

Upper lip myomucosal flap for the repair of anterior oronasal fistula

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Anterior oronasal fistula after cleft palatal repair is difficult to correct and it is consider challenging to many surgeons. Many techniques were used to repair this type of fistula without guarantee for success. Upper lip myomucosal flap is an alternative technique for the repair of this type of fistula. This is a retrospective descriptive case series study which included 10 patients diagnosed with anterior oronasal fistula after cleft palatal repair. They presented to Pediatric Surgery Department at the Faculty of Medicine, Mansoura University Children Hospital from the period between November 2013 and August 2014. In this technique, we do harvesting of the flap with measurement of its length and width, then baring the edge of the fistula with trying of its closure with local flaps. After that we suture the flap to the edge of the fistula and then evaluate the success rate. This study included 10 patients with age ranging from 15 to 72 months. The size of the fistula was less than 1 cm in six patients and more than 1 cm in four

patients. The flap was used as an additional layer repair in seven patients and as the only layer for the repair in three patients. This technique was found to be successful in 70% of the patients with good healing without any recurrent fistula. We concluded that the use of this technique is feasible; however, its efficacy should be tested in larger number of patients to be considered as an option for the treatment of anterior oronasal fistula. *Ann Pediatr Surg* 14:171–173 © 2018 Annals of Pediatric Surgery.

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Introduction

Anterior oronasal fistula following palate repair is usually difficult to correct. This is due to deficient scarred palatal tissue of which mobilization usually fails. Different techniques were used to repair such defects with variable degrees of success. Local palatine flap, buccal myomucosal flap, and buccal fat pad flap are options for management [1]. The use of upper lip myomucosal flap is designed to offer an alternative simple technique for closure of anterior palatal defects. It can be applied as a primary single-layer repair or as an additional layer in repair. In this study, we evaluated the use of this technique and its complications.

Patients and methods

Our study is a retrospective descriptive case series study which included 10 patients diagnosed with anterior oronasal fistula after cleft palatal repair. They presented to the Pediatric Surgery Department at the Faculty of Medicine, Mansoura University Children Hospital in the period between November 2013 and August 2014. All of the patients were informed about the study and signed a written informed consent (IRB Code number: R/17.06.80).

All patients underwent the following.

History

Age, sex, type of primary cleft palate defect, and history of previous surgeries for the palate after primary repair.

Examination

Site of the fistula, size of the fistula if less or more than 1 cm, presence of palatal scar tissue.

Exclusion criteria

- (1) All patients with anterior palatal fistula combined with posterior palatal fistula or posterior disruption.
- (2) Patients with scared upper lip.

Intraoperative evaluation

- (1) Length of the flap.
- (2) Width of the flap.
- (3) Primary single-layer repair or additional layer in repair.

Postoperative follow-up

- (1) Viability of the flap at first day, third day, first week, second week postoperatively.
- (2) Success in complete closure of the fistula (first month and 3-month postoperatively).

Technique

After routine laboratory investigation, all patients were anesthetized with general anesthesia with endotracheal intubation. Dingman mouth retractor was used, marking the flap with methylene blue and then diluted adrenaline 1 : 200 000 is used for hemostasis, harvesting the flap with the measurement of its length and width, raring the edge of the fistula with trying of its closure with local flaps. The flap is then sutured to the edge of the fistula.

Postoperative management

All patients were instructed to drink clear fluids for 3 days postoperatively and then recommended soft diet

for 2 more weeks. Evaluation of the viability of the flap was done regularly and after 3 weeks the base of the flap was separated (Figs 1–4).

