Cartilage Palisades vs. Temporalis Fascia in Type 1 Tympanoplasty

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Disclosures

The authors report no financial or other conflict of interest relevant to this study.
Introduction

- Certain clinical situations can adversely affect the outcomes of type 1 tympanoplasty - neartotal or total perforations, bilateral perforations, revision cases, cranio-facial anomalies, middle ear mucosal edema or granulations with or without persistent discharge.

- Cartilage resists negative middle ear pressure (eustachian tube dysfunction), lack of vascularization and infection to a greater degree than temporalis fascia.

- Heerman first used cartilage palisades as tympanic membrane graft to prevent torsion associated with relatively larger slices of cartilage.

- The objectives of this study were to use tragal full thickness broad cartilage palisades as graft material in the type 1 tympanoplasty scenario, particularly in the “difficult” cases, and comparing the clinical and hearing outcomes with use of temporalis fascia.
Methods

- The study conducted at a tertiary referral institute included 90 patients with mucosal type chronic otitis media requiring type 1 tympanoplasty with 60/30 distribution of cases for fascia and cartilage palisades respectively.

- The fascia group consisted of primary cases in adults. Revision cases, near total or total perforations and pediatric cases were excluded from the temporalis fascia group and were included in the cartilage group.

- All procedures were approved under the guidelines of the institutional ethics committee.
Surgical Technique

Choice of approach (transcanal/endaural/postaural) governed by size/location of perforation and canal overhangs necessitating canalplasty

**Temporalis fascia group**
- Underlay grafting medial to handle of malleus

**Cartilage group**
- Full thickness tragal cartilage harvested preserving tragal dome
- Palisades (broad) cut using a no.15 blade with perichondrium attached to the concave side
- Middle ear packed with medicated gelfoam
- Anterior palisade was placed medial to bony annulus, whereas posterior palisade was placed at the level of or onto bony annulus. Central palisade was placed either medial or lateral to the malleus handle depending upon the degree of medialization of umbo
- No free perichondrial or fascial graft was placed over cartilage assemblies

*Post-operative graft uptake results and hearing outcomes using pure tone audiometry were obtained after 6 months.*
Video demonstrating Cartilage Palisade Tympanoplasty
Results

Case distribution for cartilage group

Status of middle ear mucosa – cartilage group

Intra-operative incidental findings – cartilage group

Post-operative tympanic membrane images displaying well healed and epitheliazed cartilage palisades after 6 months
Graft take-up rate was 90% (27/30) in the cartilage group, and 83.3% (50/60) in the fascia group.
Conclusion

- Cartilage grafting with full thickness broad palisades is more effective and results in significantly better hearing outcomes compared to temporalis fascia in type 1 tympanoplasty; particularly in “difficult tympanoplasties”.

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