

Use of a Bone Regeneration Cement for the Management of Gingival Margin in Tooth Extraction Areas

author_ Sérgio Alexandre Gehrke, Brazil

_Abstract

The procedures for guided bone regeneration (GBR) in tooth extraction areas favour the maintenance of anatomical contours and increase the predictability of aesthetic success. Nevertheless, the complex handling of the flap associated with these techniques can compromise the aesthetic and functional results. Aiming at better and more predictable results the use of an injectable calcium phosphate cement is suggested in this work. A bone regeneration cement called PD VitalOs Cement® (Produits Dentaires SA, Vevey, Switzerland) was used to fill and cover the extraction areas, with or without immediate placement of implants. The technique used does not require the raise of a flap nor an additional surgical site to harvest a graft. Twenty patients divided into two groups were followed up clinically and radiographically. In the test group the patients were treated with PD VitalOs Cement®, whereas the sites of the control group were left empty. The tissues dimensions around the extraction sites were measured up to 90 days after surgery. The results show better management of the buccal gingival margins of the patients treated with PD VitalOs Cement®, which is of prime importance for the final aesthetic results, especially for single-tooth extractions.

_Introduction and Literature Review

Preservation of alveolar margins becomes a critical issue when a tooth is extracted, since the height

and width of the margins are major factors influencing the success of the treatment, with implant or with fixed prostheses. The regeneration of buccal bone lost following trauma or disease can bring therapeutic issues in the dental clinic: after a regenerative surgery the osseous defects generally don't heal, or heal with a tissue that differs from the original one, with respect to morphology and function.¹ For instance, the lesions in the alveolar processes heal often with fibrous instead of bony tissue, provoking gingival recession and alteration of the buccal gingival margin.² Buccal alveolar bone resorption after tooth extraction results in an important reduction in bone height. The conjunctive tissue can have a strong influence on osteogenesis during alveolar healing, which results in a narrowing of the socket one month after extraction due to local bone resorption. This leads to aesthetic and restorative problems like the decrease of the volume available for implant placement.³ Guided Bone Regeneration (GBR) is a surgical technique that aims at reducing a bone defect by promoting the formation of new bone. It consists in excluding soft tissues from the bone defect through the use of a barrier allowing only bone cells to be present in the space to be regenerated. This principle is based on the findings of Melcher in 1970,⁴ who stated that a type of tissue developing in a given space depends on the type of cells present in the site. The regeneration of periodontal tissues and bone margin using physical barriers is a well-established procedure in reconstructive surgery. However, the characteristics of the biomaterial as well as the design of the barrier membrane have a strong influence on the results.⁵ Membranes are used as mechanical barriers protecting the blood clot from the migration of epithelial tissue into this space, thus allowing the selection of bone cells to repopulate the defect.³ The first membranes for GBR were not resorbable. Therefore, a subsequent surgery was necessary to remove them. These membranes were often

Fig. 1_Syringe of PD VitalOs Cement®.



Fig. 1