Results

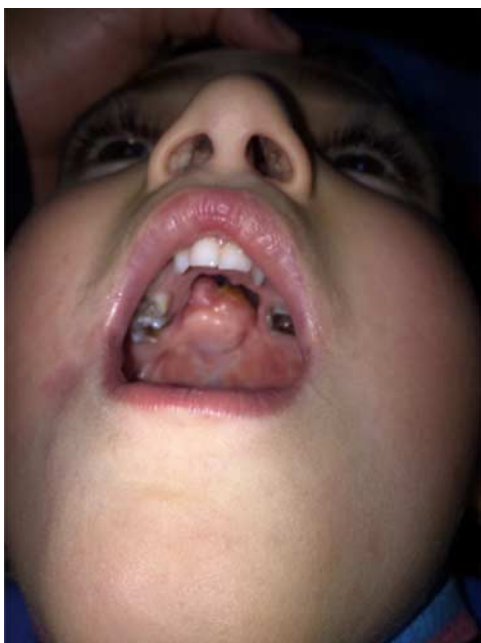
This study included 10 patients who underwent closure of anterior palatal fistula. Our study included seven men and three women with their ranging age from 15 till 72 months with a mean age 35.5 months. Five patients had tripartite cleft palate, three patients had bipartite cleft palate, and only two patients had complete intermaxillary cleft palate. Eight (80%) patients underwent multiple surgeries before their presentation to us and only two (20%) patients underwent one previous surgery. The size of the fistula was less than 1 cm in six (60%) patients and more than 1 cm in four (40%) patients. The palate in 10 (100%) patients was found to be scarred. Harvesting of the flap was done for 10 patients with its length being 3 cm in seven patients, 2.5 in two patients, and 4 cm in one patient and its width was 1.5 cm in eight patients, 2 cm in one patient, and 1 cm in another patient. Upper lip myomucosal flap was used as an additional layer repair in seven (70%) patients and as the only layer for the repair in three (30%) patients. Viability of the flap was evaluated in the first day, third day, first week, and second week postoperatively and was found that seven (70%) patients had viable flaps and only three (30%) patients had nonviable flaps. Success of the repair was evaluated on the first and third months postoperatively and was found successful in seven (70%) patients and had failed in three (30%) patients.

Discussion

Closure of the anterior palatal fistula is a challenging problem specially in recurrent cases [2]. Multiple techniques

were advocated to repair this type of fistula with variable degrees of success [1]. Upper lip myomucosal flap is used in this study to try to repair this type of fistula. In this study, we did surgery for 10 patients, seven male infants and three female infants with their ages ranging from 15 to 72 months with a mean age of 35.5 months. Relatively old age of the patients is related to multiple surgeries for repair of the primary cleft and trials for repair of its complications. In this study five (50%) patients had tripartite cleft palate, three (30%) patients had bipartite cleft palate, and only two (20%) patients had complete intermaxillary cleft palate, which indicate the increased incidence of the fistula with increase in difficulty of primary palatal defect. This is comparable

Fig. 1



Preoperative anterior oronasal fistula.

Fig. 2



Harvesting of the flap.

Fig. 3



Immediate postoperative photograph of the patient.

Fig. 4



Three weeks postoperative photograph of the patient.

with the work of Zhang *et al.* [3], who reported the same results. Previous multiple surgeries were found in eight (80%) patients and only two (20%) patients did one surgery before. This was matching with the finding that all patients (100%) had a palatal scar, even the two cases that had only one surgery also had an evident palatal scar. This was reported by Bonanthaya *et al.* [1], who found a relation between incidence of recurrent fistula with increased palatal scar. The size of the fistula was less than 1 cm in six (60%) patients and more than 1 cm in four (40%) patients. The size of the fistula causes difficulty in the repair and finally affects the result [4]. With harvesting of the flap, we tried to stick to the rule 2 : 1 in relation to the length and width of flap to maintain its vascularity [5]. We tried to use this flap as an additional layer in seven (70%) patients and was unable to do this in three (30%) patients and we used it as a single-layer closure. Viability of the flap was evaluated in the first day, third day, first week, and second week postoperatively and it was viable in seven (70%) patients and nonviable in three (30%) patients. The three failed patients were found to be the oldest in age and were having the largest defect with previous multiple surgeries. This is match with the work of Sitzman *et al.* [6], Ogata *et al.* [7] and

Galicia *et al.* [8], who reported that the incidence of success of the repair decreases with increase in trials of previous palatal repair. The success rate was found after first and third months to be 70%.

Conclusion

Upper lip myomucosal flap is an option for the management of anterior oronasal fistula. It gives the best results in cases with fistulas of less than 1 cm in width and if it used as an additional layer in repair. In cases with fistulas of more than 1 cm in width or cases with severe tissue scarring not allowing primary closure before use of this flap, the results are not satisfactory and needs more evaluation. So, we conclude that this technique is feasible; however, its efficacy should be tested in a larger number of patients to be considered as an option for the treatment of anterior oronasal fistula.

Conflicts of interest

There are no conflicts of interest.

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