

## ORIGINAL RESEARCH ARTICLE

**Use of Palatal Rotation Flap in the Closure of Oroantral Communication**

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**Abstract**

**Background:** Oro-antral communication followed by surgical extraction of maxillary molar and its surgical repair by different flaps were not uncommon. **Aims & Objectives:** To evaluate the use of palatal rotational flap for the closure of oroantral fistula. **Materials & Methods:** Five patients were treated with palatal rotation flap and a six month follow up was done. **Results:** The postoperative healing was satisfactory and four to six month follow up revealed uneventful healing in all the cases. **Conclusion:** The use of palatal rotational flap is an acceptable and reliable alternative in chronic oroantral communications management.

**Key Words:** Oroantral Communication; Maxillary Sinus; Palatal Flap

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**Introduction**

Oroantral communications (OAC) may occur during extractions of the maxillary teeth and also as a result of operations in the maxilla. The palatal island flap was described for ablative defects of the palate and retromolar trigone by Gullane and Arena in 1977.<sup>(1)</sup> Advancements in technique subsequently reported by these surgeons allowed a mucoperiosteal flap of the hard palate base a singular neurovascular supply. This paper evaluates the use of palatal rotational flap for the closure of oroantral fistula.

**Materials and Methods**

The study included five patients (3 Male and 2 female) with an age ranged between 18-58 years, who had acute and chronic OAC's larger than 5mm in diameter. The patients with acute OAC underwent operation immediately. Chronic OAC were treated after irrigation with saline solution through the fistula path for 1 week (three times a day). Preoperative oral antibiotics were prescribed in these cases.

**Surgical Procedure**

All the surgeries were performed under local anaesthesia. Patients with chronic OAC, a circular incision with a 3mm margin was made around the fistula to excise completely the epithelial layer and inflammatory tissue within the opening before raising a flap. Once the receipt site is prepared, the greater palatine foramen with its vascular supply is identified by manual palpation of the palate. A full thickness incision is made lateral to vascular supply and extended 2-3mm

short of palatal side of the teeth. The incision is extended up to the palatal mucosa of lateral incisor. A full thickness mucoperiosteal flap is raised from anterior to posterior; care is taken as the vascular supply is approached. Once the flap is elevated, it is rotated and sutured on the donor site without any tension. No surgical stent or dressing was given. The acute OAC site is prepared after refreshing the margin and copious irrigation and then posteriorly based palatal flap is raised as prescribed earlier and sutured to donor site. Oral penicillin and decongestant nasal drops were prescribed for all patients. They were instructed to avoid smoking, strong sneezing and to use a pipette while drinking and were kept under a soft diet. All the patients were followed weekly during the first month followed by monthly for the next 6 months.

**Results**

The study consists of five patients who were surgically treated for OAC with Palatal rotational flap. One patient was edentulous. Two cases were acute OAC, which occurred after maxillary molar teeth extraction. These extractions were performed in other clinics and referred to our department for closure of acute OAC. The remaining three cases had chronic oroantral opening with a duration of 3 months to 1 year. All the five cases had a favorable healing course following the operation and wound become successfully epithelized in 4-6 weeks postoperatively (Table 1).

S No	Gender	Age	Duration	No of previous attempts	Treatment	Results	Followup
1.	M	26	3months	One Buccal pad of fat	Posteriorly based palatal flap	Healed	6 months
2.	M	18	5days	None	Posteriorly based palatal flap	Healed	4 months
3.	F	32	3days	None	Posteriorly based palatal flap	Healed	4 months
4.	M	43	5months	One Buccal Pad of fat	Posteriorly based palatal flap	Healed	6 months
5.	F	58	1year	One Buccal Pad of fat	Posteriorly based palatal flap	Healed	6 months

TABLE 1: Presentation of cases by gender, age, duration, previous attempts and follow up after palatal rotation flap.

## Discussion

The most common etiologic factor for oroantral fistula is tooth extraction. Infection, cystic lesions, maxillary tumors, and tumors were other causative factors. Fistulas are common between the ages of 30 and 60 years. It is considered that the loss of teeth experienced with advancing age increases the likelihood of fistulas. In male patients fistulas are twice as common as in women. This is attributed to more common and more traumatic tooth extraction in men. The first molar tooth is involved in most of the cases; this is followed by the second molar.(2)

If the patient has a healthy sinus, an OAC less than 4-5mm in diameter will most likely to heal spontaneously.(2) In larger perforations, treatment methods include the use of local flaps, distant flaps and grafting procedures such as Palatal, buccal, or combined mucoperiosteal flaps. None of these methods were proved to be superior to the other. However, certain advantages and disadvantages do exist. (3)

The relatively simple anatomy of the palatal flap is one of its many advantages.(4) The palatine mucosa is underlined by the submucosa that is adherent to the periosteum. The periosteum is attached to the bone of the hard palate by dense Sharpey's fibers. (5) The palatal flap is an axial flap based on the greater palatine artery. The connection between the two greater palatine arteries across the midline has been termed the macronet and allows the entire flap to be based on a single greater palatine arterial supply.(5) This anatomy greatly increases the versatility of the flap. Additionally, the ability of the flap to rotate 180 degrees and to be placed in the oral cavity mucosal side up or down allows nearly 360-degree availability along the entire pedicle. Reports in the literature continue to document the usefulness of this flap.(6) Experience has shown that palatal flaps are relatively easy to harvest and provide a wide variety of options for the use in the oral cavity. Rotation about a 180 degree axis and availability to invert the flap allow coverage in any direction. With this versatility noted, one of the most significant limitations of this the flap is short distance that it may travel to a defect. The flap is limited by its neurovascular supply, which emerges from the bony canal of the greater palatine foramen. Although some additional soft tissue length for the flap can be achieved with in fracturing of the hamulus, the flap's usefulness is

limited to sites with enclosed proximity of the greater palatine foramen.

Considering the wide variety of options for the reconstruction of post traumatic and post ablative intraoral defects, the palatal flaps hold many advantages over other forms of reconstruction. It has been used successfully with minimal morbidity for reconstruction of defects within the reach of the flap. The cases presented here in demonstrate the versatility of the flap.

## Conclusion

From our experience we can conclude that Palatal rotation flap is a reliable flap for the repair of oroantral fistula. The easy mobilization of the palatal rotation flap and its excellent blood supply and minimal donor site morbidity make it an ideal flap. It should also be considered as a reliable back up procedure in the event of failure of other techniques.

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