ABSTRACT

OBJECTIVES:
1. Review the challenges and limitations of columellar reconstruction.  
2. Present a case of delayed reconstruction of the columellar subunit in a child with Fitzpatrick VI skin type using a hidden donor site.

METHODS:
Case report and literature review

RESULTS:
A staged reconstruction was conceived, in which a full thickness skin graft from the postauricular sulcus was transferred to the superior gingivolabial sulcus in the area of the upper labial frenulum. Six months later, the recipient bed was prepared, with elevation of bilateral mucoperichondrial flaps and concurrent harvest of septal cartilage for medial crural footplate reconstruction. The margins of the skin graft were incised, preserving the random blood supply to the superior attachment. The prelaminated soft tissue flap was then delivered through a horizontal incision at the subnasale and the secondary donor site was closed primarily.

CONCLUSION:
We report satisfactory results following a novel approach to composite soft tissue reconstruction of the columellar subunit in a 9 year old child.

INTRODUCTION

We present the case of an African American boy with a remote history of soft tissue pressure necrosis after nasal continuous positive airway pressure (CPAP) use in the neonatal intensive care unit (NICU). Upon presentation to our clinic at 9 years of age, he was noted to have loss of the entire columellar subunit. Considering his age and skin type an alternative technique for columellar reconstruction was entertained.

CASE REPORT

A 9-year-old child with a remote history of prematurity requiring several weeks of CPAP support in the NICU presented for evaluation of an acquired nasal deformity. An ulceration in the columellar area noted during early infancy had progressed to scar contracture and tissue loss of the columella. There was no loss of tip support and he had no nasal obstruction or functional limitations (FIGURE 1). Several methods for reconstruction were discussed with the patient’s family, however given the patient’s young age and skin type (Fitzpatrick VI) all parties were in favor of a reconstructive technique that would limit creation of any conspicuous scars. Therefore, a staged reconstruction was conceived, in which a full thickness skin graft from the postauricular sulcus was transferred to the superior gingivolabial sulcus in the area of the upper labial frenulum (FIGURE 2). Six months later, the recipient bed was prepared, with elevation of bilateral mucoperichondrial flaps and concurrent harvest of septal cartilage for medial crural footplate reconstruction (FIGURE 3). The margins of the skin graft were incised, preserving the random blood supply to the superior attachment. The prelaminated soft tissue flap, which was bleeding at the margins, was then delivered through a horizontal incision at the subnasale; the secondary donor site was closed primarily. At 12 month follow up there is improved contour and bulk to the area, an acceptable color match, and no facial scarring associated with the reconstruction (FIGURE 4).

DISCUSSION

Columellar reconstruction after trauma or ablative procedures remains challenging. Several techniques have been described, including the use of adjacent tissue transfer, tunneled flaps, and free composite grafts. Depending on skin type, donor site scarring from such techniques may be as conspicuous as the defect itself. In children, labial and nasofacial incisions in particular are difficult to conceal.

To this end, reconstructive techniques that offer the fewest visible scars are favored in children and young adults; especially in those patients with darker skin pigmentation. The procedure presented herein is similar in concept to a method recently described in 2016 by Agrawal et al., in which the columellar subunit was reconstructed using a pedicled labial mucosal flap. The primary goal of their procedure was to provide adequate bulk to the columella, and given the skin type of the patient in that report, the avoidance of secondary scarring was also of great importance. The method described herein differs from the Agrawal technique in that in our case, a prelaminated flap was created using postauricular skin prior to transfer of any tissue to the columellar area. Additionally, cartilage framework was introduced during a second stage to provide additional bulk, support, and form to the newly created subunit.

In critically evaluating our result at the one year interval, the appearance of the neocolumella may benefit from additional soft tissue augmentation, which is planned for the near future.

CONCLUSIONS

We report satisfactory results following a novel approach to composite soft tissue reconstruction of the columellar subunit in a 9 year old child.

REFERENCES


