The Modified Cartilage Disc Tip Graft in Primary Rhinoplasty

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The cartilage disc graft technique with new modifications has been used in primary rhinoplasty during the past 6 years on 51 patients. The technique can be done through closed or open rhinoplasty with other modifications of the tip cartilages or premaxilla. This technique is simple and reliable, and the results are consistently reproducible.

A well-projected and symmetrical tip is aesthetically most desirable in rhinoplasty. In the past, to achieve such a result, Sheen and Peck developed their own solutions, both of which present problems.

The Sheen graft is very technique dependent and not easily executed. If the cartilage is not in the proper pocket, it may rotate and lead to a prominent sharp point that is visible; if it is put in the right pocket, it may break. The application of the Peck graft in an uneven tip is difficult. Occasionally, the impression of the square tip remains and never reveals two tip-defining points. Since our original report 6 years ago, we have tried to simplify the cartilage disc tip graft technique, and improve reliability and aesthetic appeal.

Technique

Tip grafts have been used in primary rhinoplasty when the dorsal septonasal angle is higher than the nasal tip; the dorsal profile is low; the nose is long and will be shortened by lowering the radix; or the nose is aesthetically or dynamically unstable.

The cartilage disc graft technique can be used in both open and closed rhinoplasty. When it is apparent that the nasal tip graft is required, the septal or conchal cartilage is harvested. Four to six cartilage discs are made with a 4.25 mm to 4.5 mm hair punch. After tip sculpting, the cephalic and medial portions of the alar cartilages are kept in one piece to be used as a tip graft. A 4-0 Keith plain suture is passed from one nostril to the other through a medial crura close to the dome. Then the needle is passed partially through the dome (Figure 1, A). On the average, two stacks of the cartilage are used and skewered through the needle (Figure 1, B). A last piece of cartilage, the cephalic part of the alar cartilage, which was previously harvested, is skewered onto the needle (Figure 1, C). Then the whole new dome is fixed to the old dome with 5-0 Vicryl® sutures used in a graft wrap manner medially and laterally; the crural graft is sutured to the lateral crus (Figure 2, A and B). The needle is with-
Figure 1. Intraoperative photographs of the cartilage disc graft technique. A, The delivery of alar cartilages after sculpting with the needle of 4-0 plain passing through the new tip-defining point. B, The cartilage has been skewed onto the needle. C, The cephalic part of the alar cartilages is put through the needle as a tip graft as the last layer of the graft and it is fixed to the dome medially with gift wrap suture of 4-0 Vicryl® and laterally with S-0 Vicryl® to the lateral alar cartilage. D, The elevation of the tip-defining point on the left compared to the right, which has not been done yet.

drawn through the cartilages and is redirected from inside out and pulled through at the new tip-defining point. Then the new dome and alar cartilages are put back in place. The tip projection is evaluated and, if adequate (Figure 1, D), a similar procedure is done on the opposite side (Figure 2, C). If both tip-defining points appear to be symmetric and adequate, then the rest of the rhinoplasty is completed. The pulled sutures are tied over the nose loosely and incorporated in the dressings. Finally, sutures are cut at the skin level in 3 days. Examples of the new modifications are shown in Figures 3 to 5.

Discussion

The Sheen1-3 and Peck4 techniques have become valuable assets in primary and secondary rhinoplasty. We have modified my original disc graft technique, introduced in 1992, to minimize disc edge visibility.

To soften the possible step-off laterally between the tip graft and the lateral alar cartilage, the previously discarded cephalic and medial portions of the alar cartilages

Figure 2. A, Cartilage disc graft applied in the area of the new tip-defining point with cephalic and lateral part of the trimmed alar cartilages going on top of it as a last piece. B, Lateral view of the new dome. C, Magnification of the new alar dome, which demonstrates cartilage disc grafts and alar tip graft placement.
Figure 3. A, C, and E. Preoperative views of a 22-year-old woman with dorsal nasal deformity and droopy nose. B, D, and F. Postoperative views with tip graft and conservative dorsal resection.

Figure 4. A, C, and E. Preoperative views of a 28-year-old woman with dorsal nasal deformity and airway obstruction. B, D, and F. Postoperative views (2 years after surgery) with tip graft with conservative dorsal resection and osteotomy.

have been used as the surface layer of the disc grafts. This has several advantages: it is alar cartilage from the nose, with malleability, softness, and thinness that promote natural tip appearance.

This modification has solved edge visibility problems. Also, the three-point fixation secures the new tip graft while maintaining the independence of each tip-defining point.

In spite of all the advantages the technique offers, the disadvantage remains the increased operative time. The results, however, outweigh this disadvantage. We have had 6 years of experience with this technique, and long-term results appear to be desirable.

Summary

We introduced a modified technique for the tip graft and projection that uses the cartilage disc, as well as cephalic and medial parts of the alar cartilages. The new technique is simple and reproducible and can easily be taught to and performed by plastic surgery residents. With as much as 5 years of follow-up on 51 patients, we have seen that this technique achieves good aesthetic results.

References


**Figure 5.** A, C, and E, Preoperative views of a patient with twisted nose, dorsal nasal deformity, and araezy obstruction. B, D, and F, Postoperative views after septorhinoplasty with dorsal resection, cartilage tip graft, and osteotomy.