Received: 18 April 2022 | Revised: 5 August 2022 | Accepted: 29 August 2022

DOI: 10.1111/dth.15798

DERMATOLOGIC THERAPY WILEY

LETTER

Transitory hair growth using platelet-rich plasma therapy in stabilized central centrifugal cicatricial alopecia

Dear Editor,

Central centrifugal cicatricial alopecia (CCCA) is a progressive form of lymphocyte-predominant scarring alopecia and is the most common form of primary scarring alopecia in women of African descent.[1] Effective, safe medical therapy is often challenging. Platelet-rich plasma (PRP) has emerged as a novel therapeutic option for some non-scarring alopecias[2]; there has been a growing interest in the use of PRP for treating scarring alopecias as well. We examined the effectiveness of a PRP regimen as an adjunctive treatment for stabilized cases of CCCA.

A woman in her 50s presented with a 4-year history of hair breakage and alopecia. Physical examination revealed frontal and diffuse inter-parietal alopecia with loss of follicular openings clinically consistent with CCCA and traction alopecia. However, the patient deferred a scalp biopsy. She received medical treatment with topical and intralesional corticosteroids. After 2 years, the patient achieved stabilization and followed maintenance therapy with topical corticosteroids and topical minoxidil three times per week. Under this regimen, we started PRP treatment (Eclipse PRP system), totaling four sessions (Figure 1). Sessions were once a month for the first three sessions and the last six months later. The patient received PRP injections to the inter-parietal and frontal scalp and did not report any side effects. During the monthly treatments, a mild increase in follicular density was seen. However, upon presentation for her fourth

