

ENDOSCOPIC TYMPANOPLASTY : A STUDY OF 50 CASES

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ABSTRACT

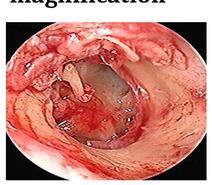
- This study is aimed to evaluate the role of endoscope in the management of dry central perforation of tympanic membrane.
- Total 50 patients underwent endoscopic tympanoplasty, between the time period of June 2016 to May2017, at APOLLO ENT HOSPITAL BARMER RAJASTHAN.
- In this study , there was 96% Graft take up rate with endoscopic approach.
- The endoscopic approach have following advantages over microscopic approach :-
  - ↓ operation time
  - ↓ post operative pain level
  - Better cosmetic results
  - Better surgical view with minimal incision
  - High success rate of graft take up
  - Better post operative hearing improvement &
  - Avoids end aural vertical and post auricular incisions.
- Thus endoscopic tympanoplasty can be a good alternative of microscopic tympanoplasty

INTRODUCTION

- Mer & colleagues introduced the middle ear endoscopy in 1967.
- An endoscope is an equipment used successfully in several procedures of many medical specialties.
- The endoscope has practically replaced the microscope for it offers
  1. The excellent viewing of structures
  2. Large angular image, viewing in several angles & magnification



ENDOSCOPIC VIEW OF TYMPANIC MEMBRANE



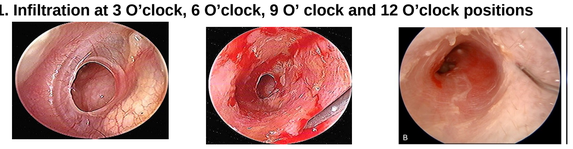
Endoscopic view of right middle ear

METHODS

- This study was conducted at APOLLO ENT HOSPITAL BARMER, RAJASTHAN.
- Between June 2016 to May 2017.
- All 50 patients underwent preoperative assessment with proper history; otoscopic & endoscopic examination; tuning fork test; pure tone audiometry (PTA); xylocaine sensitivity test; X-ray mastoid & X-ray pns; routine blood investigations.
- The 50 patients were between 12 to 60 years with dry central perforation, small & medium in size.
- Male to female ratio was 2:3
- According to PTA finding, 43 patients had pure conductive hearing loss (average35-40 db) & 7 patients had mixed hearing loss (average 30-35 db).
- In 37 patients we used temporalis fascia & in remaining 13 patients tragal cartilage was used as graft material

Surgical steps

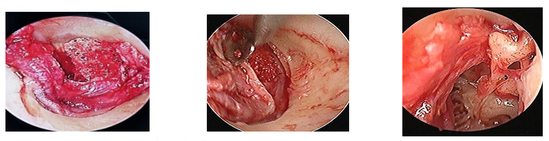
1. Infiltration at 3 O'clock, 6 O'clock, 9 O' clock and 12 O'clock positions



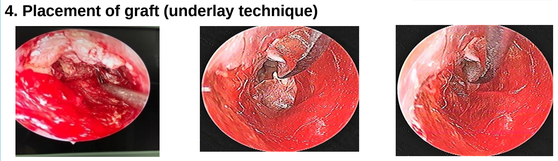
2. Freshening the margins of perforation & incision



