

Content available at: <https://www.ipinnovative.com/open-access-journals>

Journal of Oral Medicine, Oral Surgery, Oral Pathology and Oral Radiology

Journal homepage: [www.joooo.org](http://www.joooo.org)

## Editorial

# Platelet rich plasma in oral mucosal lesions: A promising therapeutic frontier

Shamimul Hasan  <sup>1</sup>\*

<sup>1</sup>Dept. of Oral Medicine & Radiology, Faculty of Dentistry, Jamia Millia Islamia, New Delhi, India



## ARTICLE INFO

### Article history:

Received 18-02-2024

Accepted 26-02-2024

Available online 13-03-2024

This is an Open Access (OA) journal, and articles are distributed under the terms of the [Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License](https://creativecommons.org/licenses/by-nc-sa/4.0/), which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: [reprint@ipinnovative.com](mailto:reprint@ipinnovative.com)

Oral mucosal lesions, ranging from infection, trauma, immune-mediated, or oral potentially malignant disorders (OPMDs), often pose a significant diagnostic challenge in clinical dentistry. Traditional treatment approaches frequently focus on providing symptomatic relief, creating a gap in treatment modalities that actively facilitate tissue regeneration.<sup>1</sup>

Platelet-rich Plasma (PRP) has emerged as a promising therapeutic approach in several medical fields, such as sports medicine, orthopedics, dermatology, cosmetic medicine, dentistry, and maxillofacial surgery. Its potential regenerative properties are now gaining attention in the context of oral mucosal lesions.<sup>2</sup> PRP functions as an inherent repository of signaling molecules, and upon platelet activation within PRP, the P-granules undergo degranulation, leading to the release of Growth Factors (GFs) and cytokines. The principal growth factors released by platelets in PRP include vascular endothelial growth factor (VEGF), transforming growth factor- $\beta$  (TGF- $\beta$ ), platelet-derived growth factor (PDGF), fibroblast growth factor (FGF), epidermal growth factor (EGF), hepatocyte growth factor (HGF), insulin-like growth factors 1 and 2 (IGF-1 and IGF-2), matrix metalloproteinases 2 and 9, and interleukin-8. These bioactive factors can influence inflammation, cell migration, differentiation, proliferation, extracellular matrix formation, and angiogenesis, thereby augmenting the reparative and regenerative potential.<sup>2,3</sup>

There is a dearth of published literature on the use of PRP as a therapeutic regime in oral mucosal lesions. Few research studies have investigated the potential application of PRP in various oral mucosal lesions, encompassing Behcet's disease and oral ulcers,<sup>4</sup> Oral Pemphigus vulgaris,<sup>5</sup> Oral lichen planus,<sup>6</sup> and leukoplakia.<sup>7</sup> PRP applications, either as a topical gel, injection, or in combination with other biomaterials have exhibited encouraging results in wound healing, pain alleviation, and potentially preventing malignant transformations.<sup>8</sup>

As PRP is derived from the patient's own blood, the risk of cross-contamination, disease spread, or immune reactions is eliminated.<sup>2</sup> While the early evidence is encouraging, there are still challenges to address, such as standardizing PRP preparation protocols and determining optimal concentrations and dosing regimens. Moreover, it is imperative to conduct large-scale clinical trials to ascertain the effectiveness of PRP in various oral mucosal lesions and delineate its role in everyday clinical practice.<sup>9</sup>

Platelet-rich plasma shows significant potential as a therapeutic choice for oral mucosal lesions, presenting a distinctive method for tissue regeneration. The ongoing research in this field encourages a paradigm shift in the way we approach oral lesion management. As we navigate the intricacies of PRP application, collaboration among clinicians, researchers, and industry partners becomes crucial to fully realize the potential of this innovative therapeutic frontier.

\* Corresponding author.

E-mail address: [shasan1@jmi.ac.in](mailto:shasan1@jmi.ac.in) (S. Hasan).

## References

1. Fitzpatrick SG, Cohen DM, Clark AN. Ulcerated Lesions of the Oral Mucosa: Clinical and Histologic Review. *Head Neck Pathol.* 2019;13(1):91–102.
2. Sriram S, Hasan S, Alqarni A, Alam T, Kaleem SM, Aziz S, et al. Efficacy of Platelet-Rich Plasma Therapy in Oral Lichen Planus: A Systematic Review. *Medicina (Kaunas).* 2023;59(4):746.
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):623–33.
4. Huber SC, Montalvo S, Sachetto Z, Lana J, Annichino-Bizzacchi JM. Characterization of autologous platelet rich plasma (PRP) and its biological effects in patients with Behcet's Disease. *Regen Ther.* 2021;18:339–46.
5. El-Komy MHM, Saleh NA, Saleh MA. Autologous platelet-rich plasma and triamcinolone acetonide intralesional injection in the treatment of oral erosions of pemphigus vulgaris: a pilot study. *Arch Dermatol Res.* 2018;310(4):375–81.
6. Hijazi A, Ahmed W, Gaafar S. Efficacy of intralesional injections of platelet-rich plasma in patients with oral lichen planus: A pilot randomized clinical trial. *Clin Exp Dent Res.* 2022;8(3):707–14.
7. Pathak H, Mohanty S, Urs AB, Dabas J. Treatment of Oral Mucosal Lesions by Scalpel Excision and Platelet-Rich Fibrin Membrane Grafting: A Review of 26 Sites. *J Oral Maxillofac Surg.* 2015;73(9):1865–74.
8. Xu P, Wu Y, Zhou L, Yang Z, Zhang X, Hu X, et al. Platelet-rich plasma accelerates skin wound healing by promoting re-epithelialization. *Burns Trauma.* 2020;8:tkaa028.
9. Everts P, Onishi K, Jayaram P, Lana JF, Mautner K. Platelet-Rich Plasma: New Performance Understandings and Therapeutic Considerations in 2020. *Int J Mol Sci.* 2020;21(20):7794.

## Author biography

Shamimul Hasan, Professor  <https://orcid.org/0000-0001-6832-9150>

**Cite this article:** Hasan S. Platelet rich plasma in oral mucosal lesions: A promising therapeutic frontier. *J Oral Med, Oral Surg, Oral Pathol, Oral Radiol* 2024;10(1):1-2.