CASE REPORT

Anterior Palatal Fistula Closure with Tongue Flap

Bipulesh Goit[1], Sunil Kumar Singh[1], Swosti Thapa[1], Leeza Pradhan[1], Pramila Shakya[1]

ABSTRACT

Palatal fistula is an abnormal oronasal communication with incidence of 4% to 35% and recurrence up to 25%. Repairing large palatal fistula can be technically challenging. Anteriorly based tongue flap may be the flap of choice for recurrent and symptomatic anterior palatal fistula. A case of bilateral complete cleft lip, alveolus and palate with residual anterior palatal fistula was successfully managed with anteriorly based tongue flap. Postoperative care included liquid diet, oral hygiene and flap division after 2 weeks. Wound healing was satisfactory and uneventful. No flap loss, speech impairment, taste disturbance or functional tongue morbidity was noted. The tongue flap is a highly reliable flap with reported success rates of 85% to 95.5% in management of palatal fistula. Based on our experience, tongue can be considered a good option and highly recommended for the closure of large & recurrent palatal fistula.

Keywords: Cleft palate, palatal fistula, tongue flap

INTRODUCTION

The term, palatal fistula, is normally used for residual nonrepaired cleft palate or result of breakdown of repaired palate.[1] Worldwide, the fistula rate ranges from 0% to 58%, with recurrence rate of 33%.[2,3] Repair of large palatal fistulas specially in bilateral cleft cases can be technically challenging due to scarcity of local tissue and excessive scarring from previous surgery. When repair with local tissue alone fails, an anteriorly based tongue flap may be the flap of choice for recurrent and symptomatic anterior palatal fistula. Success rate of the tongue flap has been reported from 85% to 95.5%.[4]

CASE REPORT

A 10-year-old female patient reported to our department with complains of nasal regurgitation and nasal emission. Clinical examination revealed operated case for right sided cleft lip & palate with residual cleft alveolus and a large anterior palatal fistula (Pittsburg type V-VII) of size 1.5 cm × 1.6 cm. Closure with local flap alone was difficult in this case due to tissue deficiency. So, anteriorly based tongue flap was chosen as the best alternative.

All preoperative assessment & surgical planning were done. Patient counselling about difficulty in feeding & speech for couple of weeks was done and a written informed consent was taken. The size of defect was 1.5 X 1.6 centimeters(cm). Markings for defect and donor site were done. Local infiltration with 0.5 % lignocaine with epinephrine in ratio 1: 200000 for homeostasis and ballooning of the tissues for the ease of dissection was done. Incision was given at the fistula margin. The nasal layer closure was achieved through turn down flap from mucosalized edges (Figure 1B).

[1]Department of Burns, Plastic and Reconstructive Surgery, Kirtipur Hospital, Kirtipur, Nepal

Dr. Bipulesh Goit, Department of Burns, Plastic and Reconstructive Surgery, Kirtipur Hospital, Kirtipur, Nepal, Phone: +977-9841262572, Email: drbipu@gmail.com

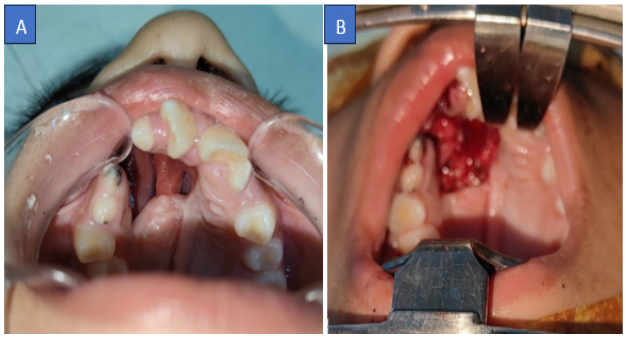

Figure 1: (A) Anterior palatal fistula (B) Incision along mucosalised fistula edge and nasal layer closure with turn down flap

Anteriorly based tongue flap within midline of appropriate size 7cm X 2 cm was designed slightly greater than the size of defect to compensate for primary flap contraction. Flap elevation was done between circumvallate papillae and 1-2cm from the tip of tongue. Width of flap was 20% additional to width of defect but not greater than 2/3rd of the tongue. The flap had uniform thickness of 5-7 mm slightly thicker at the base for vascularity. The flap included nearly 3 mm of muscle to include submucosal vascular plexus. Donor site on tongue was closed primarily with polyglactin 4.0 suture (Figure 2A). Flap in-setting was done by suturing the flap margins to the palatal mucosa along the defect margin for the closure of oral layer (Figure 2B).

