Results of Difficult Large Palatal Fistula Repair by Tongue Flap

S. Abdollahi, Y. Jabbari Moghaddam, Radfar Reza, Raghifar Ramin

From Department of Otolaryngology, Tabriz Medical University, Tabriz, Iran.
Correspondence: yj_moghaddam@yahoo.com
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ABSTRACT
Objective: To evaluate the results of large palatal fistula repair by anterior based tongue flap.
Methods: Outcome of palatal fistula repairs by anterior based tongue flap from January 2004 through September 2006, were studied in 23 patients.
Results: All patients had at least two palate operations previously. In 20 patients, fistula was repaired successfully (p<0.05).
Key Words: Palatal fistula, tongue flap, cleft palate, cleft lip.

INTRODUCTION
Cleft palate and cleft lip, which occur due to the growth and fusion cessation of the original tissues during the 5th and 12th embryologic development weeks, are among the most common congenital childhood abnormalities. The goal of cleft palate reparation is complete isolation of the nasal and oral cavities, repair of the velopharyngeal valve, assisting normal growth of the face and providing growth background for the teeth in the cleft zone. 1 Just like any other surgery, cleft palate repair has complications including hypernasal speech, bleeding, airway obstruction, wound dehiscence and fistula. In spite of the best attention and best surgical techniques, the recovery following cleft palate repair can result in formation of fistulas. These can be nasolabial, oronasal and oroantral fistulae. Fistulae can be result of defect in alveoli and hard palate cleft has not been repaired or defects that occur because of the primary repair failure. 2 Recurrence rate following fistula repair has been reported to be 23 to 25 percent. 1 Large fistulas repair, particularly anteriorly located ones, is a difficult procedure even for skillful cleft palate surgeons and failure rates of these repairs are high. A repair technique which used local flap and free tissue transfer has been tried but the outcomes have not been satisfying. 3,4 Recently, lingual flap technique has been introduced for complicated fistulas repairs. 5-7 Flap thickness is at least 3 mm with a maximum of 5mm at the base. This flap should not exceed circumvallate papilla more than 1 centimeter posteriorly. Some problems with this flap technique are that it has 2 steps and sometimes it is accompanied by difficulty in speech and to solve this problem, a protected lingual flap has been suggested. 3,7 If important steps are fulfilled, tongue mobility and articulation may not be affected and hyper nasality may be decreased to some extent. 8 We report our experience with repair of difficult large palatal fistulas with tongue flap.
MATERIALS AND METHODS
From January 2004 through September 2006, the outcome of 23 large anterior fistulas was studied. These patients had large anterior palatal fistulas and were referred to otolaryngology clinic of Tabriz Medical University. Inclusion criteria included fistula size between 1.5 cm and 4 cm, which at least had one failed operation. All patients had parental permission for using tongue flap for fistula repair and parents gave their informed written consent. All patients underwent operations under general anesthesia. Fistulas edge infiltration by epinephrine 1/200'000 was performed and palatal tissue was employed to repair nasal layers (fig 1). Nasal layers were stitched using 0/4 vicryl sutures reversely. Midline flap was then raised with an anterior tongue base and the defect was directly stitched by silk sutures. Oral layer was repaired using 4/0 vicryl sutures separately (fig 2). Two weeks postoperatively, the flap base was cut (fig 3). The patients were followed up for 28±4 days postoperatively and all the findings were recorded and then analyzed using SPSS 11.5 statistical software. A P value of < 0.05 was considered statistically significant.

RESULTS
The age range of the patients was 8 to 35 years and there were 11 female and 12 males. All the patients had a history of at least two former palate operations. In all patients, the preoperative fistula size was ≥2 centimeters. In 3 patients, transplanted tissue underwent partial rejection but in 20 patients (87%) the fistulas were repaired successfully (P<0.05). No complete necrosis and transplant rejection was seen in any of the patients. No swallow or taste disorder was seen in any of the patients. All the patients were followed for 28±4 months. During this follow up period, 3 patients in which the flaps were partially rejected, the size of fistulas had been smaller. Postoperative pain was controllable in all the patients. Respiratory problems due to lingual edema and retropharyngeal discharge developed in one patient after extubation. Intravenous dexamethasone 0.1 mg/kg/dose was given to all the patients during operation and for the next 24 hours. In those 3 patients that transplant rejection was seen, there was a poor cooperation in maintaining mouth and teeth health. In one of the 3 mentioned patients, a granulated tissue had intensively surrounded the fistula edge and there was no healthy palatal tissue to provide nasal layer and in the other 2 patients there was a severe scar and contracture of the fistula edge tissue, and nasal layer reparation encountered difficulties. One of these 3 patients had undergone surgery 5 times in the past and the other 2 had a history of 3 former fistula surgeries. These three patients were using palatal prosthesis because of the wide fistula.

Fig 1. Preoperative fistula
DISCUSSION
Repair of large fistulas of palate is a challenging procedure for cleft palate surgeons. In the past, various techniques including local flap and free flap utilization had been introduced for fistula repair but they lacked satisfactory outcomes. Lingual flap technique has been introduced since the beginning of the century. At first, Guerrero-Santos et al used lingual flap for repair of lip defects.\textsuperscript{9,11} Later, efficacy of this technique in palatal fistulas was reported with a success rate of 85%.\textsuperscript{12,13}
In our study, the obtained success rate of lingual flap was 87\%, which indicates the successfulness of the lingual flap in repair of the large and anteriorly located palatal fistulas. The results of another study indicated that not only tongue flap is a safe technique for fistula repair, it is also reliable for orthodontic maxillary expansion.\textsuperscript{14} Due to the fistulas significant complications, hypernasality and entrance of the digested food
into the nose, the successfullness of fistula repair has a major role in quality of life promotion in the patients suffering from cleft palate. Therefore, tongue may be considered as a satisfactory tissue donor in fistula repair. In conclusion, we showed that difficult Palatal fistula could be repaired successfully by anterior based tongue flap.

REFERENCES