Case report

Platelet rich plasma a new prospective in treatment of recalcitrant erosive lichen planus – A case report.

Abstract

Oral lichen planus(OLP) is a chronic disease that worsens the quality of life of patients with risk of malignant potential. Treatment of OLP remains a significant challenge despite the recent advances in understanding the immunopathogenesis. The properties of Platelet-rich plasma (PRP) because of its growth factors, such as epidermal growth factor (EGF), fibroblast growth factor (FGF), Transforming growth factor(TGF β1) and keratinocyte growth factor (KGF) suggested its application in clinical practice for treatment of OLP patients that do not respond to conventional therapy. Hereby we report a case of erosive OLP resistant to conventional therapy efficiently treated with PRP.

Key words: oral lichen planus, platelet rich plasma.

Introduction

Oral lichen planus(OLP) is a relatively common chronic inflammatory disease with risk of malignant transformation. Clinically OLP can present six different patterns: papule, reticular, plaque, erythematous, erosive and bullous, each showing specific characteristics. Severe forms of OLP, i.e., erosive and ulcerative forms, worsen the quality of life of the patients with symptoms like burning sensation, pain, and risk of malignant transformation.1 Exact etiology of lichen planus is still unclear, it hypothesized to be due to autoimmunity with deficient antigen-specific immunosupression and lack of transforming growth factor (TGF β1).2 Most of the cases of OLP tend to be more persistent and more resistant to treatment despite of many treatment modalities like topical steroids (considered as first line of treatment)3, systemic steroids, immunosupressants, natural agents like curcumin, aloe vera, vitamin A, biomodulation using laser.4 This further encourages the newer treatment modalities for the treatment of OLP.

Recent literature has focused on the application of PRP, a plasma concentrate of the patient's blood that predominantly contains platelets as an adjuvant treatment modality for many medical

conditions. Activated platelets in PRP release different growth factors that contribute to cell migration, proliferation, differentiation, angiogenesis, removal of tissue debris, and regeneration of the appropriate type of tissues.5 Hereby we report a case of erosive OLP refractory to conventional therapy treated with autologus PRP.

Case report

A 19-year-old female patient visited a local dentist with a chief complaint of burning sensation one year back. She underwent clinical examination, incisional biopsy, and was diagnosed as OLP. She was advised application of topical steroid (Triamcenolone acetonide 0.1%) four times a day for one-month following which the lesion regressed. Following discontinuation of medication, the lesion reappeared. On her further, follow up visit, she was advised systemic steroid (prednisone 40 mg once daily) for two months followed with tapering dose. But her complaint remained unaltered and was referred to our institution. On examination of oral cavity, erosive lesion with white keratotic striae (wickham's striae) was found bilaterally on the right and left buccal mucosa. Gingiva and tongue was normal. Skin and genital involvement was not seen. Conventional hematologic and biochemical tests were performed, and no abnormality was detected. Incisional biopsy was taken from right buccal mucosa under local anesthesia using 2% lidocaine and was sent for histopathological examination. Based on the clinical picture and further confirmation with histopathology, we arrived at a diagnosis of erosive OLP. Considering the recurrent nature of OLP, intralesional injections of autologous PRP was administered because of its promising results with multiple growth factors.

Autologous PRP was prepared as per the standardized procedure.6 Intra-lesional PRP injection was given after a field block with lidocaine 2% anesthetic solution. 0.5 ml of PRP was injected per 1cm2 of ulcerated mucosa using a 25 gauge needle.6 Patient was advised to stop any other medication, and PRP injections were administered once in a week up to 4 consecutive weeks. Following termination of intralesional injections following visits were placed at an interval of 1 week, one month, 3rd months, and six months. The patient was advised to report if there were any flare-up episodes of the lesion. On follow up visits patient symptoms were analyzed using VAS score and clinical presentation was evaluated for change in size and inflammation.

The result was satisfactory with a significant reduction in patient symptoms (Table 1) and clinical presentation of the lesion after one week and complete regression of the lesion after 4th

week was observed in terms of size and inflammation, and post inflammatory pigmentation was seen.(Figure 1-3) On follow up visit, no recurrence of the lesion was observed even after six months follow up.

