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Voldemort Deformity: Nasolabial Transposition Technique for Severe Nasal Inlet Stenosis

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nasal stenosis; rhinoplasty; cocaine

CASE

A 49 year-old healthy white male presented to our clinic with the chief complaint of nasal congestion on inhalation and dissatisfaction with the appearance of his nose. He stated that he had “Voldemort Deformity” due to his slit like nostril appearance, mimicking the villain, Lord Voldemort, in the Harry Potter series. History revealed prior cocaine abuse in the distant past. Physical exam demonstrated the ala were collapsed entirely and difficult to open with a cotton tip applicator and nasal speculum due to both mucosal stenosis and alar skin contracture bilaterally. There was a subtotal nasal septal perforation. No masses were identified in the nasal cavity. (Fig 1.) Massachusetts Eye and Ear Infirmary Human Studies Committee deemed report exempt.

Given profound degree of stenosis, with deficiencies of skin, cartilage and mucosa, regional flap transposition with cartilage grafting was selected as the reconstructive strategy. Because of the need for tissue at the lateral alar regions and not the central tip, nasolabial flaps were selected over a forehead flap as the primary reconstructive approach. In the first stage of repair, the right-sided alar stenosis was addressed. An area for incision was marked along the border of the right ala to separate it from the scar tissue, and the incision was extended intranasally 2.0 cm. (Fig 2. Online only.) A musculocutaneous nasolabial flap, measuring 4.0 cm in length and 1.5 cm in width at its widest point was elevated in the nasolabial crease, rotated and partially deepithelialized. The majority of the flap was used to replace intranasal mucosa and then the existing ala was raised and sutured to the flap, which was positioned between it and the facial skin. (Fig. 2)

After a period of four weeks, the right-sided repair was examined. The nasolabial transposition flap widened the nasal aperture significantly resulting in improved nasal

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breathing and appearance. Given positive results of the first stage, the left ala was similarly reconstructed using a nasolabial flap. Due to the lack of cartilage in the alar region and continued collapse on inspiration, a decision was made to proceed with the third stage repair. An open rhinoplasty approach was used to separate the dorsal skin and reconstructed intranasal lining where only remnants of the lateral lower lateral cartilages were identifiable. Bilateral auricular cartilage grafts were harvested and used to replace these cartilages from the dome to the pyriform apertures. A columellar graft was also placed between the medial crura for tip support. Postoperatively, the patient has an excellent nasal airway bilaterally and his appearance is significantly improved after one-year follow-up period. (Fig 1)

Discussion

Initially used for its local anesthetic and vasoconstrictive properties at the turn of the 19th century, cocaine has become a major form of recreational drug abuse in the United States. Prolonged intranasal use of cocaine may result in nasal deformity that ranges from limited perforations of the septum to widespread destruction of nasal and maxillary bones.¹⁻³ Isolated reports in the literature discuss specific approaches to reconstruction of cocaine-induced nasal deformity, including septal perforation, saddle nose deformity, oronasal fistulas, and midface deformity.^{1,4,5}

Few studies, however, provide description of operative approaches to reconstruction of cocaine-induced nasal stenosis, particularly when severe stenosis involves all three layers of the nasal cavity -- mucosa, cartilage support, and skin. Initial approaches to cocaine-induced nasal deformity, including nasal stenosis, drew from operative techniques necessary for nasal reconstruction after soft tissue damage from syphilis or leprosy.⁴ More recently microvascular techniques have been described for large defects, however, this approach may result in poor functional and cosmetic outcomes.¹

There are reports in the literature of a tunneled nasolabial flap for cocaine-induced nasal stenosis.⁴ The tunneled nasolabial flap is employed primarily for nasal deformity due to contracture of nasal lining. Reconstruction starts by lateral vestibular incisions and the release stenotic nasal skin and mucosa. Following release of mucosa, a deepithelialized tissue of a nasolabial flap is tunneled through the lateral vestibular incisions and used to form the nasal lining.⁴ In our modified non-tunneled nasolabial flap approach, we excised the stenotic scar tissue and fully detached the ala from the facial skin. The ala was then reapproximated to the partially deepithelialized nasolabial flap, resulting in both establishment of internal nasal lining and increasing the aperture of the external nasal valve. The release and of the re-approximation of the ala may improve longterm functional outcomes.

In conclusion, we describe a patient who had extremely stenotic or “Voldemort” nostrils involving three layers: skin, cartilage and mucosa. We illustrate a three-stage bilateral nasolabial transposition technique with auricular cartilage grafting to bilateral ala and columella for repair of severe cocaine-induced nasal stenosis. The patient has maintained an excellent functional and aesthetic result over a one-year period.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

Acknowledgments

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References

1. Guyuron B, Afrooz PN. Correction of cocaine-related nasal defects. Plastic and reconstructive surgery. 2008; 121:1015–1023. [PubMed: 18317151]
2. Goodger NM, Wang J, Pogrel MA. Palatal and nasal necrosis resulting from cocaine misuse. British dental journal. 2005; 198:333–334. [PubMed: 15789087]
3. Smith JC, Kacker A, Anand V. Midline nasal and hard palate destruction in cocaine abusers cocaine's role in rhinologic practice. Ear, Nose & Throat. 2002; 81:172–177.
4. Millard DR, Mejia FA. Reconstruction of the Nose Damaged by Cocaine. Plast Reconstr Surg. 2000;419–424. [PubMed: 10627011]
5. Wehrens KM, Hawinkels H, Fresow RN, et al. Reconstruction of the nose after cocaine abuse. Journal of plastic, reconstructive & aesthetic surgery. 2009; 62:532–534.

Figure 1. Pre- and Post-operative Photographs

Top row: Pre-operative photographs. Alae are entirely collapsed due to both mucosal stenosis and alar skin contracture. Bottom row: Four months following procedure, patient has significant improved aesthetic appearance with significantly decreased nasal congestion.

Figure 2. Operative Schematic

A. Operative markings showing outline of nasolabial flap. **B and C:** A musculocutaneous nasolabial flap is raised with its widest point in the nasolabial crease and partially deepithelialized. The majority of the flap replaces intranasal mucosa.