

CASE SERIES OF PEDICLED BUCCAL FAT PAD TECHNIQUE FOR ROOT COVERAGE FOR MAXILLARY POSTERIOR TEETH

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ABSTRACT

Background: Reconstruction of the gingiva has prime part of periodontal treatment. Different surgical techniques have been used for the correction of gingival recession. Buccal fat pad has been used for reconstruction of oral defects due to its potential benefits. **Aim:** The aim of this case report is to highlight the effectiveness of pedicled buccal fat pad for root coverage in Mahajan's class III recession on the maxillary first molars. **Materials & Method:** Internal bevel incision given from one or two teeth mesial and distal of the affected tooth. Vertical releasing incision was given for accessibility. A 2-cm

horizontal incision was given at the base of the buccal flap that extended backward from above the upper second molar tooth to access buccal fat pad. Pedicled buccal fat pad was harvested and adapted to the buccal surface of maxillary first molar and sutured. **Results:** Clinically significant amount of keratinized gingiva that covered the root recession defect was obtained. The surface of exposed fat becomes completely epithelized in 4 weeks. **Conclusion:** It can be concluded that the buccal fat pad is a highly viable treatment option in maxillary posterior defects.

KEYWORDS: Recession, buccal fat pad.

INTRODUCTION

Reconstruction of the gingiva has prime part of periodontal treatment. Periodontal plastic surgeries are performed to correct or eliminate anatomic, developmental, or traumatic deformities of the gingiva or alveolar mucosa.^[1] Higher incidence of root caries, attachment loss, hypersensitivity, unaesthetic gingival appearance are usually observed along with gingival recession.

Different surgical techniques have been used for the correction of gingival recession like free soft tissue grafts, pedicle soft tissue grafts, sub-epithelial connective tissue graft, guided tissue regeneration.

Buccal fat pad has been used for reconstruction of oral defects due to its potential benefits. The Anatomy of buccal fat pad was first described by Heister^[2] in 1732, and its fatty origin was explained by Bichat^[3] in 1801. Its use as a pedicle graft was first reported by Egyedi.^[4] Buccal fat pad consists of mainly fat tissue with underdeveloped stroma. Due to its anatomic structure it gives stability and lesser radiodensity. The buccal fat pad has lobulated mass consisting of a central body corpus and 4 extensions as buccal, pterygoid, pterygopalatine, and temporal. The corpus lies along the posterior maxilla and superior fibers of the buccinators. The Buccal and deep temporal branches of the maxillary artery, transverse facial branches of the superficial temporal artery and branches of the facial artery innervate the buccal fat pad. The fat has a unique quality termed “syssarcosis”, which enhances intermuscular motion. Its rate of lypolysis also is different compared with other subcutaneous fat. Buccal fat pad has many functions as filler; enhancement of intermuscular motion, separating muscles of mastication from one another; to counteract negative pressure during suction in the newborn; protection and cushioning of neurovascular bundles from injuries.^[5]

Aim

The aim of this case series is to highlight the effectiveness of pedicled buccal fat pad for root coverage in Mahajan’s class III recession on the maxillary first molars.

Patients and method

A 38 years old female patient reported to the department of periodontology in PDU Dental College, Solapur with the complaint of increasing thermal sensitivity in upper right back

region of jaw and visibility of root in the concerned area since 2 months approximately. On clinical examination, generalized inflammation of gingiva was seen along with Mahajan's class III gingival recession was noted with respect to maxillary right first molar. Recession on mesial aspect of tooth was 4.7 mm and on distal aspect 5 mm. Grade I mesio-buccal furcation involvement was present. Tooth was non-mobile with presence of adequate bone support. As the patient was willing to save the tooth, it was decided to cover the gingival recession using pedicled buccal fat pad as a graft.

Patient signed written informed consent was taken prior to the surgical procedure. The initial plaque control regimen as scaling and root planing was completed, including oral hygiene instructions were given.

