

# Platelet-rich plasma, a promising adjunctive treatment for vitiligo: A case report



Lu Yin, BA, Prince Adotama, MD, Katerina Svigos, BA, Daniel Gutierrez, MD, and Kristen Lo Sicco, MD  
New York, New York

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## INTRODUCTION

Vitiligo is an autoimmune disorder that targets and destroys melanocytes, resulting in skin depigmentation.<sup>1</sup> As a potentially highly visible condition, vitiligo may be stigmatizing and distressing for patients.<sup>2</sup> Platelet-rich plasma (PRP) contains high concentrations of platelets and growth factors and is an increasingly popular treatment for androgenetic alopecia.<sup>3</sup> While the use of PRP to treat androgenetic alopecia has been documented, its utility in treating vitiligo is still in the initial stages of investigation.<sup>4-6</sup> Here, we present the case of a 39-year-old male who had improvement in his vitiligo after phototherapy and PRP injections.

## CASE REPORT

A 39-year-old male with a 26-year history of nongsegmental vitiligo presented for PRP therapy. His family history included a grandfather with vitiligo, but he had no personal or family history of other autoimmune disorders. Laboratory testing revealed a normal thyroid-stimulating hormone level. The patient began vitiligo treatment 2 months prior with narrowband ultraviolet B (NB-UVB) phototherapy 3 times per week and the application of 1% pimecrolimus cream twice daily on his face. NB-UVB treatment was initiated at 300 mJ/cm<sup>2</sup> on the body, increased by 50 mJ/cm<sup>2</sup> per visit, and 100 mJ/cm<sup>2</sup> on the face, increased by 25 mJ/cm<sup>2</sup> per visit. The treatments were well tolerated and resulted in repigmentation on his bilateral upper extremities. However, he had minimal changes to his head and neck after 17 treatments. Depigmented patches were present on the periorbital, perinasal, and perioral skin and on the bilateral temples and frontal scalp

### Abbreviations used:

NB-UVB: narrowband ultraviolet B  
PRP: platelet-rich plasma

(Fig 1). Minimal perifollicular pigment was noted on dermoscopic evaluation of the head and neck, and, notably, starburst pattern, micro-Koebner phenomenon, and altered pigment network were not observed (Fig 1). Given these minimal changes, he elected treatment with PRP and halted facial therapy with pimecrolimus.

Whole blood was drawn using the RegenKit Blood Cell Therapy and centrifuged for 5 minutes using the Drucker 642VFD-Plus centrifuge (Regen Lab). Each injection, spaced 1 cm apart, contained 0.1 mL of PRP. The patient received a total of 6 mL of PRP, with approximately 3 mL injected along the frontal and temporal regions of the scalp in the areas of depigmented patches. Concomitant treatment with PRP injections (monthly, total 3 treatments) and NB-UVB (3 times a week) was continued for 2 months, resulting in >50% improvement over baseline (good response),<sup>5</sup> involving his eyelids and eyebrows, frontal region of the scalp, and temples (Fig 1). Owing to the coronavirus disease 2019 pandemic, he temporarily discontinued phototherapy for 6 weeks. Upon his return to the clinic, he demonstrated continued repigmentation with >75% improvement from baseline (excellent response)<sup>5</sup> on the face and scalp, without any specific signs of vitiligo worsening on dermoscopy (Fig 1). Although PRP

From The Ronald O. Perelman Department of Dermatology, New York University Grossman School of Medicine

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Correspondence to: Kristen Lo Sicco, MD, The Ronald O. Perelman Department of Dermatology, New York University Grossman