Discussion

Lichen planus is a relatively common disorder of the stratified squamous epithelia.1 Skin lesions in lichen planus usually resolve within one or two years, whereas in OLP it may persist for 20 years or more.7 The oral mucosa is commonly involved and maybe the only site of involvement and is estimated to affect 0.5 to 2 % of population.3 Clinically OLP can present six different patterns: papule, reticular, plaque, atrophic, erosive and bullous, each showing specific characteristics and appearing in either isolated or associated forms. Among all phenotypes erosive form being less frequent, presents greater clinical significance as the lesions are usually symptomatic, ranging from minimal discomfort to episodes of severe pain as well as malignant potential (0.2% to 1.4%)8 and tends to be more resistant to treatment.1

OLP is hypothesized to be an autoimmune disease with deficient antigen-specific immunosupression in OLP with lack of TGF β1, which may predispose to autoimmune lymphocytic inflammation, which accounts for its chronicity.2

Topical steroids considered as first choice of agents and for severe cases systemic steroids are considered as treatment of choice, but prolonged use should be avoided because of its adverse effects like mucosal atrophy, candidiasis, adrenal suppression, gastrointestinal upset, hypertension, hyperglycemia.9 Immunosuppressive agents affect the severity and progression of OLP but theoretically they could also trigger malignant transformation. Despite many other treatment modalities including natural agents like curcumin, aloe vera, vitamin A, biomodulation using laser still OLP tends to be resistant and recurrence is common.3,4

PRP is a plasma concentrate of the patient blood that predominantly contains platelets. Activated platelets release different growth factors, including transforming growth factor β (TGF β 1 and TGF β 2 isomeric) that contribute to cell migration, proliferation, differentiation, angiogenesis, and removal of tissue debris and regeneration of the appropriate type of tissues.5 It is reported that the total amount of growth factors is released around one hour after platelet activation, while 70% of the growth factors are released 10 min after the activation of thrombocytes; the

autologous use is free from immune reaction or allergy, and severe side effects are rare in the literature.10

Lore et al., (2016)11 in a pilot study compared the effect of PRP gel with cyclosporine mouthwash and retinoic acid lotion in different OLP phenotypes. They concluded that PRP is to be used in erosive type, which proved to be effective when applied once weekly. Mehdat EL-Komy et al., (2015)12 in their pilot study on resistant oral erosion of pemphigus vulgaris treated with weekly injections of PRP reported improvement in healing of oral lesions and decrease in pain and discomfort associated with oral ulcers and erosions.

In the present case results was satisfactory. After 1 week follow up, reduction in size was evident and after 4 weeks follow up lesion disappeared completely. On a month, 3 months, 6months follow up no signs of recurrence were seen.

Conclusion:

PRP showed to be effective in decreasing the symptoms and improvement in clinical signs of OLP, which was resistant to conventional therapy. Further investigations by larger randomized control trials and longer follow up are required to approve this method as a standard treatment modality for patients with resistant erosive OLP.

Ethical Approval:

As per international standard , written ethical approval has been collected and preserved by the author(s).

Consent :

As per international standard, patient's consent has been collected and preserved by the authors.

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Table 1:

	Before treatment	After 1st week	After 2nd week	After 3rd week	After 4th week
VAS	7	5	3	1	0

FIG 1: Appearance of lesion bilaterally during first visit.

