CONCHAL CARTILAGE GRAFTS IN RHINOPLASTY

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SUMMARY: Conchal cartilage grafts were used in 38 patients during rhinoplasty. They were used for dorsum augmentation, contour correction and correction of tip deformities. Due to ease in harvesting, lack of donor deformities and the absence of warping and absorption we found the conchal cartilage an ideal donor material. It was used for the correction of cleft lip nose deformity, correction of depressed bridge, and tip problems. Technique of harvesting is simple and there was no donor site problem.

INTRODUCTION
In recent years conchal cartilage grafts have emerged as a widely accepted and indispensable method for nasal contour restoration. Chondrocytes by virtue of their low metabolic rate and the ability to be nourished by diffusion, survive better, maintain form, shape and are relatively immune to absorption. This paper highlights the technique, advantages and results of conchal cartilage grafts in rhinoplasty.

MATERIALS AND METHODS
38 patients with varying deformities of the nose were subjected to rhinoplasty using conchal cartilage grafts. The indications for rhinoplasty were cleft lip nose deformity (8 cases), depressed bridge (12 cases), tip problems (7 cases) and contour deformities (5 cases). Of these, six patients were for revision surgery. In three patients silastic implants had been removed and in one case a calvarial bone graft had displaced. Approaches and incisions were planned depending on the requirements of the case and on the nature of the previous surgery carried out. The rim or marginal incision, the intercartilage, the intercartilage incision and the midcolumnellar incision were used individually or in combination for exposure, cartilage work and insertion of the graft.

TECHNIQUE
The line of the antihelix is tattooed on the lateral aspect of the ear so as to avoid inadvertent damage to it. The skin is incised on the medial aspect of the ear along the line marked out. The skin on the medial side is separated from the conchal cartilage but the perichondrium is left attached to it. The cartilage is then incised just anterior to the antihelix and the skin with the perichondrium is separated on the lateral surface right up to the skull. Utmost care is taken to see that the antihelix is not violated lest an ear deformity should result. When a substantial amount of cartilage is required the other ear may also be used. The conchal cartilage is then removed either as a whole or in two pieces depending on the requirement. The medial wound is then closed with chromic catgut. The ear is gently packed with acriflavin wool and mild pressure dressing with crepe bandage is applied in the post-operative period to prevent haematoma.

The cartilage graft is then prepared for insertion. It can be used as such or cut into long strips and stacked to augment the dorsum or made into bits and used to correct small contour defects. Since building the dome and rim are difficult the natural contour of the conchal cartilage can be used to advantage or modified to obtain the desired result. This tailored graft is then inserted under the skin of the nose through any of the incisions used. In order to avoid displacement, bolster sutures are taken and gently tied over foam or vaseline gauze pieces. They are usually removed on the 5th post operative day and cause no scarring. Nasal packing provides internal splinting while external taping with micropore helps to further support the graft and keep it in place. A plaster cast is generally applied even if no bony work has been done to protect the nose from accidental trauma and to decrease post-operative oedema.

ILLUSTRATIVE CASES
Case 1. This patient was an 18 year old boy with a cleft nose deformity (Fig. 1). Exposure was carried out using a rim incision joined at the base
of the columella. Following tip cartilage work and bony osteotomies, conchal cartilage grafts were placed to recreate the dome and get adequate tip projection (Fig. 2).

(Fig. 1) Case 1 (a-c) Pre-operative views of the cleft lip nose deformity  (d-f) Post operative result.
CASE 2. A 34 year old patient who was injured in a road traffic accident, developed gross dorsal depression and contour abnormality (Fig. 3). Following tip cartilage work and bony osteotomies, strips of conchal cartilage grafts were placed over the dorsum and lateral wall and diced bits were placed at the tip (Fig. 4).

CASE 3. This patient was a 28 year old lady with a pinched nose deformity, but without airway obstruction (Fig. 5). After the dorsal contour abnormality was smoothened out, conchal cartilage grafts were placed as shown (Fig 6) to correct the domes and raise the bridge.

DISCUSSION

Over the past few years numerous authors have reported their positive experiences with conchal cartilage grafts. Heinz 4 reported the use of
autologous ear cartilage in eyelid surgery. Elsewhere it has been used for reconstruction of the small joints of the hand. Guntur used spreader grafts made of conchal cartilage for the correction of the pinched nose. Endo, in an impressive review of 1200 cases of augmentation rhinoplasty observed that the ear cartilage gave the best results in Japanese patients. Compared to bone or septal grafts, harvesting the conchal graft is quite simple and is devoid of any donor deformity or morbidity. Unlike alloplastic materials there is no risk of extrusion. None of our cases exhibited infection, warping or absorption (period of follow-up was 3 years). It should be noted here that stripping the perichondrium on one side does not cause significant warping. However, absorption has been noted when more than 4 pieces of cartilage are used as stacked grafts. Except in two cases where the augmentation was deemed to be inadequate all patients were happy with the results. The unsatisfactory results were treated by further augmentation with ear cartilage from the other side. Crushed cartilage was not used as there is a greater chance of absorption if the crusher is improperly used. However, we have had good results by using small bits for minor contour corrections. We would also like to emphasize that patients with severe dorsal depression, and those with deformities associated with maxillary hypoplasia are unsuitable candidates for augmentation with conchal cartilage as the amount of donor material available will be inadequate.

References
(Fig. 5) Case 3 (a-b) Pre-operative views. (c-d) Post-operative result.

(Fig. 6) Line diagram showing placement of conchal cartilage graft (case 3)

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