A Case of Pemphigus Vulgaris Developing after Platelet-rich Plasma Treatment

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Abstract

Platelet-rich plasma (PRP) which is peripheral blood originated product contains high concentrated platelet and many growth factors. It has been used in dermatology for many indications, including alopecias and chronic nonhealing wounds. Pemphigus vulgaris (PV) is a chronic autoimmune bullous disease of the skin and mucous membranes. We report a case of PV induced after the treatment of PRP for female pattern hair loss. The first lesions of PV occurred on the application site of PRP in this case. The diagnosis of mucocutaneous PV was established according to the clinical, cytological, and serological findings. Many physical agents and drugs were reported to induce PV. As far as is known, there is no PRP-related PV case in the literature. An *in vitro* study demonstrated that PRP may trigger the acantholysis in a genetically susceptible patient and may lead to pemphigus. Virtually, there is no enough evidence showing PRP to cause pemphigus. However, PRP treatment should be performed carefully in such patients.

Keywords: Pemphigus vulgaris, platelet-rich plasma, treatment

Introduction

Platelet-rich plasma (PRP) which is a peripheral blood originated product contains high concentrated platelet and many growth factors. It has been widely used for the treatment of chronic ulcers, orthopedic surgery, and dentistry.[1-3] In dermatology, PRP has been used for the facial rejuvenation, treatment of striae, androgenetic alopecia, alopecia areata, and scars and its utilization is getting increased more and more.[4] Pemphigus vulgaris (PV) is a chronic autoimmune bullous disease of the skin and mucous membranes. The pathogenesis of blistering in PV is based on developing autoantibodies against desmosomal adhesion proteins.[5] We present a case developed pemphigus lesions on scalp after PRP application.

Case Report

An 42-year old woman referred to our outpatient clinic for eroded lesions on her head, trunk, and mouth in February 2016. The lesions first started on her scalp 10 months before the first admission. The patient was treating with PRP for female pattern hair loss bimonthly in another hospital for a year. The first eroded lesions appeared on the scalp after a month from the last and 6th session of the PRP therapy. The patient was treated with various topical drugs and oral antibiotics without any improvement. A parenteral corticosteroid injection temporarily stopped the enlargement of the lesions. However, new blisters occured on the back, in the nose and eventually in the mouth after 3, 6, and 9 months subsequent to scalp lesions, respectively. There was no history of autoimmune disease with her family. Dermatological examination revealed eroded lesions with serous drainage on vertex and on back, erosions on the buccal mucosa and the ventral surface of the tongue [Figure 1].

A Tzanck smear from the lesions demonstrated acantholytic cells. The histopathological examination from the scalp lesions revealed suprabasal and intraepidermal acantholysis [Figure 2].

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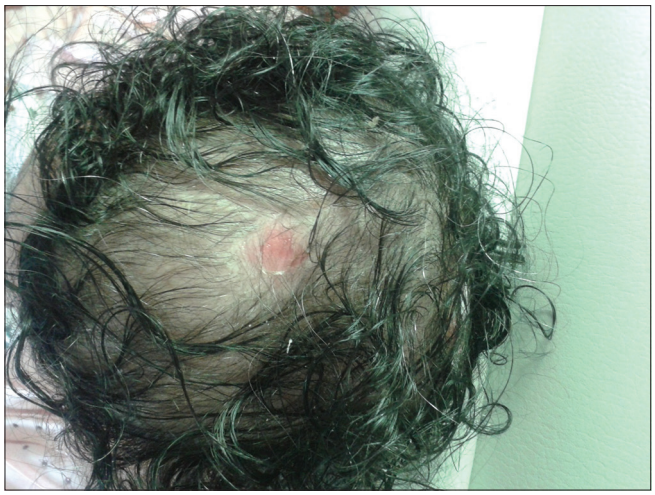

Figure 1: The eroded lesion on vertex. Female pattern hair loss is prominent

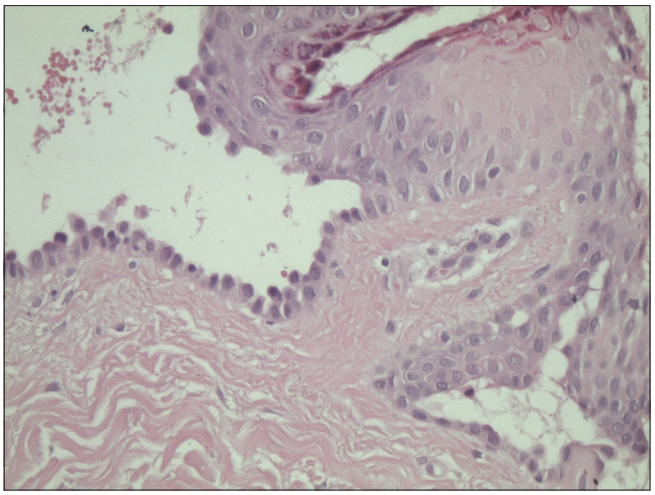

Figure 2: Intraepidermal acantholysis along with suprabasal dissociation (H and E, ×400)

Direct immunofluorescence examination was negative, but anti-desmoglein 1 and anti-desmoglein three antibody titers were 75 and 194 IU/ml with ELISA, respectively. The diagnosis of mucocutaneous PV was established according to the clinical, cytological, and serological findings. The disease was controlled by a moderate dose of oral methylprednisolone, and the patient is on complete remission with minimal therapy until now.

Discussion

Many physical agents and drugs were reported to induce PV, including surgery, dental procedures, blunt trauma, radiotherapy, angiotensin-converting enzyme inhibitors, D-penicillamine, and calcium channel blockers.[6] However, blood cell-containing products such as erythrocytes and platelets have not been reported to induce PV. Moreover, PRP has been used to cure resistant oral ulcers of PV patients and has found to be as effective as intralesional triamcinolone.[7] Furthermore, Šijan *et al*. treated a traumatic intractable leg ulcer of a PV patient in remission using homolog platelet gel.[8] The study of Hunziker *et al.,* in which the platelet-derived materials demonstrated to enhance the acantholysis caused by plasma of the pemphigus patient, points that platelets may have an effect on PV.[9] In the present case, the first lesions of PV started on vertex, where the PRP was applicated. Then, the lesions got widespread on the other skin areas and also occurred on the oral mucosa. It can be hypothesized that PRP may trigger the acantholysis in a genetically susceptible patient and exposing the antigens caused to produce anti-desmoglein antibodies, which lead to widespread skin and mucosal erosions. Another assumption is that PRP microneedling could make Nikolsky effect on the patient with subclinical disease of PV without any influence of platelets. Current findings imply that the platelet-derived products should be used with caution in the patients of PV.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient(s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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