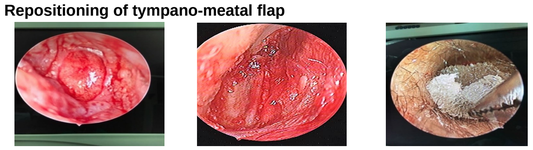
3. Elevation of tympano-meatal flap



4. Placement of graft (underlay technique)



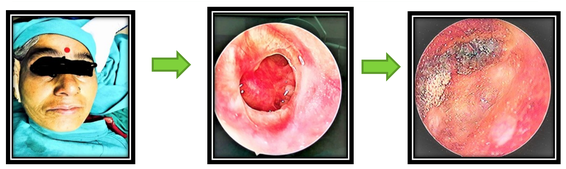
5. Repositioning of tympano-meatal flap

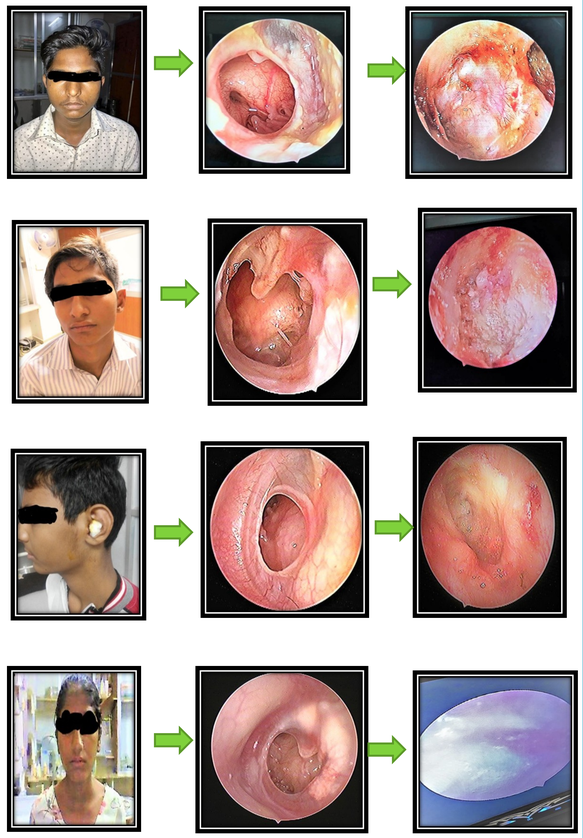


RESULTS

- From total of 50 cases with endoscopic approach, graft take up rate was 96 % with only 2 cases of graft failure.
- Complete graft uptake rate was 97.29% & 92.38% for temporalis fascia graft & tragal cartilage graft respectively.
- The average time taken for each endoscope assisted tympanoplasty was around 60-70 minutes

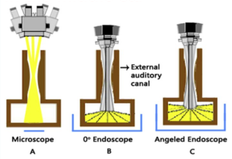
3 weeks post-operative results



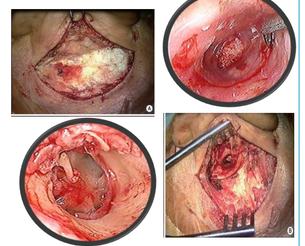


DISCUSSION

1. Endoscopes provide a wider & angled view of the fine structures in the middle ear



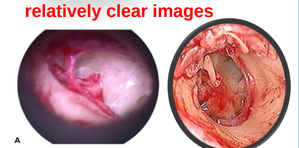
2. Does not require large incisions (post-auricular & end aural incisions)



3. Provide better cosmetic outcomes (no mastoid dressing post operative)



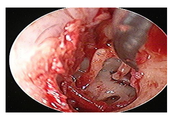
4. High-resolution and relatively clear images

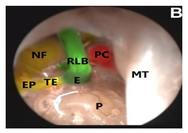


Microscope view

Endoscope view

5. Provides better visualization of hidden areas in the middle ear cavity including - sinus tympani, facial recess, hypotympanum, tuba orifice, incudostapedial joint & oval/round window niches





Drawbacks of Endoscopic tympanoplasty

•Only one-hand surgery; in situation of massive bleeding, the endoscopic surgery could be difficult due to blood in cavity.
• Endoscopic instrument could make direct injury in middle ear cavity.
• Thermal damage to surrounding structure by light source

CONCLUSION

- The endoscopic approach has introduced a new perspective to ear surgery.
- Using this method, improved cosmetic outcomes & also, reduced postoperative morbidity.
- It can be performed & taught in academic institutions in the residency program in department of Otorhinolaryngology.

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