

Expanding the Reconstructive Armamentarium: Use of MTF Profile® Costal Cartilage Allograft for Helical Rim Reconstruction in a Pediatric Patient

Amanda N. Awad, MD¹, Sabrina Harrath, BS², Hanaa Shihadeh, MD¹, Stephanie Bray, MD¹, Malcolm Z. Roth, MD¹

¹ Division of Plastic Surgery, Albany Medical Center, Albany, NY, ²Albany Medical College, Albany, NY

Background

Auricular reconstruction after traumatic helical rim presents unique challenges, especially in pediatric patients with limited donor sites.

Current Options and Limitations:

- Autologous costal cartilage – preferred approach for many but carries donor site morbidity and contour variability
- MEDPOR® – preformed framework, completely alloplastic
- MTF Extearna® – designed for total ear reconstruction; may be excessive for partial defects

The purpose of this study is to describe a novel reconstructive for partial auricular reconstruction using MTF Profile® Costal Cartilage Allograft, traditionally used in revision rhinoplasty.

Methods

Patient: 13M with remote history of dog bite injury

Defect: Loss of 2/3 of right helical rim and 1.5 x 1.5 cm scapha defect

1. **Scar Excision:** *Excision of scar tissue and exposure of native remaining cartilage*
2. **Graft Sculpting:** *MTF Profile® sculpted to recreate helical rim and scapha geometry*
3. **Graft Fixation:** *Grafts secured with 5-0 Nylon for precise framework restoration*
4. **Soft-Tissue Coverage:** *2 x 6 cm bipedricled mastoid skin flap for complete coverage*

Photos



Figure 1a. Ear defect with loss of 2/3 of helical rim and 1.5 x 1.5 cm scapha defect.

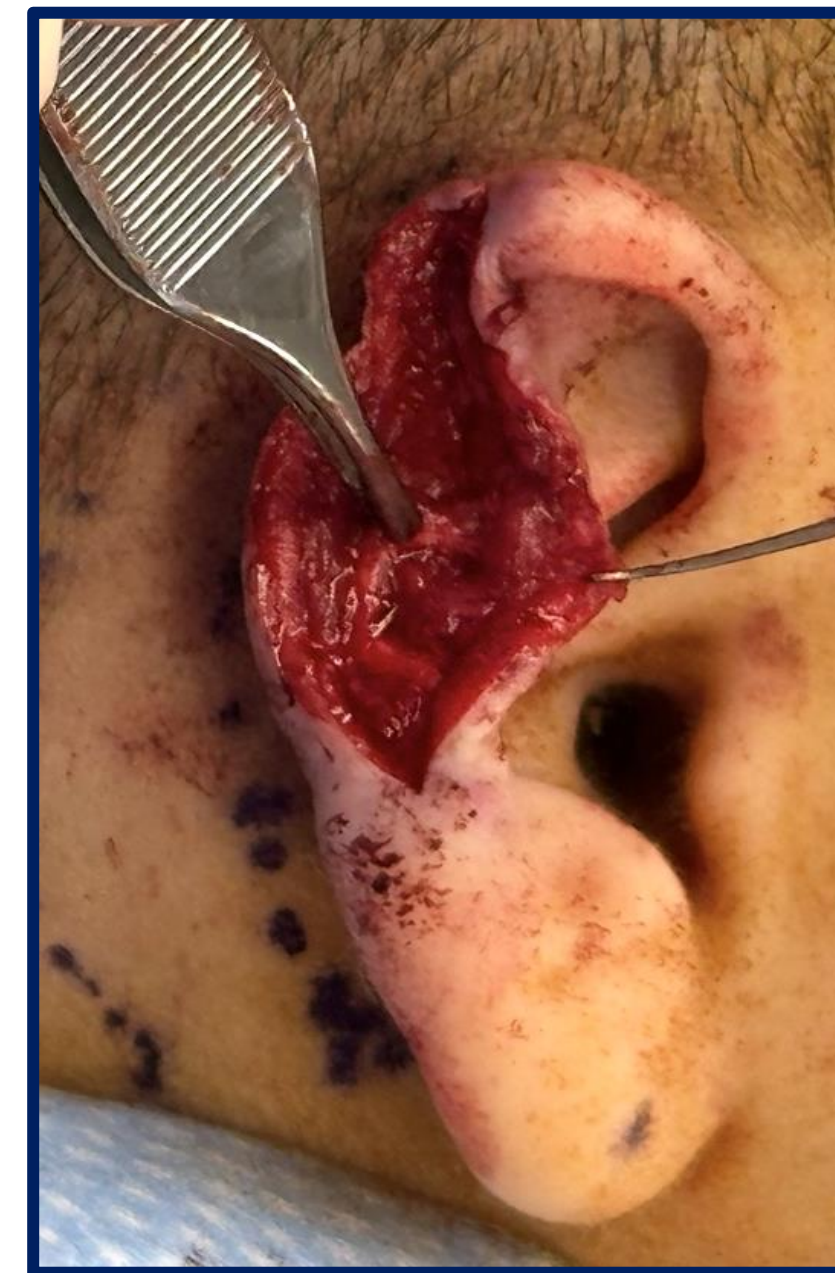


Figure 1b. Ear defect after excision of scar and exposure of native remaining cartilage.



Figure 1c. MTF Profile® sculpted and secured in place to recreate helical rim.



Figure 1d. Bipedricled mastoid skin flap designed for coverage of cartilage graft.



Figure 1e. Completion of stage 1 with bipedricled flap secured in place.



Figure 1f. Completion of stage 2 after division and inset of flap, 5 weeks after the first stage.



Figure 2. MTF Profile® sculpted to recreate helical rim and scapha geometry.

Results

Minimal Waste

- Multiple configurations allowed optimal piece selection while minimizing trimming and graft waste

Precise Shaping

- Preformed geometry and flexible rigidity enabled precise replication of complex auricular contours

Immediate Restoration

- Structural restoration achieved in a single operative setting without donor site harvest

Versatile Configurations

- Multiple graft profiles available allow customization for varied partial auricular defects

Conclusions

MTF Profile® Costal Cartilage Allograft represents a **novel, structurally robust** option for segmental auricular reconstruction.

First reported application for partial auricular framework reconstruction.

Versatile and efficient alternative to previously described reconstructive techniques.