**Pedicled Rim Transposition Flap For Alar Vestibuloplasty**

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**Abstract**

**Objective:** Recognize vestibular stenosis can cause cosmetic and functional problems that are difficult to surgically treat. Review the current methods available to correct vestibular stenosis and learn a simple and effective technique.

**Study Design:** Case report and literature review.

**Methods:** A 51 year old male presented with progressive nasal obstruction secondary to vestibular stenosis. The patient had undergone a paramedian forehead flap with rib and auricular cartilage grafting for reconstruction twenty years prior following cancer resection. Since that time, he had five subsequent reconstructive surgeries including dorsum prosthesis and removal, V to Y advancements of the columella and bilateral ala, and a nasolabial flap to the columella. On physical exam, the flap encompassed approximately 75% of the nose with vestibular stenosis bilaterally. The ala were thick and scarred, leaving a slit-like vestibular opening with soft tissue collapse on inspiration.

**Results:** The patient was taken for bilateral vestibuloplasty. This was performed by raising two inferiorly based inverted V-shaped flaps on the lateral alar base and rotating them 90 degrees into the nasal floor. This simultaneously thinned the lateral ala while creating a larger vestibular opening and widening of the external valve. A nasal retainer was placed at the end of the case. Follow-up at one month revealed stable surgical results with significant symptomatic improvement.

**Conclusions:** Nasal vestibular stenosis can be a complex and challenging problem for the otolaryngologist. This local flap technique is simple and may be performed under local or general anesthesia. It is effective for treating vestibular stenosis with improved functional and cosmetic outcomes in this case.

**Case Report**

- A 51 year old male presented with progressive nasal obstruction secondary to vestibular stenosis.
- Past surgical history was significant for a paramedian forehead flap with rib and auricular cartilage grafting for reconstruction twenty years prior following cancer resection. Since that time, he had five subsequent reconstructive surgeries including dorsum prosthesis and removal, V to Y advancements of the columella and bilateral ala, and a nasolabial flap to the columella. On physical exam, the flap encompassed approximately 75% of the nose with vestibular stenosis bilaterally. The ala were thick and scarred, leaving a slit-like vestibular opening with soft tissue collapse on inspiration (Figure 1a).
- The patient was taken for bilateral vestibuloplasty. This was performed by raising bilateral full thickness, inferiorty based, inverted V-shaped flaps on the lateral alar base (Figure 1b). These were then rotated 90 degrees into an incision in the nasal floor and sutured in place (Figure 1c). The donor sites were closed in a simple interrupted fashion and alar bolsters were placed to support the vestibuloplasty (Figure 1d). This simultaneously thinned the lateral ala while creating a larger vestibular opening and widening of the external valve.

**Discussion**

Vestibular stenosis is an uncommonly encountered challenging deformity with both functional and cosmetic consequences. Stenosis may be congenital or acquired. Congenital etiologies typically consist of atresia and cleft lip nasal deformity.

Acquired cases can occur secondary to trauma which may be a consequence from burns, complex lacerations, chemical agents, prolonged nasal packing, or nasal intubation. Acquired infectious etiologies may be due to chickenpox, smallpox, leprosy, tuberculosis, syphilis, or rhinoscleroma. Other causes include rhinophyma, systemic lupus erythematosus, tumors/oncologic resection, and prior nasal surgery.

Surgical techniques utilized to correct this deformity and improve the nasal airway include scar excision and replacement with local flaps, full or partial thickness skin grafts, composite or cartilage grafts, and W-plasty or Z-plasty, with or without stents.

Local flaps may include nasolabial flaps, buccal mucosa, vestibular labial mucosa, Polaillon’s flaps, Jalquier’s double quadrilateral flap, turn-in flaps among many others. Alar transposition flaps such as in this case have also been described with variations on surgical technique, harvest, and inset location.

The most common complication from these procedures is restenosis both from scar contracture and negative pressure generated by inspiratory forces on the nostril. Secondary to this, postoperative stenting methods may be utilized to prevent restenosis. These can be uncomfortable, unsightly, and require frequent cleaning leading to compliance issues.

It is also very difficult to obtain a natural contour in the reconstructed nostril. Multiple operations may be necessary to both fully correct the functional deficit and cosmetic deformity of the patient.

**Conclusion**

- Vestibular stenosis is a complex and challenging problem for the otolaryngologist.
- There are many available methods to correct vestibular stenosis which may be utilized alone, in combination, or sequentially.
- A pedicled rim transposition flap is a simple, effective surgery that may be included in the armamentarium for vestibular stenosis repair.

**References**