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Reconstruction of columella, membranous septum, and upper lip in a single stage operation

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SUMMARY. Reconstruction options for columellar defects together with membranous septum, nasal base, and upper lip are restricted. We present a case successfully treated with bilateral cheek advancement flaps with upper medial, perialar skin flaps to reconstruct the upper lip, columella, nasal base and membranous septum in a single session. This method provides adequate tissue with minimal cosmetic deformity in a single stage for repairing such compound defects. © 2003 The British Association of Plastic Surgeons. Published by Elsevier Science Ltd. All rights reserved.

Keywords: columella defects, cheek advancement flap, upper lip reconstruction.

Reconstruction of the columella is still a problem for reconstructive surgeons. We present the single-stage reconstruction of a defect of columella and membranous septum with upper lip after tumor excision, using bilateral cheek and perialar advancement flaps.

Case report

A 70-year-old man presented with a mass in the columella and membranous septum, which proved to be squamous cell carcinoma on biopsy. Resection was done under general anesthesia until all borders were free of tumor according to intraoperative histopathologic examination. Defects created included upper two thirds of upper lip, vermillion, philtrum, nasal base, columella, and membranous septum.

Lateral cheek flaps with upper medial, rectangular, perialar skin were planned as shown in Figure 1(A). The flap width is tailored to the amount of tissue required for reconstruction. The rectangular prolongation was 1 cm wide and 1.5 cm in lengths. Cheek flaps were both elevated over the facial musculature from medial to lateral direction and undermined as far as laterally on either side to facilitate advancement. With the incision along side the alar groove

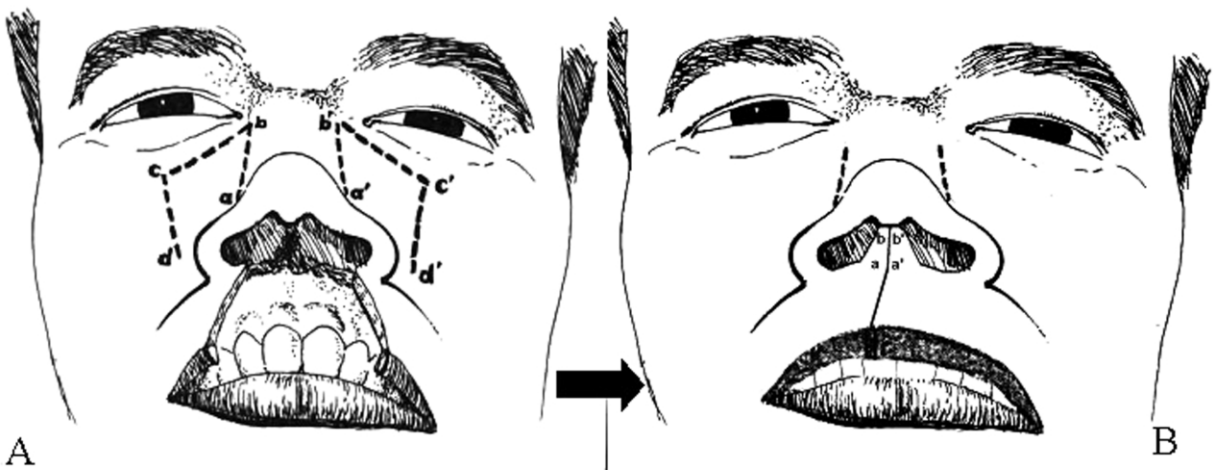

Figure 1—(A) Design of the bilateral cheek advancement flaps with perialar-rectangular prolongations. (B) After setting the flaps in place. Medial sides of the perialar-rectangular prolongations (a–b and a′–b′) form the columella and lateral sides (c–d and c′–d′) forms the membranous septum.

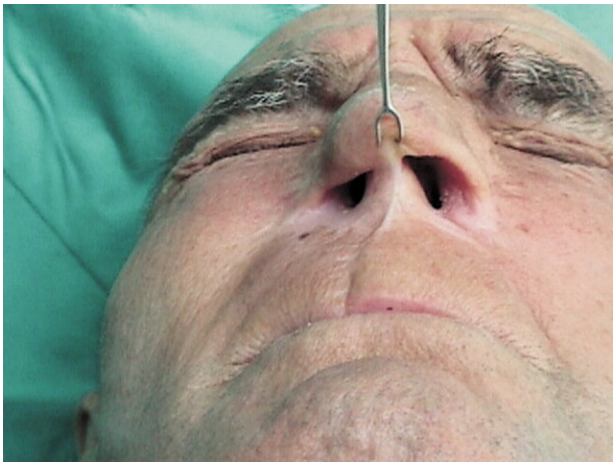

Figure 2—Final results one year after reconstruction. Worm's eye view.

both alar lobules were released from the nasal base to accommodate the passage of both flaps to the midline columella and nasal septum. After advancement of both flaps, medial ends of upper lips and vermilion were first sutured in three layers. With suturing the deep layers of the rectangular prolongations together, the medial sides of the rectangular prolongation flaps (a–b and a′–b′) formed the columella and the lateral sides formed the membranous septum (c–d and c′–d′) (Fig. 1(B)). The alar base was carefully set to the correct position. Donor sites were closed primary with minimal disfigurement.

Both flaps survived completely. The postoperative cosmetic result was good and satisfactory functional results were achieved (Fig. 2).

Discussion

Columella and upper lip defects may result from tumor excision, infections, and trauma. Reconstructive options for upper lip and columella with adequate tissue are limited.[1] A variety of techniques for reconstruction of the nasal columella has been described. Composite grafts from the ear have been used, but they have their best application in partial reconstruction of the columella.[2] Superiorly based nasolabial flaps,[3] medially based horizontal nasolabial flaps,[4] medially based transverse forked flaps,[5] and labial mucosal flaps[6] are beneficial in the reconstruction of isolated columellar defects. When columellar defect is part of a larger nasal defect the most widely used flap is the midline forehead flap,[7] but this procedure usually needs a second stage for division of the pedicle and results in an oblique or midline scar on the forehead. Total reconstruction of the upper lip and columella with bipedicled depressor anguli oris island musculocutaneous flaps is a good alternative but lacks tissue for reconstruction of the membranous septum.[8] We have also used Webster's perialar advancement flaps[9,10] bilaterally to reconstruct the upper lip, but advanced large perialar skin within the cheek flaps to reconstruct columella and membranous septum at the same time. Bilateral cheek advancement flaps provided upper lip competence with a good vermilion and with hairy skin in one stage. Color and texture match of the columella was satisfactory. In our case, the reconstructed columella is rather short and depressed. Autogenous septal or auricular cartilage grafts and even bone grafts could have been inserted in between the flaps to improve the nasal tip support. Although we wished to do further revision the patient was already very happy with his appearance.

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