

Letter to Editor

Autologous platelet-rich plasma's role in enhancing the healing phase after surgical removal of teeth

Platelet-rich plasma (PRP) is a new material used to promote tissue regeneration. It is becoming a valuable adjunct for acceleration of healing in oral surgeries.

Surgical removal of a mandibular third molar is a common procedure. Many techniques have been used to manage postoperative discomfort and enhance tissue repair. Procedures such as biostimulation with LASER and fibrin sponge techniques have been utilized to accelerate the healing process.^[1,2]

Recently, the use of PRP has been introduced as a way of obtaining high concentrations of growth factors to promote tissue healing and regeneration. PRP is derived from the centrifugation of the patient's own blood and contains growth factors that promote wound healing, thereby playing an important role in tissue regeneration mechanisms.

According to Anitua protocol, the process for obtaining PRP involves the collection of a 10-mL blood sample. This sample is centrifuged for 8 min, and a 1-mL sample of plasma is collected near the erythrocyte fraction. Platelet activation occurs by the addition of 10 mL of a 10% calcium chloride solution.^[3]

It has been reported that the use of PRP in surgical practice could have beneficial outcomes, such as enhancing soft tissue healing, bone regeneration and a decrease in bleeding. However, few studies have been carried out on humans, and contradictory results have been reported regarding the efficacy of PRP.

Radiographic evaluation by Alissa *et al.* revealed a statistically significant difference only for sockets with a dense homogeneous trabecular pattern. They conducted a pilot study on the effect of PRP on the healing of the hard and soft tissues of extraction sockets.^[4]

In a study by Ogundipe *et al.*, the scores for lamina dura, trabecular pattern and bone density were much better among patients in the PRP group, but the difference was not statistically significant.^[5]

A study by Gürbüzer *et al.* (using scintigraphy) showed that application of PRP on its own to soft

tissue-impacted mandibular third molar extraction sockets failed to increase the osteoblastic activity in postsurgical weeks 1 and 4 in comparison to non-PRP-treated sockets.^[6] Similarly, in a prospective split-mouth study conducted by Arenaz-Búa *et al.*, no further acceleration was observed in bone formation at 6 months.^[7]

Rutkowski *et al.* used digital radiography and computer tomography (CT) scan analysis to track changes in radiographic density at PRP-treated sites in comparison to ipsilateral sites not treated with PRP. The PRP-treated sites demonstrated early and a significant increase in radiographic density over baseline measurements following tooth removal.^[8]

During the initial 2-week postoperative healing period there is the greatest benefit related to PRP: 1-week for PRP-treated sites to reach comparable bone density were required whereas control extraction sites achieved this at 6 weeks.

Célio-Mariano *et al.* showed a greater radiographic bone density in the PRP group, thereby demonstrating a significant improvement in bone healing in the sockets after extraction of mandibular third molars as compared to the control group.^[9]

Review of the literature and also field experiences suggest that the use of PRP in the alveolar socket after tooth removal improves soft tissue healing, but there is insufficient evidence to support the efficacy of PRP in improving bone regeneration. The use of PRP in tooth extraction sites seems to affect the early phase of bone healing, thereby accelerating and improving bone formation in the initial period after tooth removal; however, its influence decreases after a few days.

Since PRP is easy to obtain and its use does not have any potential risk for patients, it can be used as a safe adjunct in many oral surgeries. However, further RCTs and other types of clinical studies are required to support these conclusions.

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Conflicts of interest

The authors of this manuscript declare that they have no conflicts of interest, real or perceived, financial or nonfinancial in this article.

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