

MUCOSAL HEALING FOLLOWING PRP (PLATELET-RICH PLASMA) APPLICATION IN POST-EXTRACTION SOCKET IN PATIENTS TREATED WITH AMINOBISPHOSPHONATES

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Introduction

Platelet-rich plasma (PRP), a growth factor enriched autologous product, represents an useful bio-material to promote healing in oral surgical procedures, especially in risk patients. In wound healing, the repair process involves migration of the cells to the site of tissue injury (hemostatic/inflammatory phase), cell proliferation (proliferative/cellular phase), and the synthesis of new tissue components (remodeling phase). Each wound-healing phase is controlled and regulated by biologically active substances known as growth factors: they are applied topically on wounds for accelerating the healing through angiogenesis stimulation, granulation tissue formation and epithelialization. The implementation of PRP offers a new and potentially useful modality to increase wound healing in oral and maxillo-facial reconstructive surgery. Platelets are among the first cells to respond at a wound site and they are essential for the initiation of wound healing.

In particular, PRP application in post-extraction alveolar site was recently proposed for subjects in therapy with aminobisphosphonate (NBP) to reduce risk of bisphosphonate-related osteonecrosis of jaw (BRONJ).

The aim of this study is to describe a new pilot medical-surgical protocol of dental extraction, called "EstrEmo" (Extraction with Emocomponents – Oral Medicine Palermo Protocol) applied in a subjects under treatment with NBP in comparison with the standard procedures.

Materials and Methods

Two osteoporotic patients treated with NBP per os for > 3 years and suspended from 1 year, in absence of further BRONJ risk factors, have been enrolled.

The test patient (**A**) is a woman, 72 years old, treated with alendronate for 10 years, requiring extractions of 3.1 and 4.1 since fractured;

The control patient (**B**) is a woman, 73 years old, treated with risedronate for 8 years, needing extraction of 1.8 since decayed; both are currently in vitamin D and calcium treatment.

Medical protocol for infection control has been adopted for both patients: systemic antibiotics (ampicillin/sulbactam 1000 mg/die by im and metronidazole 1 g/die per os) and topical antiseptic (chlorhexidine 0.20% rinse) from one day before and seven days after extractions. In both cases, exodontia were

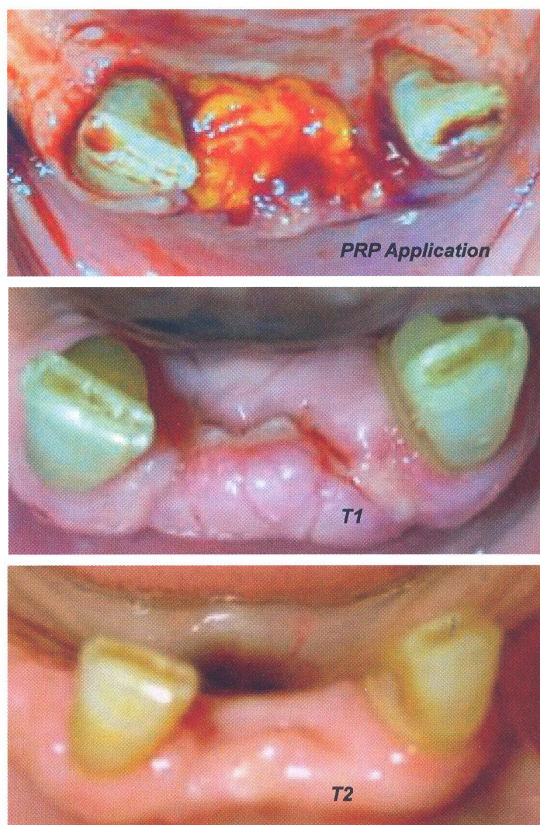


Fig. 1. Case A.

executed by means of local anesthetic without vasoconstrictor and hand tools; after, an intra-alveolar irrigation with rifamicine was performed. Finally, in patient A, before closure with surgical flap, an intra-alveolar application of PRP was added (EstrEmo protocol); in patient B a surgical flap in order to promote first intention healing was carried out (standard protocol). Clinical examinations have been performed at 7 days (T_1), at 30 days (T_2) and at 6 months (T_3) after surgery; radiological check has been evaluated at T_3 (OPT) and (CT).



Fig. 2. Case B.

Results and Discussion

In case A, at T_1 a clinical sub-total mucosal healing has been observed without evidence of infection or graft rejection and at T_2 a complete restoration and no radiological ONJ sign were observed; at T_3 , CT evaluation showed good quality of mandibular bone.

In case B, at T_1 and T_2 mucosal healing were incomplete without evidence of infection; in order to promote healing, at T_2 a remodeling of bone crest by means of piezo-surgery was carried out with further surgical flaps to vouch a first intention healing and a complete mucosal healing was observed after 1 months form second surgery. At T_3 , radiological bone healing was observed in mandibular CT scans.

Although with the great limitation of this first report, authors suppose that platelets can act as local regulators of wound healing, thus EstrEmo protocol appears useful thanks to PRP, a bio-material able to accelerate mucosal healing and closure, a condition potentially reducing the risk of BRONJ development. Further studies are needed to confirm the validity of these preliminary results.

Patient	NPB	Duration of NBP therapy	PRP	Healing T1	Healing T2	Healing T3
A	alendronate	For 10 years	Yes	incomplete	complete	complete
B	risendronate	For 8 years	No	incomplete	incomplete	complete

Table 1.

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