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Case Report

Double Flap Palatoplasty for Management of Post-traumatic Oronasal Fistula

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ABSTRACT:
Oronasal fistula mainly represents functional problem which can lead to nasal regurgitation of food and fluid. It can also cause significant impairment of speech resulting in mental trauma to the patient. Palatal fistulas are formed mostly by various pathologies, secondary to radiotherapy,removal of cyst and tumors, trauma, minor surgeries including extraction of posterior tooth etc. Many fistula closure techniques have been proposed but with high reccurrence rates. So here we are sharing our institutional experience of succesfully treating residual post-traumatic Oronasal fistula by double flap palatoplasty technique.

Key-words: Palatal fistula, oronasal fistula, oroantral comunication,palatal flap,Double Flap Palatoplasty

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INTRODUCTION

Palatal fistulas can usually involve nasal cavity or maxillary antrum or combination of both. They are formed as a result of various etiologies such as cleft palate surgeries, post trauma, surgical removal of maxillary pathologies, sequelae of radiotherapy and other minor surgeries including maxillary posterior tooth extraction (1). Palatal fistulas can cause significant morbidity to the patients by way of nasal regurgitation of fluids and food, speech impairment, halitosis and recurrent respiratory infection. All these can lead to emotional and psychological troubles in speaking and eating (1,3). Surgical closure of palatal fistula is challenging and technique sensitive with high failure and recurrence rates of about 25%(4,5,6). Several techniques have been employed extending from local flaps to free tissue transfer to fulfil the closure. Palatal flap, nasolabial flap, buccal fat pad, facial artery myomucosal flap and tongue flap are the most common locoregional flaps that can be used for the closure (6). Palatal flap itself shows wide diversity in various literatures (10,11,12). Here we are reporting a case of delayed repair of post-traumatic Oronasal fistula closure in an elderly man with double flap palatoplasty technique. Our palatoplasty technique was influenced from the original Bardachs two-flap palatoplasty (13) widely practiced in the cleft palate repair.

CASE HISTORY

A 56-Year-old gentleman was referred to our department complaining of oronasal communication for the past one month. He gives alleged history of Road Traffic Accident (RTA) 6 weeks back and underwent primary care and palatal wound suturing from elsewhere. Patient had comorbidities like uncontrolled Diabetes mellitus and hypertension. Clinical examination of the hard palate revealed a 3cm x1cm defect over left hard palate close to midline without soft palate extension, obliterating and exposing the ipsilateral floor of the nasal cavity (Figure-1). The defect was associated with communication between the nasal and the oral cavity with no active pus/fluid discharge. CT scan confirmed the isolated palatal defect with oronasal communication not involving any other structures of the face.

On the basis of the clinical and radiological findings the patient was provisionally planned for fistula closure surgery. After evaluation of the large residual midline palatal defect, the proposed double flap palatoplasty (Figure-2) inspired from Bardach's

technique (13,17) was performed for the resolution of the oronasal communication.

SURGICAL TECHNIQUE

The surgery was performed with the patient receiving general anesthesia and the contralateral nasal side was used for nasotracheal intubation. After routine betadine preparation, sterile fistulas were injected with 2% lidocaine with 1:80000 adrenaline for hemostasis and easy tissue dissection. Incision was performed around the fistulous tract (figure 3) and mucosalized edges were excised. Full thickness mucoperiosteal flap based on greater palatine artery was prepared and elevated as hinged flap (Figure-4) on either side of the fistula where the medial borders of flaps form the edges of fistula. Both flaps were rotated medially and sutured together to close the defect (figure 5). The raw area which was created after rotation of the flap was sutured with gauze for secondary healing. The preoperatively prepared palatal obturator was placed insitu for a week to avoid postoperative hematoma and edema formation which compliments the flap outcome. The palatal flap and wound in the donor site healed well on second post-operative week. The patient was under regular follow-up for past one year with complete resolution of initial presenting complaints and there were no signs of recurrence.

