

Case Report

Platelet Rich Plasma in the Treatment of Frontal Fibrosing Alopecia

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Abstract

Frontal Fibrosing Alopecia (FFA) represents a form of scarring alopecia more frequent in postmenopausal women that presents with frontal hairline recession. It is typically classified as a variant of lichen planopilaris. Treatment of FFA can be challenging with poor long-term outcomes.

Platelet-Rich Plasma (PRP) consists of an autologous concentration of platelets in a small volume of plasma. Activated platelets secrete cytokines and growth factors and thus may have a potential role in the treatment of inflammatory scarring alopecia such as FFA.

A 68-year-old female with multi-resistant FFA was treated with lesional PRP injections every 4 weeks for 16 weeks. Baseline LPPAI score and phototrichograms targeting a representative area of disease activity were compared at baseline and at 16 weeks.

After 16 weeks, no significant change in follicular units or follicular density from baseline to week 16 was noted. Only a minimal improvement in inflammatory activity observed clinically and through the Lichen Planopilaris Activity Index was observed. The discordance between the follicular density count and observed inflammatory activity suggests a longer treatment and observational period is needed. Additionally, the frequency of PRP injections potentially may also need to be increased.

Given the limited efficacy of current therapies for FFA, PRP injections may be an option in patients with refractory disease, as an adjunct to systemic therapy. Additional investigation is needed to optimize frequency of PRP injections in FFA and to better assess its true anti-inflammatory effect.

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Case Presentation

Frontal Fibrosing Alopecia (FFA), a lymphocytic mediated scarring alopecia, predominates in postmenopausal women and presents with frontal hairline recession and frequent eyebrow and eyelash involvement [1-3]. While typically classified as a variant of lichen planopilaris, the pathogenetic relationship with FFA remains unexplained along with the factors leading to the dramatically increased worldwide prevalence over the last decade [4,5]. Treatment of FFA is challenging with highly variable responses and poor long-term outcomes [3,6].

Platelet-Rich Plasma (PRP) is a type of regenerative therapy consisting of an autologous concentration of platelets in a small volume of plasma [7]. Because activated platelets secrete numerous cytokines and growth factors, PRP may promote hair growth in the declining hair follicle. Recently, PRP has also been shown to stimulate dermal papillae cell proliferation, thereby increasing survival of hair follicle cells and thus may have a potential role in the treatment of inflammatory scarring alopecia such as FFA.

A 68-year-old female with FFA who previously failed treatment with interlesional Kenalog, finasteride, and hydroxychloroquine was treated with lesional PRP injections given every 4 weeks for 16 weeks. 60 mL of blood were collected from a peripheral vein and 3 mL of PRP was prepared according to the standardized Mayo Clinic Regenerative PRP preparation protocol and was injected to affected area of the scalp using a 30-gauge needle. Injections were well tolerated, and no adverse events were noted. Baseline LPPAI score and phototrichogram targeting a representative area of disease activity were compared at baseline and at 16 weeks.

There are several challenges in evaluating the efficacy of therapies for FFA. First, patients must be early enough in their disease course to achieve a meaningful clinical effect as scarring alopecia results in irreversible follicular destruction. Second, the onset of FFA is often very gradual and may be characterized by low-grade inflammatory activity that is often difficult to appreciate clinically and only becomes noticeable after significant hair loss. The patient in this pilot was selected for not only failing standard therapy but also because the inflammatory activity of her condition was readily assessable (Figures 1a&1b) and the duration of disease was less than three years.

16 weeks, no significant change in follicular units or follicular density from baseline to week 16 was noted (Figure 2). However, there also was only a minimal improvement in the degree of inflammatory activity observed clinically or scored through the Lichen Planopilaris Activity Index (Figure 1b). These findings have implications for the study design of future trials evaluating the efficacy of PRP for FFA, as resolution of inflammation generally correlates with the arrest of follicular destruction. The discordance between the follicular density count and observed inflammatory activity suggests a longer treatment and observational period is needed. Additionally, the frequency of PRP injections potentially may also need to be increased as only mild anti-inflammatory effects were observed with monthly injections after 16 weeks.

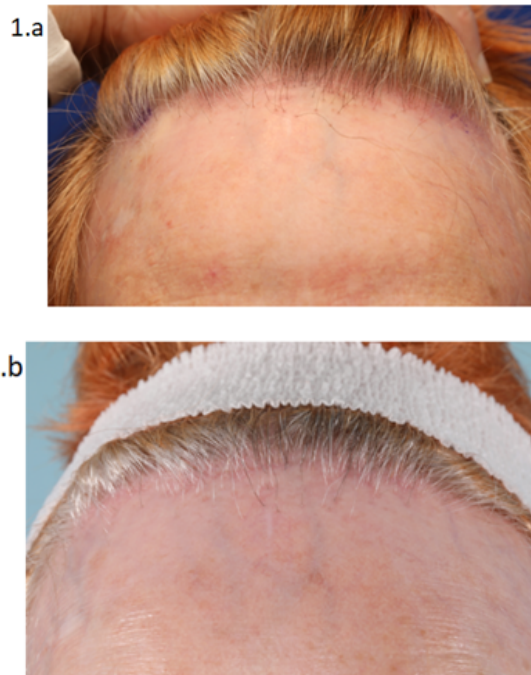


Figure 1a&1b: Clinical photographs (1a & 1b): There was only a minimal improvement in the degree of inflammatory activity.

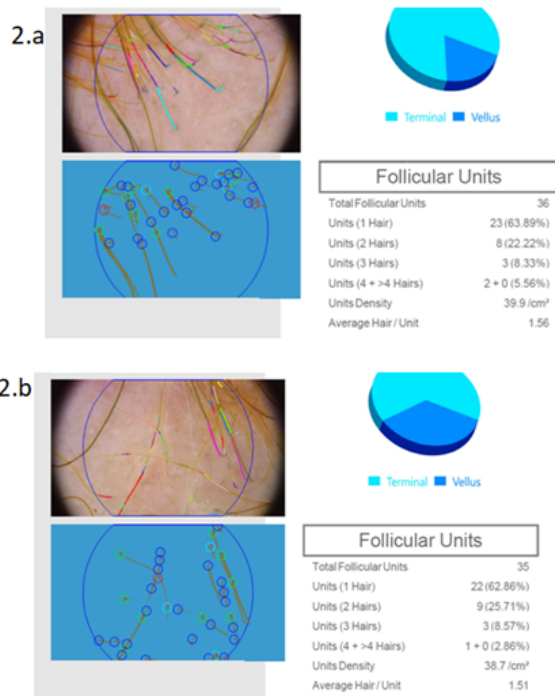


Figure 2: Phototrichograms (2a & 2b) at baseline and at 16 weeks, after 4 sessions of PRP injections, 1 month apart. After 16 weeks, no significant change in follicular units or follicular density from baseline to week 16 was noted.

Conclusion

Given the limited efficacy of current therapies for FFA, treatment with PRP injections may be an option in patients with refractory disease possibly as an adjunct to oral therapy as they appear well tolerated. However, further investigation through clinical trials is needed to optimize frequency of PRP injections in FFA and to better assess the true anti-inflammatory potential of PRP overall.

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