Surgical procedure

Patient was painted and draped and surgical site was prepared. After adequate local anesthesia, the recipient site preparation was started by giving internal bevel incision from one or two teeth mesial and distal of the affected tooth. Vertical releasing incision was given for accessibility. Flap was reflected and thorough debridement of the roots and furcation defects was done. A 2-cm horizontal incision was given at the base of the buccal flap that extended backward from above the upper second molar tooth to access buccal fat pad. Blunt dissection was done through the buccinator and loose surrounding fascia which allowed the pedicled buccal fat pad to be exposed into the mouth. The buccal extension and the body of the buccal fat pad were gently mobilized by blunt dissection. The pedicled buccal fat pad could be easily placed over the maxillary roots as far possible anteriorly. The flap was secured with 4-0 vicryl interrupted sutures. Vascularized flap along with buccal fat pad sutured to the mucosal edges with an interrupted resorbable sutures. Post-operative instructions and medications were given to patients. Amoxicillin and clavulanic acid (625 mg twice a day for 5 days) and ketorol-DT (twice a day for 5 days) were prescribed. 0.12% chlorhexidine solution as mouthrinse twice daily for 4 weeks was prescribed. The patient was advised to refrain from retracting the lips and cheeks and to avoid brushing in the grafted area for 2 weeks. Periodontal dressing was given and changes after 1 week.

Four patients having similar findings (Mahajan’s class III gingival recession) were treated with the same surgical technique.

Patient (affected tooth)	Preoperative measurements of gingival recession
Case 2: 26 (Mahajan’s class III gingival recession, Grade I mesiobuccal furcation)	Recession on mesial aspect of root = 4.9 mm Recession on mesial aspect of root = 4.5 mm
Case 3: 16 (Mahajan’s class III gingival recession)	Recession on mesial aspect root = 5 mm Recession on distal aspect root = 4.8 mm
Case 4: 16 (Mahajan’s class III gingival recession, Grade I mesiobuccal furcation)	Recession on mesial aspect root = 4.7 mm Recession on distal aspect root = 4.8 mm
Case 5: 26 (Mahajan’s class III gingival recession, Grade I mesiobuccal furcation)	Recession on mesial aspect root = 4.9 mm Recession on distal aspect root = 5 mm

RESULTS



Patients were evaluated on the 7th postoperative day, 2 weeks, 1 month and 3 months for follow-up. In all cases clinically significant amount of keratinized gingiva that covered the root recession defect was obtained. The surface of the exposed fat gradually changes to red within 7 days due to the formation of granulation tissue and becomes completely epithelialized in 4 weeks.^[5]

DISCUSSION

The buccal fat pad limits the boundaries of subcutaneous fat of cheek area by the strong capsule. As it has a rich blood supply from the buccal and deep temporal branches of the maxillary artery, transverse facial branches of the superficial temporal artery and branches of the facial artery; it is considered as a pedicled graft with an axial pattern. It may also be one reason for early epithelialization of the fat and accelerated wound healing. Also the rich vascularity reduces its vulnerability to infections.^[6]

Pedicled buccal fat pad has been found to be superior to many other techniques for root coverage. Free gingival graft results in poor color match. Also their survival depends completely on re-vascularisation. As buccal fat pad is present in very close proximity to the surgical site in maxillary posterior teeth; no second surgical site and no raw area. Chances of recession at the donor site increases with pedicled grafts such as lateral pedicle flaps due to limited length and thickness. As coronally advanced flap requires adequate keratinized gingiva. It is not feasible in all cases. All different pedicle graft surgical procedures heal by a long junctional epithelium with a restricted amount of bone and cementum formation.

It has been found that the stem cells present in the pedicled buccal fat pad are responsible for the periodontal regeneration. PBFP can be used for root-coverage procedure in severe gingival recession defects especially in the posterior maxilla.

Although limited stretching of the pedicled fat pad to maintain its vascularity renders it unstable for more anterior teeth and defects in the mandibular teeth. As it is an excellent treatment option for severe gingival recession defects in posterior maxilla.^[6]

CONCLUSION

It can be concluded that the buccal fat pad is a highly viable treatment option in maxillary posterior defects.

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