

Composite Helix Chondrocutaneous Grafts for Reconstruction of the Soft Triangle

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SUMMARY: Nasal tip reconstruction is a complex undertaking. However, the restoration of soft triangle to mimic the opposite side is extremely difficult. Small nasal defects especially resulting from human bite do not warrant staged forehead flaps. Local flaps are usually not sufficient. We present our experience of six cases in which we used composite grafts consisting of small pieces of cartilage wrapped in its cutaneous envelope for reconstruction of the tip of nose. Four of the grafts successfully took while one was totally lost. One patient required some secondary augmentation. The resulting donor defect was primarily closed with an acceptable scar.

Key Words: chondrocutaneous grafts, nose reconstruction, helical grafts, soft triangle

Technique and patients

Patients were selected on the basis of the size and shape of the defect of the tip of the nose. All defects with transverse measurements less than 15 mm and maximum length less than 20 mm were chosen for the study. All smokers were excluded from selection for this procedure.

The procedure was carried out under local anaesthesia in adults using a regional block rather than local infiltration to avoid distortion of the defect site.

The defect was debrided to healthy tissue even if it required trimming of the alar cartilages. The aim was to create a well vascularised tissue bed for the graft.

A tracing of the contralateral side of the nose was made on a sterile foil from a suture pack. The template for the graft required was made by turning it over to create a mirror image of the defect.

A slightly oversized composite graft was harvested atraumatically from the root of the

helix of the ear. The under surface of the graft was delicately stitched to the nasal lining with continuous 6/0 chromic catgut. However, the skin stitches were placed half buried in the graft and tying them on the donor skin side to provide maximum contact without any compromise tension on the graft (buried horizontal mattress). The graft was further stabilised with steristrips.

The procedure was carried out as a day case. Postoperatively the patients were asked to remain indoors. Air conditioning or drought from fans was prohibited and they were encouraged to drink plenty of hot liquids so as to avoid cooling the graft as we believe that a warm environment increases circulation of the donor area and helps the graft vascularise early. This course was continued for five days. Sutures were removed on the fifth postoperative day.

Results

This study was carried out over a period of about three years from January 2001 to October 2003. A total of six patients were treated. Five of them were adult males. The only female patient happened to be a child of 12 years. All the male patients had injury caused by human bites. None of them could produce the missing part at the time of presentation to plastic surgery services. The

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only child had attributed the defect to some kind of infection in early childhood. Three of the five male adults had surgery done elsewhere once or more times with unsatisfactory results. Two had come in the acute phase. The defects were recreated in patients who had healed wounds or previously repaired defects. In all cases, ipsilateral root of helix was used as a donor site. In five patients the donor site was primarily closed along the length of the defect. This resulted in reduction of the root of helical rim but this was perfectly acceptable to the patients. One early patient had his donor defect repaired transversely which this resulted in slight cupping of the auricle though later the scar stretched.

The graft in the child was completely lost. She remained in the hospital for five days but these were summer days and the hospital central air-conditioning was producing chilling temperature. We have no proof that room temperature had any adverse effect on the take of the graft.

One patient had some loss of the graft. He wanted a repeat surgery. He is waiting to be operated sometime next year. Four patients were very happy with the results. One patient had hyperpigmentation of the graft but the shape was perfectly symmetrical and gave good appearance. Two of these three patients are presented with pre and post operative photographs (Figures 1 – 6).



Fig. 1, Patient I, frontal view



Fig. 2, Patient I, lateral view before repair



Fig. 3, Patient I, frontal view 3m postop



Fig. 4, Patient I, worms eye view 3m postop



Fig. 5, Patient II, defect before surgery



Fig. 6, Patient II, 5 days after surgery

Discussion

Reconstruction of defects of the tip of the nose is always challenging¹. However, to recreate the soft triangle and the alar rim is extremely difficult. Although the former consists of only two layers of skin and a very thin layer of areolar tissue², reconstruction with cartilaginous helical rim of the external ear gives a satisfactory result. The normal shape of the alar-columellar junction is a rounded smooth curve, which is visible from not only the frontal view but also from the lateral aspect³. The root of helical rim of external auricle presents perfect shape for the reconstruction of soft triangle of the tip of the nose, including some of the alar margin. The colour match is also satisfactory⁴. We feel that careful handling of the graft during harvest and suturing adds to safety of the take. Various methods have been described to stabilise the graft including tie over dressing and splints from dental material⁵. We, on the contrary, used simple steristrips to stabilise on top of careful atraumatic suturing. Although

some authors described cooling of the graft with ice packs⁶, we differ in this respect that it also hampers revascularisation. This has not adversely affected outcome in our series as we continued with keeping the patient indoor and warm. This series is too small to arrive at any conclusion about the effects of the environmental temperature. However, we continue to practice keeping our patients hypervascularised by high fluid intake and confinement to indoors.

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