

# A Composite Buccal Flap for Alar Based Defect Reconstruction: A Technical Note

F. Pourdanesh<sup>1</sup>, A. Khojasteh<sup>1</sup>✉

<sup>1</sup>Assistant Professor, Department of Oral and Maxillofacial Surgery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

## Abstract

It is difficult to reconstruct an alar defect with cartilage involvement. Here in the authors report a case of traumatic alar loss during childhood in which an alar reconstruction was carried out with a composite auricular graft put over the pedicle buccal flap which was rotated and passed through the intraoral side. The lining skin and auricular cartilage for the flap was obtained from the auricular region which was acceptable for the patient. All procedures were performed under general anesthesia. One year follow up revealed satisfactory results with minimal contracture of the graft.

✉ Corresponding author:  
A. Khojasteh, Department of  
Oral and Maxillofacial Surgery,  
Shahid Beheshti University of  
Medical Sciences, Tehran, Iran  
arashkhojasteh@yahoo.com

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## INTRODUCTION

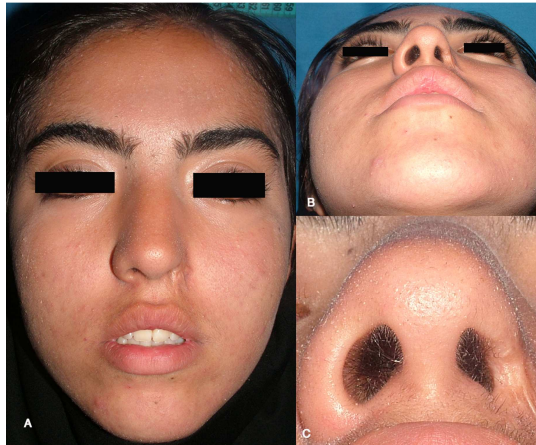
Reconstructing a defective lower third of the nose is one of the major challenges a maxillofacial surgeon encounters due to the specifications of this area such as complex alar contour, color and texture. Difficulties in avoiding wound contraction, the need for restoring the mucosal lining, as well as maintaining the air passage further complicates this surgery [1-3]. The surgeon must also deal with the potential side effects and complications following this repair including flaring and raising of the alar rim and unilateral shape and/or size alteration of the nose. [2,4]. Traumatic defect of the alar which involves the cartilage heals with contraction and can cause a depression scar. Composite graft from the auricle is one of the major sources that has been used for the reconstruction [5-7]. Providing a well contoured skin and cartilage graft, the auricle is consi-

dered as a favorable source of composite graft for nasal repairing procedures [8]. The helical crus on one hand appears as a favorable contour match for small alar rim defects and on the other brings about the possibility of integrating a piece of preauricular skin in the graft [8,9]. Intranasal skin grafts have the tendency of contracting and distorting the repair. Buccal mucosal flap has been suggested to be a simple as well as effective option for reconstructing nasal mucosa [10].

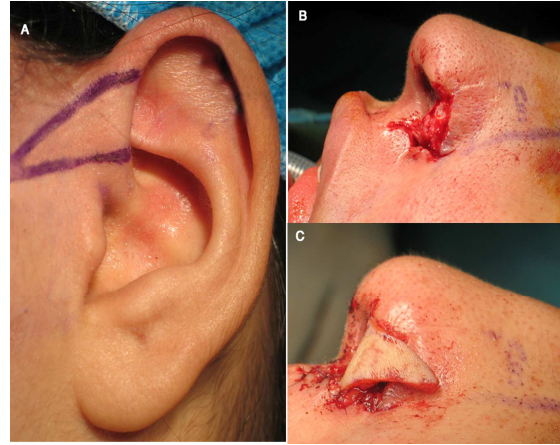
Here in the authors presented a nasal alar repair with auricular composite graft where the lining was reconstructed using an intraoral buccal flap.

## SURGICAL PROCEDURES

A nineteen-year-old girl was referred to the department of oral and maxillofacial surgery for the cosmetic reconstruction of asymmetric



**Fig 1.** A-C. Preoperative view of the patient. Narrowing of the left nasal nares was the chief complaint of the patient.



**Fig 2.** A. The donor site for the composite graft. Anterior helical crus was used due to its similar curvature to the left nares. B. Excision of the scar and a releasing incision in the base of the left alar. C. Adapting the harvested composite graft to the recipient area.



**Fig 3.** A. Harvesting of the 3-4 mm intraoral buccal mucosal flap. B. Passing the mucosal flap through the tunnel which was created by blunt dissection. C. Folding the flap over itself to provide bulk and support for the alar. D. Passive suturing of the flap over the buccal flap.

left nasal alar. The patient had a history of falling down when she was 5 years old and primary surgical closure was performed at that time. The asymmetry has increased as the patient grew up. No important functional impairment was reported by the patient. The defect was analyzed for cartilage loss, skin texture and also color mismatch. The size of the nares was smaller than the other side and the deficiency was also evident from both frontal and profile



**Fig 4.** A. Immediate postoperative view. B. One week post operative evaluation demonstrates ecchymosis and mild congestion of the graft. C. Two weeks post operative view shows resolved discoloration. D. Two month post-operative view demonstrates uneventful healing with the symmetric bilateral alar.

views. Loss of the widening during facial expression, and lack of compression during deep inspiration could be an indicator of the loss of muscular function. Palpation of the alar base revealed lack of the lower lateral and accessory cartilage. A variety of reconstruction methods and also the increasing risk of the failure with the non flap technique were discussed with the patient. The patient and her family did not like to have another skin incision and re



