



Case Report: Profile Costal Cartilage Allograft Used For Revision Rhinoplasty and Correction of Retracted and Asymmetric/Bulbous Nasal Tip

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INTRODUCTION

In 2018, more than 120,000 rhinoplasty procedures were performed, making it the third most requested cosmetic surgery procedure¹. Revision rhinoplasty to fine-tune a cosmetic result or correct a complication caused by the primary rhinoplasty is estimated at 15%², and is one of the most challenging cosmetic procedures. This is owing to the complex anatomy of the nose and the fact that septal cartilage needed for reshaping is often no longer available, having already been utilized in the primary procedure. In these revision cases, cartilage grafts are often needed. Common sources for grafts are from the patient's ear or rib. However, harvest of autologous costal cartilage sources carries risks to the patient such as pneumothorax, as well as



extended post-operative recovery, including harvest-site scarring and pain. It is also time consuming and in older patients carries the additional challenge of harvesting sufficient suitable, non-ossified cartilage to complete the procedure. In addition, ear cartilage may not be strong enough for revisions and is less able to withstand the contractile forces of scarring.

Profile®, an off-the-shelf costal cartilage allograft made from donated human costal cartilage tissue and offered by MTF Biologics in Edison, NJ, is a safe, convenient alternative to autologous cartilage harvest, eliminating the risk of complications previously mentioned. Profile is intended for use in cosmetic and reconstructive rhinoplasty procedures, as well as other procedures as needed to supplement, augment or repair cartilaginous defects.

CASE HISTORY

A 25 year old woman presents for surgical nose reshaping including correction of a retracted and asymmetric/bulbous tip. She had two prior cosmetic rhinoplasties; the first in 2012 then a revision in 2015. She reports that since that time she has been concerned with the retraction and asymmetric/bulbous appearance of the tip. She has no complaints of difficulty breathing through her nose. Additional pertinent history is that she has had a breast augmentation via an inframammary fold incision and had hypertrophic scar formation. Examination of her nose confirmed a wide nose with severe upward tip rotation, nostril show, obtuse nasolabial angle, and tip and dorsal asymmetries with persistent bulbous tip. Her internal nasal exam confirms previous septal harvest and was otherwise unremarkable.

ASSESSMENT AND SURGICAL PLANNING

This young woman had two previous rhinoplasties and has numerous findings on her exam including a wide nose with significant upward tip rotation and nostril show with an asymmetric/bulbous tip. The plan is an open approach with wide undermining, extension spreader and septal grafts with revision tip work and stabilization. Her native cartilage options are limited especially given her hypertrophic scarring and disinterest in using her own costal cartilage. A case like this is a clear indication to use allograft costal cartilage graft like MTF's Profile® costal cartilage graft.

PROCEDURE

Tertiary rhinoplasty with the following sub-maneuvers:

- Open approach
- Wide undermining
- Columellar strut for tip stabilization and extended septal grafts using Profile costal cartilage graft
- Cephalic trim of bilateral lower lateral cartilages
- Transdomal and intradomal tip sutures
- Columellar scar revision

At the time of her procedure a significant amount of scar tissue was encountered. Of note, a significant portion of her native caudal septum was missing, a likely contributing cause of the severe upward tip rotation. The Profile cartilage was opened on the back table and soaked in normal saline for 15 minutes. Each graft was fashioned from the rib cartilage segment with a 10 blade, much in the same way as it would be with native costal cartilage. All grafts were secured with 4-0 PDS sutures.



Figure 1



Figure 2



Figure 3

Fig. 1 Cephalic intra-operative view of the wide and asymmetric tip cartilages. The blue markings designate portions of the lower laterals that were trimmed to help achieve symmetry. The tip will need to be shaped with sutures.

Fig. 2 Oblique intra-operative view after trans-domal and inter-domal tip suturing is complete. Note the narrower more symmetric tip. The columellar strut is fashioned from the Profile rib cartilage and is being positioned between the medial crura.

Fig. 3 Oblique intra-operative view with the columellar strut secured in place. More Profile cartilage is available for the extended spreader grafts that will help rotate the tip complex down.

FOLLOW UP

The patient returned for follow up at one week, three week, eight week, six month, and twelve month post op time points. As she was an out of town patient she was also treated by her local plastic surgeon on occasion. No complications, including resorption, infection or warping, were noted at any of these time points. She was managed with taping, massage, and intranasal Kenalog®-10 injections to reduce swelling and counteract scar retraction. Her one year follow up photos are shown. She is quite happy at this time and does not report any complaints. She will continue to be followed every three months for another year as an occasional Kenalog®-10 injection may be needed.

CONCLUSION

Profile costal cartilage allograft was a safe, effective alternative to autologous cartilage harvest in this patient who sought nose reshaping with correction of retracted and bulbous tip.

¹ <https://www.plasticsurgery.org/documents/News/Statistics/2018/plastic-surgery-statistics-full-report-2018.pdf>

² <https://www.rhinoplastysociety.org/about-rhinoplasty/faq>