

A case report of occurrence of severe alopecia areata as post-COVID-19 complication

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Abstract COVID-19 has been markedly affecting the lives of individuals in various ways from past two years. Post COVID-19 complications are among those which have rendered patients more vulnerable to secondary diseases. Hyperactive immune system is one of the post-COVID complications. This has led to emergence of all forms of alopecia in patients who suffered from COVID-19. A 33-year-old female is experiencing severe alopecia areata as a post-COVID complication with aberrant response towards treatments from past 9 months. Topical minoxidil 5% and tacrolimus 0.1% along with scalp platelets-rich-plasma (PRP) with micro-needling has been proven successful in regrowth after two months of treatment. Although reoccurrence of few bald patches has been observed.

Key words

Post-Covid; Alopecia areata; Hyperactive immunity.

Introduction

The immune system is generally activated in COVID-19, which is brought on by SARS-CoV-2 virus infection. The connection between COVID-19 and other dermatologic immune-related disorders has been clarified by research during the past two years.¹ About 2% of people have alopecia areata, an autoimmune illness that causes non-scarring hair loss on the scalp, face, or body and can be quite distressing to the patient.² Autoimmune illnesses, Alopecia Areata in particular, are known to be made worse by stress and may even go undetected.³ The etiology of the disease is significantly influenced by autoimmune responses. The pathophysiology of the disease is largely influenced by the hyperactivity of Janus Kinase 3 (JAK-3), with some involvement of JAK-1 and JAK-2.⁴ COVID-19 has been linked to a

number of alopecia, including androgenetic alopecia (AGA), alopecia areata (AA), telogen effluvium (TE), anagen effluvium (AE), and pressure-induced alopecia, according to recent retrospective investigations. The causes of these correlations are unclear, but it is thought that they are complex. Hair loss, like other cutaneous signs of COVID-19, may be connected to different virus-induced or postponed immune responses to infection.⁵

Case report

A female, 33 years old, suffered an episode of Covid-19 in March 2022. She experienced fever, throat infection, and recurrent episodes of severe vomiting which made her unable to eat. This episode lasts for 15 days following treatment. She started experiencing spots of alopecia areata in June 2022 (**Figure 1, 2**). Application of topical Mometasone lotion 0.1% was started as an initial treatment on affected patches.

This episode of alopecia areata progressively started to spread and patient started experiencing

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Figure 1



Figure 2



Figure 3



Figure 4

multiple spots by the end of July 2022 (Figure 3,4).

In August 2022, she was diagnosed with extensive alopecia areata. She was prescribed with topical steroid and injectable treatment. She was administered with Triamcinolone Acetonide 40mg, 1 vial in multiple patches of AA, in her first session. She was advised to re-visit after 6 weeks. She witnessed episodes of new patches with slight regrowth on injected patches (Figure 5-7) till the end of 6 weeks.

In her second visit, she was administered with

another vial of Triamcinolone Acetonide 40mg, in maximum number of patches. Rest were left untreated. This time patient was advised to come after 8 weeks. She visited again after 2 months and treatment was declared unsuccessful as it didn't show desired results (Figure 8).

In December 2022, she was put on 0.1% tacrolimus topical ointment in the morning and minoxidil 5% spray in the evening on patches and got her first scalp PRP with micro-needling session. After 4 weeks of this regime, patient witnessed regrowth and less hair fall. She had gone through second session of scalp PRP with micro-needling after a month again following same prescription. She is advised to be on same treatment for further 2 months. The regrowth pattern is there along with occurrence of small few patches with less hair fall (Figure 9).

Discussion

An organ-specific autoimmune condition known as alopecia areata affects anagen phase of hair follicles. The course is uncertain, and the effectiveness of the existing therapies varies.⁶ Alopecia areata deterioration is multifaceted. A patient's deterioration may be significantly impacted by the physical stress that the body experiences brought on by an illness, like the SARS-CoV-2.⁷ A significant emotional burden that results from a massive life stressor, such a



Figure 5 Slight regrowth.



Figure 6 Slight regrowth.



Figure 7 Occurrence of new patches.



Figure 8 After two sessions of intra-lesional steroids.



Figure 9 Regrowth with few small patches.

pandemic, may also be a substantial factor in the underlying disease's worsening.⁸ In terms of corticosteroid injection procedure for alopecia areata, IL injection of 2.5–10 mg/mL triamcinolone acetonide at four–six-week spacing is extensively employed in moderate forms of AA (i.e., patch alopecia areata or SALT score 25%) with a response rate ranging from 64% to 97%.⁹ The success of 1%, 3%, and 5% minoxidil for treating patchy alopecia areata in adolescents and adults, generally observed during a follow-up time of less than 6 months,⁸ is supported by a meta-analysis of patchy alopecia areata treatment including these concentrations vs. placebo.⁹ The body's natural ability to repair and regenerate hair follicles is

enhanced by platelet-rich plasma (PRP), an autologous preparation of serum with enriched platelets that contains a variety of growth factors and cytokines. PRP is beneficial in treating alopecia areata, according to a few research and case reports. To evaluate the efficacy of PRP as a monotherapy or in combination with other therapeutic approaches for alopecia areata, extensive stretch trials are required. The number of PRP treatments necessary to treat and preserve hair growth is not established, irrespective of the fact that PRP is relatively safe and may be successful.¹⁰

Conclusion

Alopecia areata as post-COVID complication has impacted the life of patients both aesthetically and psychologically. Topical and injectable steroid therapy failed in this patient. But minoxidil 5%, tacrolimus 0.1% along with monthly platelets rich plasma therapy with micro-needling has been proven affective.

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