

# Long-term control of atopic dermatitis with platelet-rich plasma



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**Key words:** atopic dermatitis (AD); eczema; platelet-rich fibrin matrix; platelet-rich plasma (PRP).

## INTRODUCTION

Atopic dermatitis (AD) is a chronic inflammatory skin condition that most often presents in childhood but also affects many adults. Most patients with AD are treated with moisturizers and topical corticosteroids.<sup>1</sup> However, these treatments do not always allow for an adequate control of the disease.

Platelet-rich plasma (PRP) is used in treating many dermatologic conditions. It works by releasing bioagents, such as growth factors, from platelets, which induce a wound-healing cascade involving inflammation and tissue regeneration that promotes skin health.<sup>2</sup> Here, we report a case of AD in which the patient successfully achieved an extended control of skin symptoms with PRP therapy.

## CASE REPORT

A 44-year-old woman presented in May 2016 with a long-standing history of recurrent facial eczema. The symptoms had temporarily improved with topical steroids; however, no long-term solution had been achieved. The patient did not have any other eczematous lesions in other areas of the body. She did, however, report a history of childhood eczema affecting the flexural surfaces of the elbows and knees. Furthermore, the patient had allergic rhinitis and several food allergies. On examination, the eyelids and skin around the upper lip were red, pruritic, scaly, and dry. During the initial visit, 1% hydrocortisone cream was prescribed for the treatment of the skin lesions, as well as a facial moisturizer and soap-free cleanser. The patient was further instructed to avoid foods causing allergic reactions to prevent potential exacerbation of the symptoms.

Six months later, the patient returned for a refill of the hydrocortisone cream and inquired about

### Abbreviations used:

AD: atopic dermatitis  
PRP: platelet-rich plasma

treatments for infraorbital dark circles and wrinkles. After discussing the treatment options, we decided to proceed with PRP injections, and informed consent was obtained. Two PRP therapy sessions were performed, spaced 6 weeks apart, using a 4-cc platelet-rich fibrin matrix kit (Selphyl, Aesthetic Factors, Inc). In addition to administration beneath the eyes, PRP was also administered into nasolabial folds for rejuvenation purposes.

In January 2019, the patient returned to the clinic, stating that post the PRP therapy, there had been no recurrence of the eczematous lesions for 2 years despite not having used any topical corticosteroids. However, approximately 1 month before this visit, new lesions had begun to develop on the eyelids and around the upper lip (Fig 1, A). The patient wished to repeat the PRP treatment as it had been very effective in relieving her skin symptoms. As per the patient's request, PRP injections were administered, and pictures before and after were taken to document the response to the therapy (Fig 1). Additionally, the patient was recommended to continue with her daily skincare routine, which included a facial moisturizer and soap-free cleanser. One-week follow-up revealed significant improvements in the symptoms, including scaling, itchiness, redness, and dryness (Fig 1, B). At 3 months, all the eczematous lesions and symptoms had completely resolved. Three weeks later, PRP injections were repeated in the same areas, this time for rejuvenation purposes only.

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Funding sources: None.

Conflicts of interest: None disclosed.

IRB approval status: Not applicable.

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JAAD Case Reports 2021;7:54-6.  
2352-5126

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<https://doi.org/10.1016/j.jdcrr.2020.10.036>



**Fig 1.** Response of facial eczema to PRP treatment. The patient at baseline (A), 1 week post PRP treatment (B), and 1 year post PRP treatment (C). PRP, Platelet-rich plasma.

At the 1-year mark, in January 2020, the patient returned, reporting no disease flares over the past year. As seen in Fig 1, C, there continued to be no signs of eczema other than minimally above the upper lip. The patient underwent 1 more round of PRP therapy during this visit for preventive measures. She was asked to return in 1 year for a follow-up or sooner if she experienced any disease flares.

## DISCUSSION

AD is a common chronic skin condition affecting 15%-20% of children and 1%-3% of adults worldwide.<sup>3</sup> The pathophysiology of AD is complex, and many genetic and environmental factors leading to skin barrier dysfunction and immune dysregulation contribute to its development.<sup>4</sup> Currently, there are no cures for AD, and most treatments, including moisturizers and topical or systemic agents, are limited to providing temporary relief of symptoms. Moreover, in cases of persistent eczema, prolonged use of some treatment options, such as topical and systemic corticosteroids, has a potential to cause adverse effects.<sup>1</sup>

PRP is an autologous blood-derived product containing above-baseline concentrations of platelets. When PRP is injected into the skin, activated platelets degranulate, releasing growth factors, such as platelet-derived, transforming, vascular endothelial, epidermal, and fibroblast growth factors. These play an important role in inducing angiogenesis, cell migration, proliferation, and differentiation, as well

as extracellular matrix synthesis.<sup>2</sup> The stimulation of these natural healing processes by the PRP injections promotes tissue regeneration and rejuvenation.<sup>5</sup>

PRP has a wide variety of medical applications. It is currently being used and studied for the repair of tendons, bones, cartilages, and muscles.<sup>6</sup> PRP has also made its way into esthetic medicine and the treatment of various dermatologic conditions, including wound healing, acne scar correction, alopecia management, and skin rejuvenation, to name a few.<sup>2</sup> It has also been shown to have a positive effect in improving infraorbital dark circles and nasolabial folds, which supported the decision for its use in this case.<sup>7,8</sup> Incidentally, however, this led to a relief of the dermatitis symptoms for the patient. Furthermore, it was observed that with the repeated use of PRP, the symptoms gradually reduced and eventually resolved for extended periods of time.

A review of the literature in Excerpta Medica Database, Ovid MEDLARS Online, and Cumulative Index to Nursing and Allied Health Literature libraries using the key words “platelet-rich plasma,” “platelet-rich fibrin matrix,” “atopic dermatitis,” and “eczema” was conducted with no restrictions on study date or design. This did not reveal any related studies. Further search on Google Scholar revealed only 1 other case report by Ghani et al,<sup>9</sup> describing the cases of 2 patients whose eczema improved over 1 month with 3 PRP sessions. However, treatment results past the 1-month mark were not provided.<sup>9</sup> Therefore, to our

knowledge, this is the first study reporting the long-term outcomes of PRP therapy for treating dermatitis.

Based on our results and those of other studies, there is an indication for the potential use of PRP in the management of AD and other types of eczema. Two years of symptom relief is unprecedented. A randomized clinical trial with a greater number of participants is warranted to rigorously evaluate the seemingly positive effects of PRP in treating skin eczema, including AD. Further research may also shed more light on the pathophysiology of AD as well as the biochemical pathways through which PRP can exert its therapeutic effects.

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