

# Tounge Flap for Closure of Giant Anterior Palatal Fistulas

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## Abstract

Reconstruction of defects of the oral cavity can be challenging. The armamentarium of the reconstructive surgeon includes local and regional flaps as well as free tissue transfer. The anatomy, location, and size of the defect guide the surgeon in treatment planning to determine the type of flap best suited for a specific reconstruction. Despite the enhanced techniques of repair of cleft palate, fistula occurrence is still a possibility either due to an inaccuracy in the surgical technique or due to the meagre tissue quality of the patient. Though usually the fistula closure is established by use of local flaps but at times the site and the size of the fistula make use of local flaps for its repair a remote possibility. Tongue flap can be the most versatile flap because of its central position in the floor of mouth good vascularity makes it a choice of flap for closure of anterior palatal fistulae than any other tissues. We are presenting a case report regarding closure of anterior palatal fistula with dorsal tongue flap.

**Keywords:** armamentarium, cleft palate, dorsal tongue flap.

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## INTRODUCTION

Anterior palatal fistula is the most common complication of cleft palate repair, the incidence ranging from 4% to 35% [1-3]. Even in the best of hands an oronasal fistula of the secondary palate may occur postoperatively. A fistula may also be caused by trauma, tumor, irradiation, or a rare infectious disease such as midline granuloma, syphilitic gumma, leprosy, noma, and leishmaniasis [1-3].

Most often, the recurrent palatal fistula is situated at the junction of the hard and soft palate closure or between the premaxilla and secondary palate. The severity of symptoms depends on size, position, and general velopharyngeal competence. The most common complaint is uncontrolled regurgitation of fluid into the nose. A large fistula also causes obvious speech defects, whereas a small fistula may result in some speech impairment. Opening up of the primary palatal repair is usually related to tension at the site of closure (often at the junction of the hard and soft palate) leads to necrosis, if the greater palatine vessel was injured. This happens during elevation of the anterior tip of the pushback flap. Other reasons may be

infection, hematoma, or mechanical trauma before flap healing.

Several techniques have been introduced for the closure of anterior palatal fistula including the surgical and nonsurgical techniques [4-7]. Intraoral obturator is the nonsurgical treatment which is a little expensive procedure as it requires repeated and regular changes of the obturator. Palate also cannot be cleaned with the obturator. Patients cooperation is utmost important for the obturator placement. Whereas surgical technique is most preferred and suitably advocated for fistula closure using local flaps.[8]. Other options which were tried for fistula closure are – local tissue flaps, revision palatoplasty, regional flaps-such as buccal mucosal flaps, pharyngeal flaps, tongue flaps (anteriorly or posteriorly based), microvascular free and tissue transfer (radial forearm flap) [9-12].

This case report is being presented to define the suitability of tongue flap for closure of anterior palatal fistula.

## Cases Description

Various patients have reported with same chief complaints like difficulty during swallowing, regurgitation of foods and liquids from nose and phonation. On clinical examination anterior palatal fistulas were noticed of different variations and sizes. Almost of the patients have a history of bilateral cleft lip and palate, for which they were operated and further developed oro-nasal communication through fistula (Fig-1). Planning was made for the closure of fistulas under general anaesthesia using anteriorly based tongue flap. The size of fistulas was average and in a fear of local periosteal necrosis tongue flaps were advocated for closure.

Every patient underwent naso-endo-tracheo intubation for airway protection and general anaesthesia was administered. A Dingman mouth gag was placed to expose the palate. Lidocaine with epinephrine (1:100,000) was injected for hemostasis. Granulation tissue present along the side fistula were removed with a scalpel. Local, adjacent flaps were designed and elevated for adequate nasal-side closure. Meticulous attention was given to ensure that the flaps should be well vascularized and the nasal side closure must be tension-free and watertight.

A combination of local turn down and hinge flaps was used for this purpose. Moreover, depending on location of the fistulas, vomer flaps can be elevated and inset if needed for nasal-side closure. Horizontal mattress sutures were placed, everting the mucosal edge to the nasal side. The Dingman mouth gag is then removed to expose the dorsum of the tongue during flap elevation.

The anteriorly-based tongue flap was elevated at least about two-thirds of the width of the dorsum of the tongue and to make the flap about 5-6 cm long. Bleeding was controlled with electric cautery, and the donor site of the tongue was closed primarily. The palatal defect was covered completely with the anterior portion of the tongue flap (Fig-2).

Patients got extubated in the operating room but remain in the intensive care unit overnight. Diet was limited to clear liquids for 24 hours and then put on a mechanically soft diet and sent home as soon as oral fluid intake was adequate. 14 days after the flap closure, the pedicle was cut under local anaesthesia.

At a third stage, under local anaesthesia, the donor site is revised and the recipient site were debulked to improve aesthetics (Fig-3).



**Fig-1: Anterior palatal fistulas**



**Fig-2: Pedicled tongue flap closure of anterior palatal fistulas**



**Fig-3: Complete closure of anterior palatal fistulas with dissected pedicle**

## DISCUSSION

The use of the lingual flap for repair of hard palate fistulae was first reported by Guerrero-Santos and Altamirano [10]. Tongue flap closure for end-stage palatal defects is associated with a relative lack of complications and a high success rate in children and adults [3]. The rich vascular supply from the lingual artery and its four branches and the extensive anastomotic network with the contralateral side contributes to the versatility of the tongue flap [13-14]. Good amount of tissue available from the tongue can be used for effectively closing even large palatal fistulae. Success rate of the tongue flap has been reported varying from 85% to 95.5% [15-18].

When using the anteriorly-based tongue flap, the surgeon must not hesitate to raise a large flap (5-6 cm long, 1 cm thick) to ensure its vascular viability and allow considerable tongue movement without undue tension on the pedicle. In addition, aggressive palatal shelf exposure around the defect allows both a watertight oral-side closure and an increased surface area for ingrowth of new blood vessels before flap division.

No airway problems or flap loss was encountered. Although one hesitates to alter the tongue's anatomy for fear of changing speech or deglutition, these problems have not been noted. Before flap division, speech is inhibited and limitation of speaking is encouraged to avoid undue tension on the pedicle. However, after division, no alteration in speech has been detected. Alterations in taste after use of the tongue flap were also insignificant.

## CONCLUSION

Tongue flap is a reliable option to close a complicated palatal fistula. Its only drawbacks are two-staged procedure and transient patient discomfort. Anteriorly based tongue flap is a safe and dependable procedure and gives consistently good results in closure of anterior palatal fistulae.

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