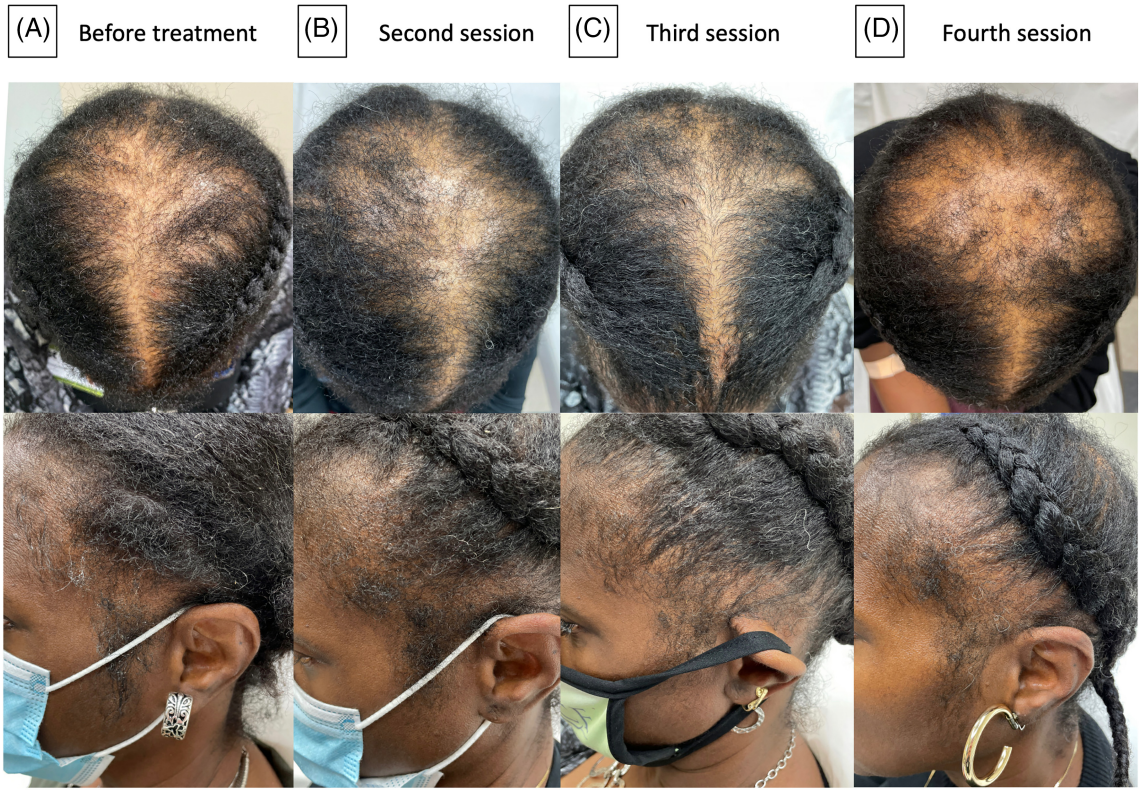

FIGURE 1 Clinical follow-up of platelet-rich plasma (PRP) therapy in Case 1. (A–C) Initial PRP injections were done on a monthly regimen. (D) Maintenance PRP session 6 months after

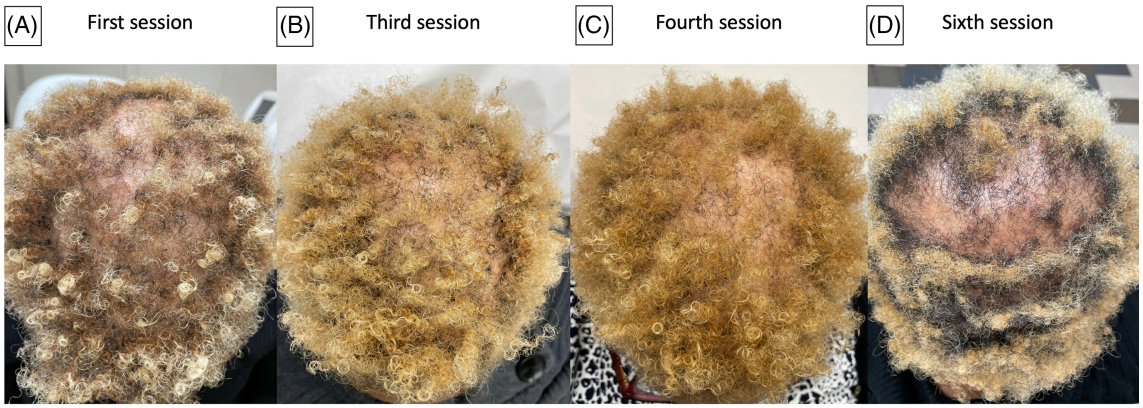

FIGURE 2 Clinical follow-up of platelet-rich plasma (PRP) therapy in Case 2. (A) and (B), Initial PRP injections were done every month. (C) and (D) Maintenance PRP injections, one session every 6 months

treatment, the patient presented with a significant decrease in hair density after a 6-month hiatus from her last PRP session.

A woman in her 50s presented with a 6-year history of diffuse inter-parietal hair thinning with loss of follicular openings. Scalp biopsy confirmed the diagnosis of concomitant female pattern hair loss and CCCA. She received topical, intralesional corticosteroids and spironolactone 50 mg/day. After three years, the hair loss stabilized, continuing only with topical minoxidil daily. The patient started PRP treatment (Eclipse PRP system), completing six sessions (Figure 2). She received three monthly sessions and then one session every six months. The patient did not report any adverse effects. Similar to Case 1, after receiving the monthly injections, we noticed an increase in follicular density—however, a noticeable decrease in hair density occurred under the 6-month PRP regimen.

PRP has been an emerging therapy for non-cicatricial hair loss like androgenetic alopecia and alopecia areata, with varied results.[2] However, few studies have evaluated its efficacy in cicatricial alopecias. Nevertheless, case reports have shown a potential benefit of PRP in lichen planopilaris, frontal fibrosing alopecia, traction alopecia and a refractory case of CCCA.[3,4] Our study saw an increase in hair density during the monthly intervals in both patients. However, under the 6-month-interval sessions, both patients showed a noticeable decrease in follicular density. The efficacy and duration of PRP therapy effects in cicatricial alopecias are still unknown. It may be due to various up-regulated growth factors involved in stimulating hair growth.[2] Other hypotheses involve the increased expression of Matrix metalloprotinase (MMP)-1 and MMP-3, favoring the removal of damaged extracellular matrix, and anti-inflammatory effects through proangiogenic cytokines.[3,5] An expert opinion states that PRP may be more advantageous in women with concurrent CCCA and androgenetic alopecia.[6] Previous research has highlighted successful treatment with PRP in a refractory CCCA patient. The investigators also noted a reduction in the follicular density 6 months after treatment, supporting the need for maintenance therapy.[5] These decrease in follicular density after a prolonged hiatus in PRP sessions diverge from the efficacy of some PRP regimens used for androgenetic alopecia.[7] The patients did not report any adverse effects after multiple PRP sessions. This differs from hyperalgesia reported in patients treated with PRP for androgenetic alopecia.[8] Because of their CCCA, both received intralesional corticosteroids in the past, making them possibly more used to intralesional therapies. We are the first to report a persistently decreased hair density under the 6-month interval maintenance sessions. We acknowledge the limitations of our observation, such as a small sample size and the possible confounding effects of concomitant topical treatments. Nevertheless, our findings support the need to consider a shorter than 6-month interval for maintenance therapy with PRP in stabilized patients with CCCA.