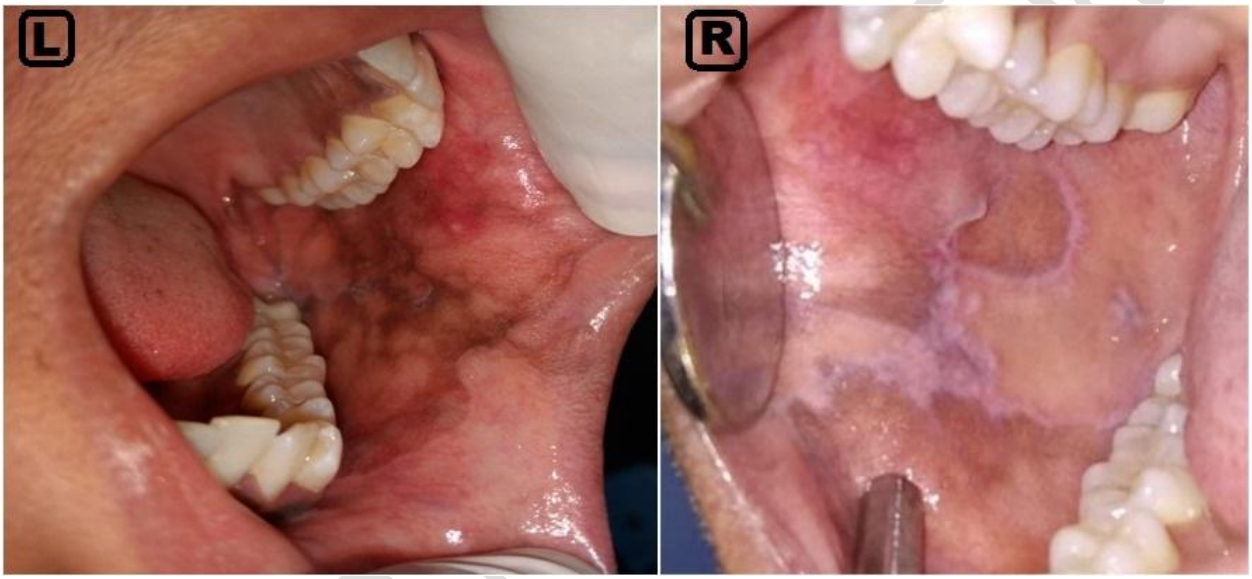

FIG 2: Appearance of lesion after one month follow up.

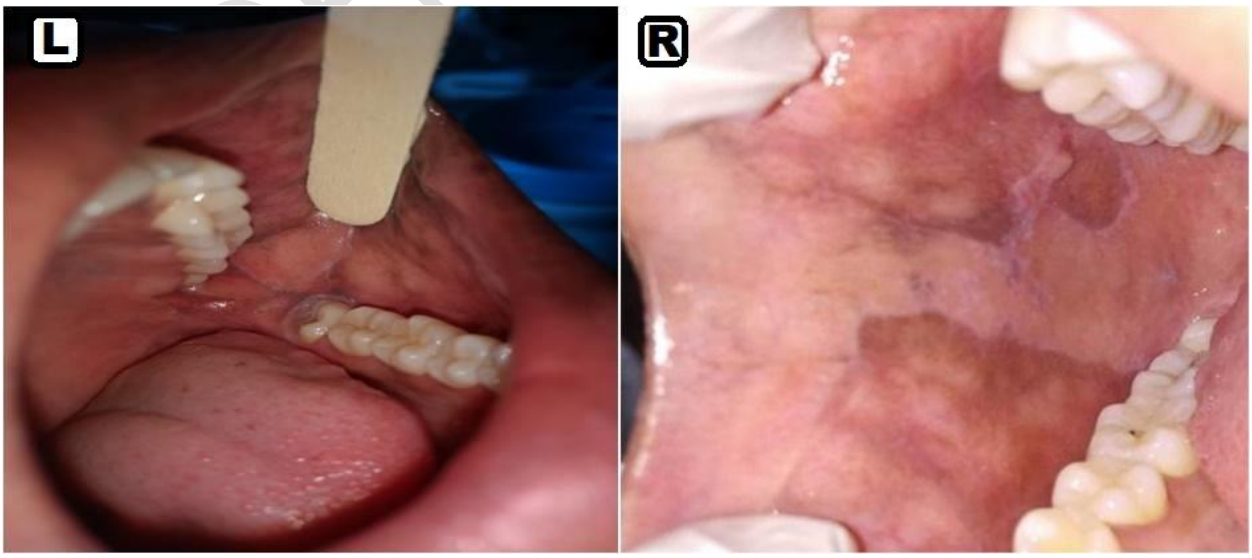

FIG 3: Appearance of lesion 6 months of follow up showing post inflammatory pigmentation.