FIGURE 1- FLAP DESIGN AND CLOSURE

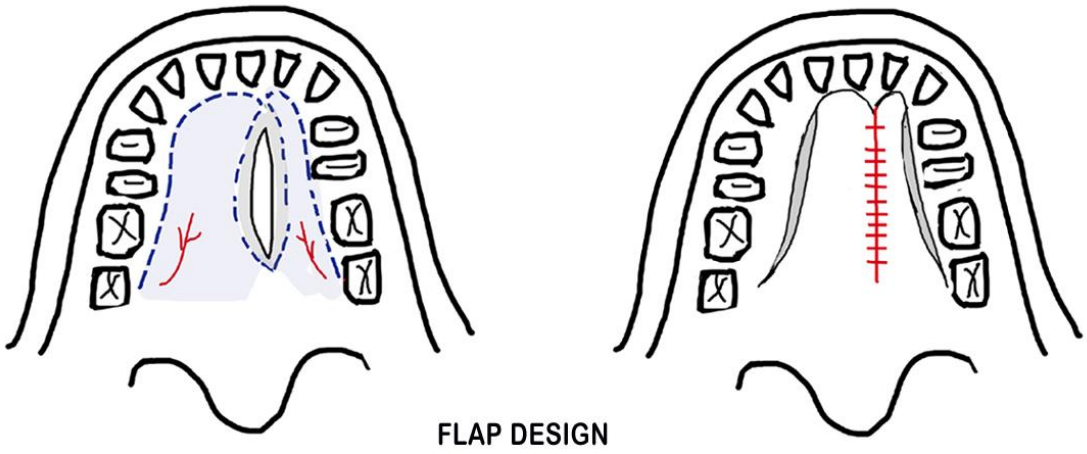


FIGURE 2- PRE-OPERATIVE ORONASAL FISTULA

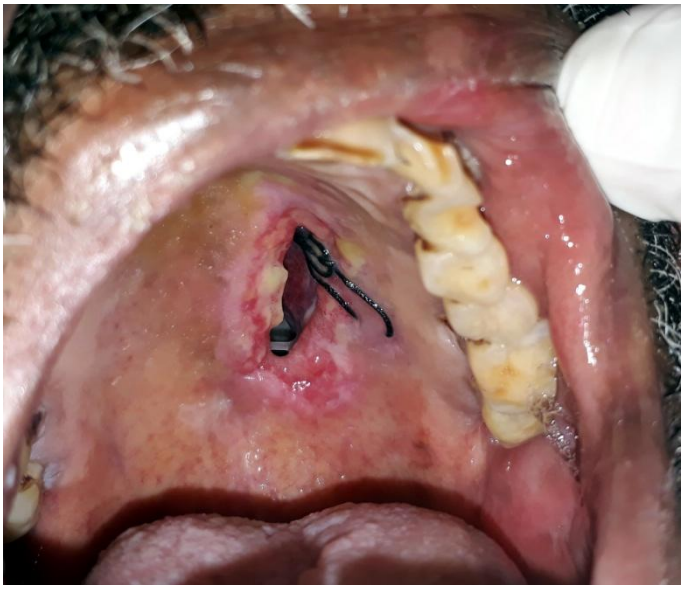


FIGURE 3- INTRAOPERATIVE INCISION AND FLAP DESIGN

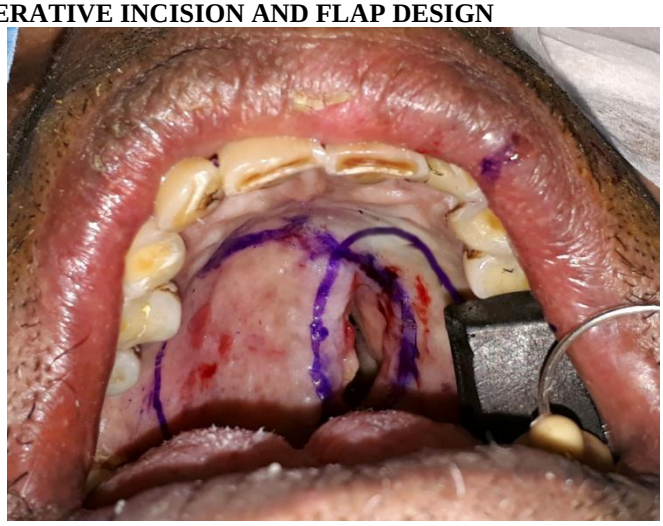


FIGURE 4 – FLAP ELEVATION

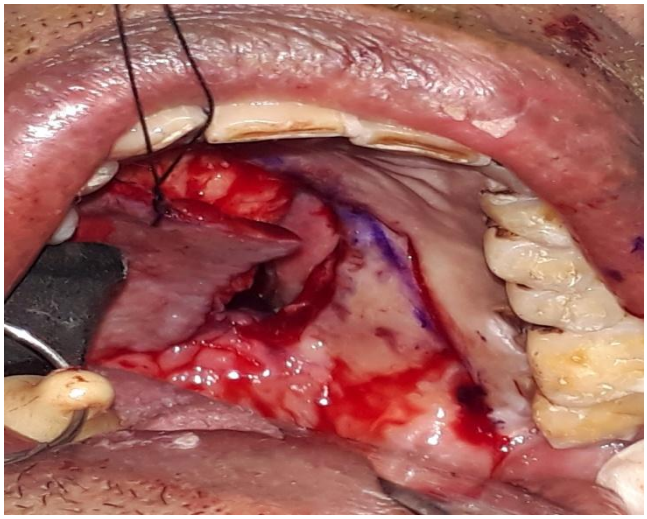
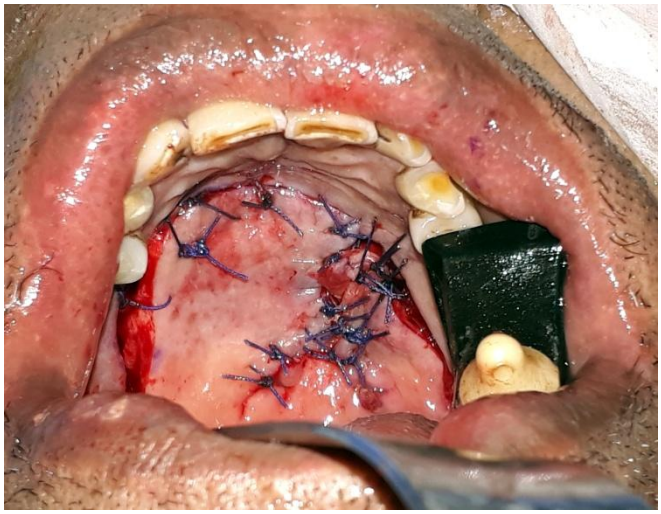


FIGURE 5 FLAP CLOSURE



DISCUSSION

An oronasal Fistula is a pathological communication between the oral and nasal cavity. But in oro-nasal fistula there is no fistulous tract but the nasal mucosa is fused to oral mucosa creating a communication. It mainly represents as a functional problem which can cause nasal regurgitation of food and fluids and it may also lead to hypernasal speech (4,10). Palatal fistula may develop as a complication to cleft palate repair; which is the commonest cause. It can also cause by

surgical or accidental trauma, inflammatory or neoplastic diseases, minor dental surgeries including tooth removal, post- radiotherapy etc (11). Fistula size has been divided according to its greatest diameter into small; 1–2 mm, medium; 3–5 mm, and large;>5 mm (15). Treatment of oronasal fistula is exasperating due to the high probability of recurrence, technique sensitive surgery and post-operative care. According to size, site, extent and patient factors, oronasal fistula management techniques can range from prosthetic closure, local flaps, regional rotational flaps, and free microvascular flaps (3,16). Local flap and 2 flap palatoplasty are the common techniques used for the closure of the oronasal fistula. Local flaps such as buccal myomucosal flap, facial artery myomucosal flap, tongue flap and distant free vascular flaps like radial forearm, anterolateral thigh flap etc. are widely used in literatures for palatal defects (6,10,11,12). Here we adopted double palatal flap technique similar to bardachs (1967) two flap palatoplasty (Fig 1) widely used in cleft palate repair (13,17). The palatal flap is an axial flap which receives its blood supply from the greater palatine artery, which passes from the greater palatine foramen at the level of the second molars anteriorly to the ipsilateral palatal mucoperiosteum to the border of the premaxilla. As described earlier, it is a simple, single stage procedure which has minimal surgical morbidity unlike other proposed local, regional and microvascular flap techniques. In addition, our flap technique showed superior results in long-term follow-up with no signs of recurrence with good patient acceptance.

CONCLUSION

The double-flap palatoplasty technique showed superior outcome in providing tension free and airtight closure of oronasal fistula. It can be used as an effective alternative approach for oronasal or other palatal fistula closure due to its technical ease, good vascular supply and less donor site morbidity.

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