

Utilization of Resorbable Guided Tissue Regeneration Membrane in the Treatment of Grade II Furcation Involvement: A Case Report

Dr Tahira Ashraf¹, Dr Suhail Jan², Dr Roobal Behal³

¹Private Practitioner in Srinagar J&K India.

²Professor and HOD, Govt Dental College Srinagar J&K India

³Assistant Professor, Govt Dental College Srinagar J&K India

Corresponding Author: Dr Tahira Ashraf

ABSTRACT

Furcation is an area of limited accessibility and complex anatomy and its management presents both diagnostic and therapeutic challenge. Several techniques are used alone or in combination to achieve periodontal regeneration. The techniques include the bone grafts or substitutes, guided tissue regeneration (GTR), root surface modification, and biological mediators. The aim of this case report was to evaluate the efficacy of a resorbable GTR membrane in combination with a bone graft material in the management of mandibular grade II furcation involvement. After taking the informed consent from the patient, surgical procedure was carried out and patient was monitored weekly post-operatively, to ensure good oral hygiene in the surgical area. At 6 month recall, the tooth was found asymptomatic with the successful healing.

Keywords: Bone graft, Furcation involvement, Guided tissue regeneration.

INTRODUCTION

Furcation is defined as the area of bifurcation and trifurcation of a multirooted tooth. It is an area of complex anatomy and morphology. Furcation involvement is classified into grade I, grade II, grade III and grade IV depending upon the severity. Grade II furcation lesion is a cul-de-sac with a definite horizontal component. [1] The management of furcation involvement presents one of the greatest challenges in periodontal therapy mainly due to complex anatomical features and limited accessibility of furcal areas. For optimal therapy, proper diagnosis of furcation lesions and knowledge of furcal anatomy are critical. Several techniques are used alone or in combination to achieve periodontal regeneration. The techniques include the bone grafts or substitutes, guided tissue regeneration (GTR), root surface

modification, and biological mediators. [2] GTR involves the use of barrier membranes that exclude gingival fibroblasts and epithelium from the healing site thus allowing the granulation tissue derived from the periodontal ligament and osseous tissues to repopulate the space adjacent to the denuded root surface. [3] The concept of GTR for treatment of periodontal defects was first introduced by Nyman et al. [4] According to these authors, GTR could be favourably employed to regenerate lost periodontal tissues in grade II furcation involvement.

This paper presents the use of GTR membrane for the treatment of mandibular buccal furcation defect. The response to this therapy resulted in marked pocket depth reduction and gain in clinical attachment levels.

CASE PRESENTATION

A 40 year old male patient reported to the outpatient department (OPD), of Periodontology, Govt Dental College and Hospital, Srinagar with the chief complaint of food lodgement and bleeding gums in left lower back teeth region since 3 months. Upon clinical examination, the site revealed signs of inflammation and buccal furcation involvement in #36. Electric and thermal pulp testing showed that the tooth was vital and x ray didn't show any periapical pathology so an endodontic intervention was not required.

The patient underwent phase I therapy which included scaling and root planing, followed by oral hygiene instructions. Four weeks after the phase I

therapy, patient was recalled for surgery. Prior to the surgery a signed informed consent was obtained from the patient. A horizontal and vertical attachment loss was found. After thorough root planing, furcation area was filled with the DFDBA (demineralised freeze dried bone allograft) and GTR membrane (Perio col-GTR, resorbable) covering the root surface. Flap was sutured with 3-0 silk sutures. Post-operative antibiotics and analgesics were prescribed for 1 week. Sutures were removed 7 days later. Patient was monitored on a weekly schedule post-operatively, to ensure good oral hygiene in the surgical area. At 6 month recall, the tooth was asymptomatic with the successful healing.



Figure 1.2: Showing grade II furcation involvement in 36



Figure 3: intraoperative placement of bone graft along with GTR membrane



Figure 4,5: suture placements



Figure 6: post op view of surgical site.



Post op.radiograph after 6 months showing bone fill.

DISCUSSION

Regenerative periodontal therapy is aimed at regeneration of periodontal hard and soft-tissues, including formation of a new attachment apparatus, which would result in the closure of the furcation. [5] Root surface biomodification, coronally positioned flaps, the use of various bone replacement grafts, and guided tissue regeneration procedures are the various regenerative procedures utilized in the management of class II furcation involvements. Periodontal regeneration in the furcation defects is not totally predictable, especially in terms of complete bone fill. GTR has offered better results than open-flap debridement or bone replacement grafts alone, in class II furcation. [6] Selecting a defect that is amenable to regeneration is also critical for achieving success. [7] In the present case, combined treatment approach using bone graft and GTR membrane was used for treatment of mandibular grade II furcation defect. A bioresorbable membrane collagen membrane Periocol® (Eucare Pharmaceuticals Pvt. Ltd.,) was used. The advantageous of using a resorbable membrane is that there is no need of a second surgical intervention and therefore the exposure of newly formed tissue below the membrane is prevented. [8] Type I collagen is the main constituent of periodontal connective tissue. Collagen materials also possess additional advantages such as hemostasis and chemotaxis for periodontal ligament fibroblasts and gingival fibroblasts, reduced

immunogenicity, easy manipulation, and ability to increase tissue thickness. Hence, collagen membranes are ideal for resorbable GTR membranes. [9]

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