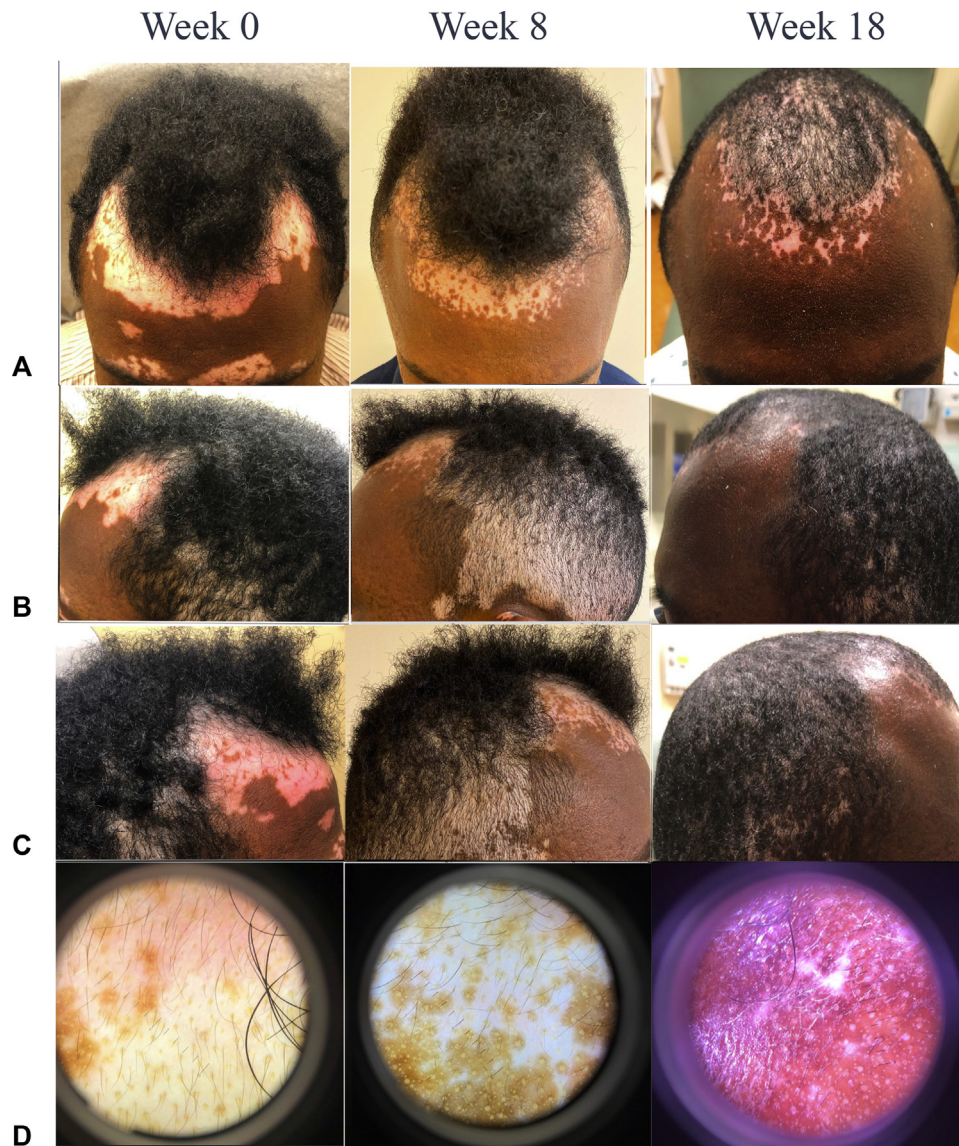
School of Medicine, 240 East 38th Street, 12th Floor, New York, NY 10016. E-mail: [kristen.losicco@nyulangone.org](mailto:kristen.losicco@nyulangone.org).

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**Fig. 1.** Clinical and dermoscopic images demonstrating repigmentation 8 and 18 weeks after initiating PRP treatment concomitantly with phototherapy. **A**, Frontal region of the scalp. **B**, Left side of the temporal scalp. **C**, Right side of the temporal scalp. **D**, Dermoscopic image 8.5 cm superior to the left side of the lateral canthus. PRP, Platelet-rich plasma.

induces microtrauma in the skin, there were no clinical or dermoscopic signs of koebnerization in our patient.

## DISCUSSION

Phototherapy treats vitiligo through melanocyte stimulation, migration, and increased melanin production and begins to affect the autoimmune pathway of the disease process over time.<sup>7</sup> While these strategies are effective, alternative therapeutic interventions such as PRP offer a regenerative treatment approach, fostering a fertile environment rich in growth factors and cytokines to help promote and restore normal

cellular function.<sup>8</sup> In addition to melanocytes, keratinocytes and fibroblasts as well as a multitude of inflammatory pathways are involved in vitiligo pathogenesis, and subsequent PRP stimulation of various factors may promote the differentiation, proliferation, and maturation of melanocytes and keratinocytes, leading to epidermal repigmentation.<sup>5,6,8</sup>

Previous studies have found intradermal PRP injections to be an effective adjunctive therapy, when used concomitantly with light and laser therapies. An open-label split-body trial comparing NB-UVB alone to NB-UVB with PRP in 60 Egyptian patients with stable nonsegmental symmetric vitiligo

demonstrated that 75% of patients in the NB-UVB with PRP group exhibited a good or excellent response after 4 months, whereas none of those in the NB-UVB-alone group exhibited similar response rates.<sup>5</sup> One study has shown that PRP monotherapy had poor results compared with a fractional CO<sub>2</sub> and PRP combination, which exhibited much more significant repigmentation rates.<sup>6</sup> Another study found that stable nonsegmental vitiligo patients treated with PRP and excimer laser (308 nm) achieved a greater response than the excimer laser-alone group (84.6% versus 34.6% good or excellent response).<sup>4</sup>

Our report of a vitiligo patient who demonstrated an excellent response to the treatment with concomitant PRP injections and NB-UVB for his depigmented facial patches adds to the growing literature on PRP as a potential novel adjunctive therapy for vitiligo. After 17 phototherapy treatments, our patient had repigmentation on his bilateral extremities but did not exhibit repigmentation of his depigmented facial patches. A previous study demonstrated that initial facial repigmentation may be seen after an average of 16 NB-UVB treatments in vitiligo patients with <10% body surface area involvement, and patients with facial lesions tend to be more responsive to phototherapy.<sup>9,10</sup> Our patient did not exhibit a significant response to NB-UVB alone on his face despite >16 sessions of NB-UVB, which suggests that the addition of PRP had an additional treatment effect.

Of note, no koebnerization or other major adverse events were noted in our patient, which is consistent with the minimal side effects reported after PRP treatment in the aforementioned studies.<sup>5,6</sup> Currently, there are a few studies in the literature investigating the adjunctive PRP treatment of vitiligo. Our report contributes to the existing literature the case of a patient who exhibited facial repigmentation with concomitant PRP and phototherapy treatment,

supporting the previous reports that PRP may be a promising adjunctive treatment modality for vitiligo. Larger prospective controlled studies are needed to fully assess its potential role in vitiligo treatment.

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