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Case Report

PEDICLED PALATAL ROTATIONAL FLAP FOR CLOSURE OF AN ORO-ANTRAL FISTULA: A CASE REPORT

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Abstract

Oro-antral communication following the extraction of maxillary molars is common complication encountered by dental surgeons in day-to-day clinical practice due to the close relationship of root apices of maxillary posteriors with the maxillary sinus floor. Although many techniques have been described for the closure of oro-antral fistula, the palatal flap remains a preferred choice. A case of 7 days old oro-antral fistula following extraction of maxillary left first molar was successfully treated by palatal rotational pedicle flap. Easy mobilization of the palatal pedicle flap with excellent blood supply and minimal donor site morbidity ensure excellent results.

Keywords: Oro-antral communication, Oro-antral fistula, Palatal flap, Maxillary molars

Introduction

Oro-antral communication (OAC) following the extractions of maxillary molars is a common complication encountered by dental surgeons in day-to-day clinical practice due to the close relationship of root apices of maxillary posteriors with the maxillary sinus floor. Pneumatization of the maxillary sinuses, peri-apical pathologies leading to bone resorption and traumatic dental extraction are a few reasons that explain the incidence of this condition. Maxillary cysts, benign or malignant tumors and trauma can also cause OAC. [1, 2]

Valsalva test which involves gentle nose blowing with pinched nostrils is done to confirm the evidence of an OAC in the form of passage of air or bubbling of blood from the extraction socket. If the oro-antral communication develops into an epithelialized tract it is called and oro-antral fistula (OAF). The patient usually comes with a complaint of nasal discharge following ingestion of fluids.

Myriad type of flaps have been used for OAF closure which include Von Rehrmann's buccal advancement flaps, palatal rotational pedicle flaps, tongue flaps

and nasolabial flaps.[1]Closure has also been successfully done using buccal pad of fat.[3]
This article reports a case of 7 days old oro-antral fistula following extraction of maxillary left first molar which was successfully treated using pedicledpalatal rotational flap.

Case Report

A 38 year old male reported to the Department of Oral and Maxillofacial Surgery, Mahatma Gandhi Post-graduate Institute of Dental Sciences, Puduchery with the chief complaint of nasal regurgitation on intake of oral fluids following the extraction of maxillary left first molar since 7 days. After thorough clinical examination and radiographic investigations, he was diagnosed as a case of oro-antral fistula measuring 1cm in relation to the maxillary left first molar**[Fig.1]**. Radiographic investigations did not reveal any evidence of tooth, root or sinusitis. The patient was a known case of type 2 diabetes mellitus and was on oral hypoglycemic therapy as advised by his physician. There was no other relevant personal history.
As the routine blood investigations and blood sugar levels were within the normal limits and there were no signs of acute infection, a decision was made to treat the patient surgically with a palatal rotational pedicle flap under local anesthesia.

1. Surgical Procedure

After obtaining a written informed consent, oral pre-operative drugs, a combination of tablet cefotaxim sodium with clavulanic acid [200mg/bd] and tablet paracetamol [500mg/tds], were started 1 day prior to the procedure. Local anesthesia in the form of nerve blocks and local infiltrations were used to provide adequate analgesia as well as hemostasis.
The first step included excision of the fistulous tract. Then the palatal flap was marked 3 mm apical to the marginal gingiva of first molar region extending from distal aspect of second molar to distal aspect of canine anteriorly**[fig.2]** making sure that the width of the flap was adequate enough to cover the defect. A full thickness mucoperiosteal flap was raised using a periosteal elevator, rotated and slided from below the gingival collar to cover the defect**[fig3].**4-0 vicryl sutures were placed to secure the flap in position and achieve water tight closure**[fig.4]** .Post-operatively the patient was asked to continue the antibiotic course for 5 days and follow the standard sinus protocol. The patient was followed for 2 months post-operatively which revealed a thorough recovery of the patient from the symptoms and a complete soft tissue fill of the donor site **[fig.5]**.

Fig 1: Oro-antral Fistula measuring 1 cm in greatest dimensions
Fig 2: Marking of the flap
Fig 3: Full thickness mucoperiosteal dissection and rotation of the flap into the defect.
Fig 4: Water tight closure.

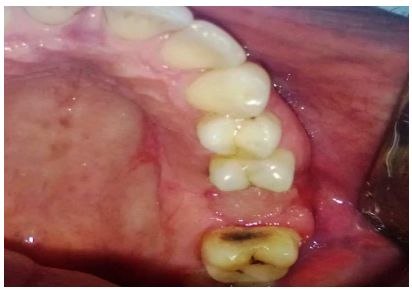

Fig 5: 2 months post-operatively showing complete healing of the defect and secondary epithelialization of the palate.

Discussion

Myriad types of surgical techniques have been described for oro-antral fistula closure, although only a few have been used in day-to-day clinical practice. Rehrmann in 1936 described the buccal advancement flap[4] technique which has remained popular over the years due to its simplicity. A success rate of 93% was reported by Killey and Kay[2] in 1972 using this method. In 1981 Obradovet al[5] reported lowering of the vestibule and cheek edema as the major disadvantages with the use of this technique. Hence Von Wovern[6] in 1982 recommended the use of buccal advancement flap for edentulous jaws only.

Palatal full thickness flap based on greater palatine artery was first described by Ashley[7] in 1939 for oro-antral fistula closure. In contrast to the buccal flap, palatal flap is more resilient, less prone to infection and does not lead to lowering of the vestibule. The drawbacks of this technique include mild palatal surface denudation and the kink that occurs along the arch of rotation which may jeopardize the vascularity causing flap necrosis.[5] Modifications of palatal flap by Takahashi and Anderson in 1974, James in 1980 and Yamazaki et al in 1985 into mucosal/submucosal Palatal Island flap helped counter the disadvantages considerably.[8]

Conclusion

Accurate diagnosis and proper selection of surgical method is mandatory for successful closure of oro-antral fistulas. Von Rehrmann buccal advancement flap is best suited for small defects whereas Ashley's Palatal flap alone or in combination with buccal advancement flap should be used for closure of larger defects. Case selection and meticulous surgical technique hold the key to a successful outcome.

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