Clinical presentation of a porcine-derived biomaterial and its relevance for daily clinical extractions:

A Clinical Case Report

ABSTRACT

Purpose: The purpose of this study was to evaluate the efficacy of the alveolar ridge preservation technique using collagen fleece after teeth extraction.

Methods: A porcine-derived biomaterial was used in a patient for socket preservation following tooth extraction. Surgery was performed by a well trained specialist. A clinical evaluation was performed to evaluate the clinical effectiveness and biocompatibility of the biomaterial.

Results: The surgery in the patient was successful with uneventful healing. No signs of adverse effect or inflammation were observed clinically and the tissues surrounding the biomaterial seemed well-tolerated with good intentional healing. The augmented alveole healed uneventfully suggesting, in part, good biocompatibility of the biomaterial.

Conclusions: The result shows that at least on a tentative level, a porcine-derived biomaterial may be used clinically in socket preservation with good intentional healing and positive results.

The resorption after tooth extraction and the healing of extraction sockets were in the recent years been studied extensively. The research provides new insights about ourselves, how the management of the extraction can be simplified and leads to a predictable positive result. The following clinical case will demonstrate how to use the socket preservation technique as a treatment option after extraction.

Key-Words: Socket Preservation, preservation of soft tissue, red and white aesthetic

INTRODUCTION

The oral surgery is concentrated in the last years an increasing number of minimally invasive surgery. The use of preventive measures for the preservation of anatomical tissue structures play a central role. For patients with low budgets counts the result of perfect functional and aesthetic oral situation. Especially in implantology, it raises the question immediately after extraction, how best to minimize the typical and inevitably resorption of the alveolar ridge and the surrounding soft tissue, and how to prevent the augmentation procedures for a potential dental implant implantation in the future.
Tooth extraction leads to typical bone deficiency of ridge width and height of alveolar crest and represents large surgical and prosthetic challenge. Due to this problem different methods were developed to correct or preserve the bone deficiency of alveolar ridge. Either immediate implants, augmentations or methods to preserve the alveole. The aim of this article is to present the procedure of socket preservation and soft tissue regeneration with a clinical case. The shift in therapeutic concepts from resection to regeneration has significantly changed the practice of periodontology in recent years. Under the assumption that proper use of collagen grafts can alter the biologic response from a regenerative to a reparative pattern, a robust interest and demand for collagen grafts with forementioned biologic potential have grown significantly. Collagen is a highly versatile material, extensively used in the medical, dental, and pharmacological fields. Resorbable forms of collagen have been used to dress oral wounds, for closure of graft and extraction sites, and to promote healing. Collagen-based materials also have been used in periodontal and implant therapy as barriers to prevent epithelial migration and allow cells with regenerative capacity to repopulate the defect area. Due to the enormous potential of collagen-based regenerative barriers, clinicians may benefit from a review of potential applications of implantable collagen and knowledge of collagen as well as from as awareness of the functional and degradation properties of those materials.

The objective of this clinical report was to observe both clinically, the biocompatibility and physical properties of a porcine-derived collagen fleece.

CLINICAL CASE

69-year-old female patient; teeth not worth conserving, status post-careful extraction with preservation of buccal lamella. Augmentation of the alveole with collagen fleece as a matrix for regeneration and in order to prevent the growth of soft tissue into the defect. Socket preservation technique was applied following extraction as having a hopeless prognosis. Following extraction and meticulous debridement of the site, a porcine-derived collagen fleece (Medicipio® C Collagen Fleece, Germany) was used. After 1 week, excellent ridge contour maintenance was observed clinically.

CLINICAL APPROACH

If the alveolus after minimally traumatic tooth extraction (Fig. 1) is incompletely preserved in its continuity, the technique of socket preservation is to use after removal of chronic inflammatory soft tissue and after cleaning the alveole with physiological saline solution. The Medicipio® C Collagen Fleece will be rolled and placed (Fig. 2) into the alveole in dry condition.
Fig. 1

Extraction of 2 teeth. Removal of chronic inflammatory and remnants of soft tissue after cleaning the socket with physiological saline.
Fig. 2

The Medicipio® C Collagen Fleece will be rolled and placed into the alveole (it can be to fold, to cut or to roll etc.) in dry condition.
The Medicipio® C Collagen Fleece is immediately saturated with blood, de-aerates itself and stabilizes at the alveolar walls.
Fig 4

Flap sutured with primary closure.
After 7 days postoperative, neither swelling nor inflammation reactions are visible. Medicipio® C Collagen Fleece accelerated the healing process. Epithelization occurs via the organized Medicipio® C Collagen Fleece.

DISCUSSION

Without specific therapy the extraction wound is left to spontaneous wound healing and resorption must necessarily be taken into account. The objective of every extraction should be to remove the non-restorable teeth atraumatically as possible, to optimize the subsequent wound healing and to limit the subsequent resorption to a minimum or even prevent it. A modern therapy of the alveole should provide a good predictability with respect to ridge preservation and natural red-white aesthetics, clinically easy-to-use, low costs and low treatment time.

CONCLUSIONS
The applied technique has achieved an excellent clinical outcome. The use of a porcine collagen fleece resulted in the incorporation of the xenograft within the adjacent host connective tissues in the absence of inflammation. The results indicated that in the alveole preservation using collagen fleece is able to prevent the horizontal and vertical resorption of the alveolar ridge, and the collagen fleece blocks the infiltration of soft tissues to the lower area.

REFERENCES

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