned to normal. Due to the increasing number of cases of hair loss after COVID-19 infection, we have ascertained a connection between the two diseases. The treatment of our choice is safe and produces minimal side effects.

Key words: COVID-19; Anagen effluvium; Platelet-rich plasma

INTRODUCTION

Since the beginning of the COVID 19 pandemic, we have witnessed major changes in our daily lives. The world has faced a challenge that necessitated strict measures and changes in the daily activities of every kind. Dermatologists are increasingly often seeing cutaneous changes in patients who are positive for COVID-19 or who have already recovered from the disease. Those who were infected with the virus experienced immense psychosocial and physiologic stress [1]. What is particularly striking is the increasing number of patients consulting dermatological clinics due to increased hair loss sometime after recovery from COVID-19. Some studies suggest the possibility of COVID-19 infection being a significant trigger for effluvium, but the use of ivermectin, hydroxychloroquine, azithromycin, or other medications for COVID-19 cannot be ruled out, and the global pandemic itself is a source of psychosocial stress [1].

The hair growth cycle follows three phases. At any given moment, around 85% of hair follicles are in the growing

phase, 5% are resting, and 10% are shed. In a situation of acute stress or other triggering factor, more than 50% of hair follicles may enter the telogen phase. A clinical presentation and the evidence of a well-defined trigger are almost always diagnostic of effluvium and do not require a biopsy [2].

Anagen effluvium occurs after an injury to the hair follicle, impairing its mitotic or metabolic activity. Chemotherapy, toxic chemicals, radiation, and some inflammatory diseases are also capable of diminishing the metabolic activity of hair follicles, resulting in anagen hair loss [3]. In the treatment of effluvium, it is essential to identify and remove the causative factors as well as to administer medications such as corticosteroids, minoxidil, and novel treatments such as CNPDA (caffeine, niacinamide, panthenol, dimethicone, and an acrylate polymer) [4].

Due to the frequent issues with hair loss in patients after COVID-19 and effluvium persistent for longer than normal, we chose treatment with platelet-rich plasma (PRP). PRP has been used for some time for hair

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diseases with great efficiency and its use is becoming an increasingly acceptable solution for dermatologists.

PRP therapy is an excellent treatment for impaired hair growth as it affects almost all essential components required for the survival of hair follicles: keratinocytes, stem cells, arrector pili muscles, blood vessels, and neural cells [5].

CASE REPORT

Herein, we present twenty cases of a post-COVID-19 infection with anagen effluvium. All were previously confirmed with a COVID-19 infection by PCR and were in a mild-to-moderate clinical state. They were examined by a dermatologist for diffuse effluvium two months after being diagnosed with the coronavirus. Serological examination was performed on all of them and only seventeen showed elevated levels of IgG for SARS-CoV-2. In all patients, dermatological examination revealed a diffuse loss of hair volume without defined alopecic patches. In all patients, the diagnosis was made on the basis of a clinical examination, a trichogram, and trichoscopy. A trichogram revealed a large proportion of dystrophic anagen hair.

We treated 16 females and 4 males with PRP. A total of three treatments were performed, one each month. Before treatment, the patients were advised not to take medications that might prolong bleeding, such as aspirin or nonsteroidal anti-inflammatory drugs. It was also necessary for each patient to wash their hair well at home before treatment. We used the local anesthetic lidocaine and then carefully injected PRP. The entire treatment took around 25–30 minutes. After the treatment, the patients were not allowed to wash their hair for 48 hours. For pain, they were advised to use acetaminophen. No patient complained of more serious side effects other than mild scalp numbness. After the second treatment, the patients noticed reduced hair loss and, after the third treatment, the condition had almost returned to normal. After the final administration of PRP injection, the patients graded their level of satisfaction from 1 to 5 (1: unsatisfied; 2: poorly satisfied; 3: sort of satisfied; 4: satisfied; 5: very satisfied).

DISCUSSION

Anagen effluvium is most commonly caused by chemotherapy, but may also be caused by bleomycin,

dactinomycin, daunorubicin, fluorouracil, methotrexate, azathioprine, bismuth, levodopa, colchicine, albendazole, cyclosporine, and possibly strontium ranelate and pegylated interferon alfa-2a/ribavirin therapy [6,7]. The causes of anagen arrest also include radiation therapy, endocrine diseases, alopecia areata, cicatrizing disease, trauma, and pressure [8].

Anagen effluvium is usually self-limiting and normalizes within several weeks, although in some cases hair loss is prolonged and presents a considerable problem for the patient. However, we are witnessing a number of patients experiencing issues with hair loss after a COVID-19 infection and six months after healing.

PRP is a simple and effective method of treating all types of non-scarring alopecia and may be considered an option in the treatment of these patients. PRP is derived from the centrifugation of the patient's own blood and contains growth factors working on different target cells that influence wound healing, thereby playing an important role in tissue repair mechanisms, enhancing soft tissue healing and regeneration at various levels [9].

CONCLUSION

Due to the increasing number of cases of hair loss after COVID-19 infection, we have ascertained a definite connection between these two diseases. Hair loss may be due to the toxic effect of the infection on the hair follicle, but the drugs used to resolve the condition and the stress that the pandemic brings may play a role in the pathogenesis.

The treatment with PRP that we chose is safe and produces minimal side effects. In all our twenty patients, we achieved satisfactory results, with reduced hair loss after the second treatment and complete normalization after the third treatment. Patient satisfaction was 4.15 on average (graded from 1 to 5).

The role of stress in hair loss during the COVID-19 pandemic is also discussed by many patients with this problem but without a history of COVID-19.

Consent

The examination of the patient was conducted according to the principles of the Declaration of Helsinki.

The authors certify that they have obtained all appropriate patient consent forms, in which the patients gave their consent for images

and other clinical information to be included in the journal. The patients understand that their names and initials will not be published and due effort will be made to conceal their identity, but that anonymity cannot be guaranteed.

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