CASE REPORT

VASCULAR-SPARING MODIFICATION OF PALATAL TRANSPOSITION FLAP FOR CLOSURE OF CHRONIC OROANTRAL FISTULA : A CASE REPORT

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ABSTRACT

Background: Oroantral communications (OACs) are pathological connections between the oral cavity and maxillary sinus, often following extraction of maxillary posterior teeth. Untreated OACs may epithelialize into oroantral fistulas (OAFs), causing chronic sinusitis and nasal regurgitation.

Case Presentation: A 51-year-old male presented with chronic oroantral fistula and recurrent sinusitis following traumatic extraction and failed buccal flap closure. Preoperative sinus management included antral lavage and decongestants. Surgical closure was performed using a modified palatal transposition flap that avoided mobilization of the greater palatine artery.

Results: Postoperative healing was uneventful, with complete closure of the defect and resolution of sinus symptoms at 3 months.

Conclusion: This vascular-sparing palatal flap modification offers a reliable, technically simpler, and less morbid option for closure of small-to-moderate OACs while preserving vestibular depth and flap vascularity.

KEY WORDS

Oroantral fistula, Palatal flap, Maxillary sinus, Oroantral communication, Palatine artery, Flap modification

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INTRODUCTION

Oroantral communications (OACs) are abnormal pathways between the maxillary sinus and oral cavity, most commonly occurring after extraction of maxillary molars or premolars due to their proximity to the sinus floor. If left untreated, these may epithelialize into oroantral fistulas (OAFs), leading to chronic sinusitis, nasal regurgitation, and significant patient morbidity.

Several techniques exist for OAC closure, including buccal advancement, buccal fat pad, and palatal rotational or transposition flaps. Each technique's suitability depends on the defect's size, duration, and location. Buccal-based flaps, while straightforward, often compromise vestibular depth. Palatal flaps offer keratinized tissue and robust vascularity but traditionally require mobilization of the greater palatine artery, increasing technical complexity and intraoperative risk.

This report presents a vascular-sparing modification of the palatal transposition flap, providing an effective and less invasive solution without palatine artery dissection.

CASE PRESENTATION

A 51-year-old male presented to the Department of Oral and Maxillofacial Surgery, Dr. R.Ahmed Dental College and Hospital, with complaints of nasal regurgitation of fluids and chronic right maxillary pain radiating to the forehead.

He reported a history of traumatic extraction of the right maxillary first molar 1.5 years prior, followed by a failed closure attempt using a buccal advancement flap. Symptoms recurred one month postoperatively.

Intraoral examination revealed an approximately 8-mm OAF in the region of the right maxillary first molar. The Valsalva maneuver was positive. CBCT imaging showed a patent communication between the extraction site and the right maxillary sinus with mucosal thickening and antral opacity suggestive of chronic sinusitis.

Figure 1. Preoperative intraoral view showing the chronic oroantral fistula (OAF) in the region of the right maxillary first molar

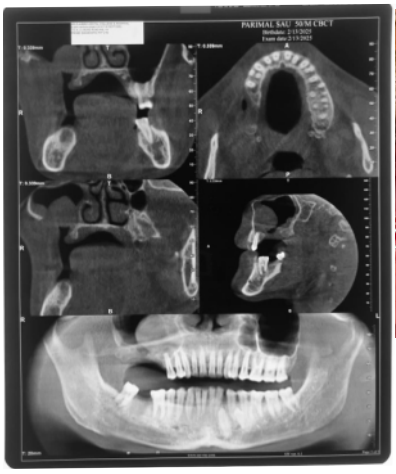

Figure 2. Cone-beam computed tomography (CBCT) showing the patent oroantral communication with sinus involvement

Figure 3. Intraoperative view after excision of the epithelialized tract. The fistulous opening margins are freshened under general anesthesia

Figure 4. Placement of the vascular-sparing flap into the defect

Figure 5. Immediate postoperative view showing successful closure. Flap in stable position; donor site packed and protected with an acrylic stent

Figure 6. One-month follow-up showing healed donor and recipient sites

Figure 7. Three-month follow-up with intact closure and symptom-free sinus

PREOPERATIVE MANAGEMENT

Active sinus infection compromises surgical success. Therefore, preoperative management included:

- Daily isotonic saline antral lavage via Ryle's tube
- Oral antihistamines and decongestants
- Steam inhalation

This regimen was continued for 2–3 weeks, after which sinus health improved, allowing for definitive surgical closure.

SURGICAL TECHNIQUE

Under general anesthesia, the epithelialized tract was excised using a No. 11 blade. Antral lavage confirmed sinus clearance.

A palatal-based mucoperiosteal flap was outlined adjacent to the defect, elevated in a submucosal plane, and rotated into position. Importantly, the greater palatine artery was preserved-the flap's design allowed adequate reach without vascular manipulation. The flap was sutured tension-free

using 3-0 Vicryl sutures.

The donor site was covered with an iodoform pack and protected using an acrylic stent for secondary healing.

POSTOPERATIVE CARE

The patient received:

• Empirical antibiotics and analgesics

• Antihistamines and steam inhalation

• Sinus precautions (no nose-blowing or sneezing with mouth closed)

• Ryle's tube feeding for one week

RESULTS

At 1 week: Recipient site intact, minimal donor site discomfort.

At 1 month: Complete epithelialization of donor site, no recurrence.

At 3 months: Stable closure, no sinus symptoms, patient satisfied.

DISCUSSION

Oroantral communications, if not promptly managed, can progress to chronic fistulae with

sinusitis. Management should target both sinus sanitation and soft tissue repair. Preoperative antral lavage is a minimally invasive method to clear sinus infection and optimize healing conditions.

Traditional palatal transposition flaps, though robust, often require mobilization of the greater palatine artery-adding technical complexity and potential bleeding risk. Our vascularsparing modification retains flap viability while simplifying the technique and reducing morbidity.

Compared with buccal advancement or buccal fat pad flaps, this approach:

• Preserves vestibular depth

• Provides keratinized mucosa for prosthetic support

• Minimizes donor site discomfort

The outcome demonstrates that preserving vascular integrity does not compromise flap reach or stability.

CONCLUSION

The presented vascular-sparing palatal transposition flap is a simple, reliable, and effective method for closure of oroantral fistulas. By avoiding mobilization of the greater palatine artery, this technique reduces intraoperative risk and ensures predictable healing, making it a valuable addition to the surgeon's repertoire for managing small-to-moderate OACs.

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