**Fig 5.** One year post operative view shows minimal contracture of the alar with normal alar curvature.

fused the nasolabial or Washio flap reconstruction. The width of the right side nares was measured and the amount of the contraction on the left side was detected (Fig 1. A-C). Contracted atrophic skin with subcutaneous adnexa in the scar area was excised and a sharp incision in the alar crease separated the alar from the base (Fig 2.A-C). An intra oral mucosal flap was designed to serve as lining and support for the free auricular composite graft. The flap was designed on the labial mucosa of the left side of the upper buccal sulcus based medially near the frenulum and extended laterally to the left first molar. The mucosal flap 2 cm in width was raised including 3-4 mm of the submucosal tissue. A tunnel was made by a blunt scissor dissection through the alar base to allow the flap to pass freely into the nose by the most direct route. The width of the mucosal flap was wider than the alar defect. The oral mucosal defect was closed directly except for 1cm adjacent to the base of the flap to minimize the risk of flap congestion. The flap was sutured to the periphery of the alar base and somewhat folded to provide bulk similar to the other side (Fig 3.A-C). A 1×1.5 cm composite graft was harvested from the helical crus of the left ear and fitted to the excised area of the nasal ala. The composite auricular flap

waformed to be passive on the flap and sutured to the periphery of the excised alar with minimal tension (Fig 4 A).

A nasal pack was placed to ensure adherence of the lining flap and removed after 3 days. Mild ecchymosis and congestion could be seen after one week (Fig 4B), but the healing process was uneventful after 2 weeks and the discoloration disappeared (Fig 4C). The patient was followed weekly for 3 months (Fig 4D). One year follow up revealed an appropriate alar symmetry and good cosmetic result with minimal donor site morbidity (Fig 5).

## DISCUSSION

The nasal tip and alar lobules are composite structures forming the lower third of the nose. The alar rim is the unsupported margin, a vulnerable structure that is easily deformed after scar formation. In all these areas, different from the nasal dorsum and sidewalls, the skin demonstrates a sebaceous nature [3]. As a result, a conventional non-sebaceous thin skin graft to the tip of the nose would cause an unpleasant looking depression [4]. Among various options for repairing small nasal defects are composite grafts, first introduced by Koning. These structures are bilayer or multilayer constructs which demonstrate high metabolic demands associated with their fairly low success rate. Koning reported 53% graft survival using a composite auricular graft for repairing defective ala [7].

Plasma imbibitions supply composite grafts with nourishment during the first 24 hours following transplantation, after which vascular inosculation takes place [6]. The alar defect should not be more than 1 cm when reconstructed with composite auricular defect [10]. Buccal mucosa has been discussed in the literature for both intraoral and nasal reconstruction. In 1960, Muir used the buccal flap for closure of the alveolar cleft [11] and in 1963, Millard used the buccal mucosa for repair of the columella defect [12]. In 1990, Soutar et al reported the use of buccal flap for nasal lining

in 15 cases [10]. In all cases, they described the use of the buccal flap concomitant with the nasolabial or Washio composite flap. Absences of visible extraoral scar made buccal mucosal flap a favorable choice fro the minor nasal cosmetic procedure in young patients. Shallow vestibule and previous radiotherapy may be considered as a contraindication for the usage of this flap.

The use of buccal mucosal flap could decrease the amount of the auricular composite flap contracture which was reported as the main long term complication before and could provide an acceptable bulk for the alar support.

### CONCLUSION

Rich vascular supply of the donor's intra oral mucosal tissue may act as an appropriate donor site for oral and maxillofacial reconstruction.

### REFERENCES

- 1- Kakinuma H, Iwasawa U, Honjoh M, Koura T. A composite nasolabial flap for an entire ala reconstruction. *Dermatol Surg* 2002 Mar;28(3):237-40.
- 2- Alam M, Goldberg LH. Oblique advancement flap for defects of the lateral nasal supratip. *Arch Dermatol* 2003 Aug;139(8):1039-42.
- 3- Smith H, Elliott T, Vinciullo C. Repair of

nasal tip and alar defect using cheek-based 2 stage flaps: an alternative to the median forehead flap. *Arch Dermatol* 2003 Aug;139(8):1033-6.

- 4- Burget GC, Murrel GL, Toriumi DM. Aesthetic reconstruction of the confluence of the nose, lip and cheek. *Oper Tech Plast Reconstr Surg* 1998 Feb;5(1):76-88.

- 5- Gurunluoglu R, Shafighi M, Gardetto A, Piza-Katzer H. Composite skin grafts for basal cell carcinoma defects of the nose. *Aesthetic Plast Surg* 2003 Jul-Aug;27(4):286-92.

- 6- Konior RJ. Free composite grafts. *Otolaryngol Clin North Am* 1994 Feb;27(1):81-90.

- 7- Jewett BS. Repair of small nasal defects. *Facial Plast Surg Clin North Am* 2005 May;13(2):283-99.

- 8- Jewett BS. Repair of small nasal defects. *Otolaryngol Clin North Am* 2007 Apr;40(2):337-60.

- 9- Skouge JW. Skin grafting. New York: Churchill Livingstone; 1991.

- 10- Soutar DS, Elliot D, Rao GS. Buccal mucosal flaps in nasal reconstruction. *Br J Plast Surg* 1990 Sep;43(5):612-6.

- 11- Muir IF. Repair of the cleft alveolus. *Br J Plast Surg* 1996 Jan;19(1):30-6.

- 12- Millard DR. The triad of the Collumella deformities. *Plast Reconstr Surg* 1963 Apr;31:370-84.