

Root Coverage of Severe Gingival Recession Using Pedicled Buccal Pad Fat

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Abstract:Background: A new technique for root coverage of severe gingival recession defects (Miller Class IV) by providing a new source of enough tissue with good blood supply using the pedicled buccal fat pad (PBFP).

Case presentation: A 52-year-old reported for treatment of severe gingival recession. On clinical examination it was found that the tooth of concern (tooth number 27), had millers Class IV recession with no keratinized gingiva, grade III mobility and grade III furcation involvement. Following phase I therapy, it was planned to perform root coverage along with increasing the width of keratinized gingiva using the pedicled buccal fat pad fat technique.

Conclusion: The presented technique is simple and easy to handle. It may also be considered a novel application with promising results for the root coverage of severe gingival recession defects (Miller Class IV) that may provide a considerable amount of keratinized tissue used for root coverage of the upper posterior molar teeth. [Shetty N et al NJIRM 2013; 4(1) : 117-120]

Key Words: Buccal pad of fat, Gingival recession

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Introduction: Gingival recession (GR) is an undesirable condition resulting in root exposure. It is defined as the partial denudation of the root surface due to the apical migration of the gingival margin. GR may represent a problem for the patient because of poor esthetics, pain, root sensitivity, root caries, root abrasion, plaque retention, gingival bleeding, and/or a fear of tooth loss. Several surgical techniques have been described for their management with varied clinical outcomes¹.

Takei and Azzi and Takei et al. stated that the prognosis for Miller Classes I and II is good to excellent, whereas only partial coverage can be expected for Class III, and Class IV has a very poor prognosis². One of the techniques proposed off late is the use of buccal fat pad (BFP) as a grafting source. It has gained popularity in the last quarter of this century probably because of the ease of access and rich blood supply. Its use as a pedicle graft for oral reconstruction was first reported by Egyedi in 1977³.

Anatomical considerations: The BFP is an anatomically rounded and biconvex structure that is of great importance in the facial contour. It is an adipose tissue surrounded by a thin capsule and is located inside both masticatory spaces in the oromaxillofacial region⁴. It has a central body with four extensions : pterygopalatine, temporal, pterygoid, and buccal⁵.

It receives blood supply from three sources: the maxillary, superficial temporal and facial artery⁶. The physiology of buccal fat tissue is not totally clarified. However, it is thought that the buccal fat pad is closely associated with the muscles of mastication^{7,8}.

Clinical presentation: A 52-year-old systemically healthy male patient presented to the Clinic of Periodontology, for treatment of exposed root surface upper left second molar (fig1).



Fig.1 Exposed root surface on upper left second molar

On clinical examination it was noted that the tooth in concern had Miller Class IV GR with no keratinized gingiva, degree III mobility and grade III

furcation involvement. The patient was placed on phase I therapy and to rule out all premature contact points, occlusal analysis was carried out. It was then planned to cover the denuded root and augment the final width of the keratinized mucosa coronal to recession using of the PBFP flap.

Case management: The surgical area was adequately anaesthetized and an internal bevel incision was given to remove the pocket lining. A 2-4cm horizontal incision was made through the mucoperiosteal flap at the base of the buccal flap of the first molar area that extended backward from above the uppersecond molar tooth and allowed access to the PBFP (fig2). Blunt dissection was made through the buccinator and loose surrounding fascia that allowed the PBFP to be exposed into the mouth.



Fig.2 Horizontal incision made through the mucoperiosteal flap extending upward and backwards

The body of the BFP and the buccal extension were gently mobilized by blunt dissection, taking care not to disrupt the delicate capsule and vascular plexus and to preserve as wide a base as possible (Fig3). The PBFP was then spread over the maxillary roots as far anteriorly as the second premolar region. The vascularized flap was secured and immobilized to the buccal surface of the upper first molar tooth and premolar teeth and sutured to the mucosal edges, ensuring that it was not under

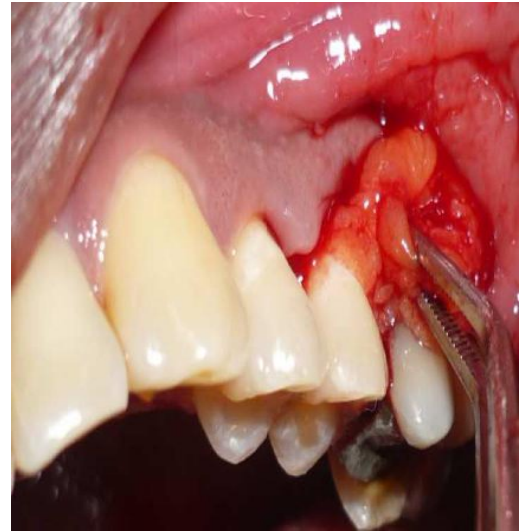


Fig.3 Coronal movement of buccal pad of fat

tension (Fig4). The patient was given analgesic and antibiotics (Tab Divon – S, tid for 3 days and Cap Mox 500mg, tid for 5 days) and was instructed to eat a soft diet. Instead of brushing the teeth in the treated area, he was instructed to rinse with chlorhexidine (0.12%) mouthwash twice daily for 2 weeks.



Fig. 4 Buccal pad of fat on the exposed root stabilized

Clinical outcome: Postoperative healing was uneventful and the sutures were removed after 10 days. The patient complained of slight pain in the area, but no infection or necrosis was observed. Areas of epithelialization were seen 3 to 4 weeks postoperatively with shrinkage of BFP (fig5).

Mobility of the tooth reduced to a great extent, and root coverage was satisfactorily achieved.



Fig 5. Two weeks follow up

Discussion: Sites exhibiting Miller Class IV GR are not suitable for treatment with surgical root coverage techniques, and their prognoses are very poor with current techniques⁹. Different pedicle grafts have been used to treat GR using the vascularity of the graft by its pedicle design, with a success rate of 70% for the laterally positioned pedicle graft¹⁰.

They reviewed various applications of the PBFP, including closure of surgical defects following tumor excision, excision of leukoplakia and submucous fibrosis, closure of primary and secondary palatal clefts, coverage of maxillary and mandibular bone grafts, and lining of the sinus surface of the maxillary sinus bone graft in sinus lift procedures for maxillary augmentation. They reported that the easy mobilization of the BFP, its excellent blood supply, and the minimal donor site morbidity make it an ideal flap.

Histologically, it was documented that the transpositioned part of the PBFP flap will be reepithelialized and transform into parakeratotic stratified squamous epithelium with dense connective tissue without fat cells. In the present case we could achieve 100% success. It is recommended in cases where loss of sulcus depth

is of concern, or where the buccal advancement flap has failed. In conclusion, however, the PFP is an extremely reliable and versatile flap for use in intra-oral surgery and, in particular, for the successful coverage of class IV gingival recession.

Summary:

- Few reports suggesting use of BFP
- Limited stretching of graft, hence useful in maxillary molar areas

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