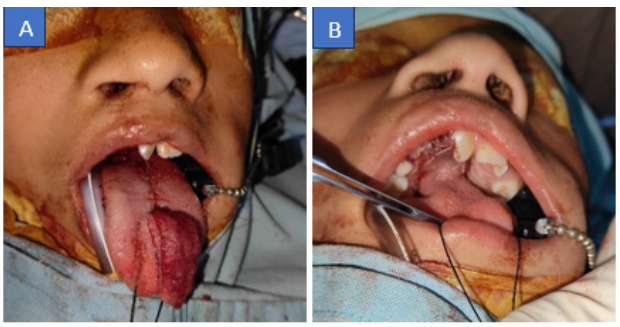

Figure 2: (A) Elevation of tongue flap (B) In-setting of flap into to palatal fistula

Postoperative care included a liquid diet for 2 weeks and meticulous oral hygiene. Flap division and re-in-setting of flap was done after 2 weeks. The patient was followed up at 5th post operative day, 2 weeks and 2 months (Figure 3A). Wound healing was satisfactory and uneventful except transient discomfort. There was no significant taste disturbance, or functional tongue morbidity (Figure 3B). The palatal closure was intact with cessation of nasal regurgitation. Pre- and post-operative speech recording shows improved speech.

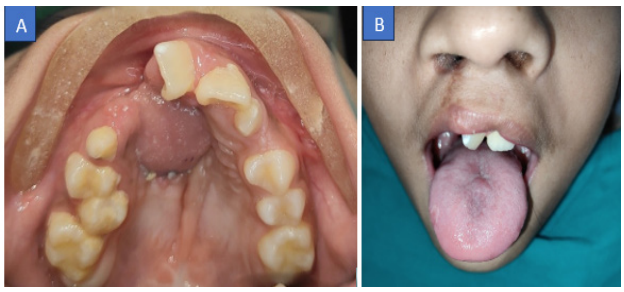

Figure 3: (A) 2 months follow up shows good mucosalization (B) No functional morbidity of donor site

DISCUSSION

Anterior palatal fistula is a well-recognized and challenging complication following cleft palate repair, particularly in bilateral cases where the defect is large, recurrent, or located in the anterior hard palate. The reported incidence of palatal fistula after cleft repair ranges from 4% to 35%, and recurrence of 25%.[5] Various techniques have been described for the management of anterior palatal fistula, including local flaps, regional flaps (buccal mucosal flaps, facial artery musculo-mucosal flaps) and free tissue transfer.[6] The use of tongue flap outstands them with higher reliability and reported success rate between 85 to 95.5%.[4]

Tongue flaps were introduced for intraoral reconstruction by Lexer in 1909.[7] Its use for palatal fistula was first reported and popularized by Guerrero-Santos and Altamirano.[8] It can be designed as anteriorly based dorsal flaps, posteriorly based dorsal flaps, lateral/marginal flaps and ventral flaps. The anteriorly based tongue flap is best suited for anterior palatal defects because of its close proximity to the defect, excellent arc of rotation and excellent blood supply. This favors in successful flap survival even in previously operated and scarred recipient beds. In the present case, the anteriorly based tongue flap provided well-vascularized tissue and sufficient bulk to achieve tension-free closure. The flap was designed carefully not to cross the circumvallate papillae to reduce the risk of impaired taste sensation and patient discomfort.

We performed 2-layer closure; nasal layer closure before the palatal layer closure by tongue flap. Some studies suggest single layer closure for difficult cases.[9] Flap division was done at 12th post operative day where most articles suggest it at 2-3 weeks. Patient reported cessation of nasal regurgitation, food impaction or foul smell with improved speech in accordance with other studies. We did not report any significant complications as reported in studies like donor site morbidity, flap dehiscence or impairment of speech and taste. There was slight reduction in the width of tongue as reported in most studies. Most authors report minimal long-term morbidity, with rapid restoration of tongue mobility and function following flap division. Being a 2-stage procedure, there was difficulty in feeding, speech and oral hygiene maintenance and patient compliance especially the young children. A case series of 41 cases showed tongue flap as a safe procedure in children under 5 years who tolerated the procedure very well.[10] Overall, tongue flap can be considered as a work horse in difficult situations for anterior palatal fistula closure. It is a simple, reliable and predictable flap with high success rate. So, it should be considered the valuable armamentarium in management of palatal fistula.

CONCLUSION

This case highlights the use of anteriorly based tongue flap in the management of anterior palatal fistula closure when repair with local flaps alone fails. Based on our experience, the tongue flap can be considered a good option and highly recommended for the closure of large & recurrent palatal fistula.

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