The patients gave appropriate informed consent for the publication.

AUTHOR CONTRIBUTIONS

Amy J. McMichael had full access to all the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis. Concept and design: Jorge Larrondo and Amy J. McMichael. Acquisition, analysis, or interpretation of data: Jorge Larrondo, John Petela. Drafting of the manuscript: Jorge Larrondo, John Petela, and Amy J. McMichael. Critical revision of the manuscript for important intellectual content: Jorge Larrondo and Amy J. McMichael.

CONFLICT OF INTEREST

Amy J. McMichael reported being a consultant for Almirall, Galderma, Incyte, and Procter & Gamble; reported performing research for Incyte and Procter & Gamble; reported receiving grants from Procter & Gamble; and reported receiving personal fees from UpToDate outside the submitted work. No other disclosures were reported. IRB approval status: reviewed and approved by the Wake Forest Baptist Health IRB (IRB:00073182).

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available on request from the corresponding author. The data are not publicly available due to privacy or ethical restrictions.

Jorge Larrondo[1]
John Petela[2]
Amy J. McMichael[1]

[1]*Department of Dermatology, Wake Forest Baptist Health, Winston Salem, North Carolina, USA*
[2]*Wake Forest University School of Medicine, Winston Salem, North Carolina, USA*

Correspondence
Amy J. McMichael, Department of Dermatology, Wake Forest Baptist Health, 4618 Country Club Rd, Winston-Salem, NC 27104, USA.
Email: amcmicha@wakehealth.edu

ORCID

Jorge Larrondo https://orcid.org/0000-0003-3600-8824

REFERENCES

1. Dlova NC, Salkey KS, Callender VD, McMichael AJ. Central centrifugal cicatricial alopecia: new insights and a call for action. *J Investig Dermatol Symp Proc*. 2017;18(2):S54-S56.
2. Gupta AK, Renaud HJ, Rapaport JA. Platelet-rich plasma and cell therapy: the new horizon in hair loss treatment. *Dermatol Clin*. 2021;39(3):429-445.
3. Alves R, Grimalt R. Platelet-rich plasma and its use for cicatricial and non-cicatricial alopecias: a narrative review. *Dermatol Ther (Heidelb)*. 2020;10(4):623-633.
4. Okereke UR, Simmons A, Callender VD. Current and emerging treatment strategies for hair loss in women of color. *Int J Womens Dermatol*. 2019;5(1):37-45.
5. Dina Y, Aguh C. Use of platelet-rich plasma in cicatricial alopecia. *Dermatol Surg*. 2019;45(7):979-981.
6. Lawson CN, Bakayoko A, Callender VD. Central centrifugal cicatricial alopecia: challenges and treatments. *Dermatol Clin*. 2021;39(3):389-405.
7. Ince B, Yildirim MEC, Dadaci M, Avunduk MC, Savaci N. Comparison of the efficacy of homologous and autologous platelet-rich plasma (PRP) for treating androgenic alopecia. *Aesthet Plast Surg*. 2018;42(1):297-303.
8. Yildirim MEC, Ince B, Uyanik O, Okur MI, Dadaci M. Development of hyperalgesia in patients treated with autologous platelet rich plasma due to androgenetic alopecia. *Selcuk Med J*. 2018;34(3):90-93.