

CHRONIC SUPPURATIVE OTITIS MEDIA AND MODERN METHODS OF ITS TREATMENT: PRINCIPLES OF TYMPANOPLASTY SURGERY

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Abstract. Chronic suppurative otitis media (CSOM) is a persistent inflammation of the middle ear and mastoid cavity, characterized by ear discharge through a perforated tympanic membrane. It remains a common cause of hearing loss, especially in low-income regions. Recent advances in antimicrobial therapy, surgical techniques, and imaging have significantly improved outcomes. Tympanoplasty, the main surgical intervention, aims to restore hearing and create a dry ear. This review outlines the pathophysiology, modern treatment strategies, and key principles of tympanoplasty based on current evidence.

Keywords: CSOM, tympanoplasty, middle ear surgery, chronic otitis media, hearing restoration.

1. Introduction

Chronic suppurative otitis media affects approximately 65 to 330 million people worldwide. Its complications range from mild hearing loss to life-threatening intracranial infections. Although medical management remains essential, surgery—especially tympanoplasty—is often required for definitive treatment.

2. Pathophysiology and Classification

CSOM results from recurrent or untreated acute otitis media, Eustachian tube dysfunction, or trauma. It is classified into two types:

- Tubotympanic (safe type): Involves central perforation of the tympanic membrane.
- Atticoantral (unsafe type): Involves marginal or attic perforations and often cholesteatoma.

3. Modern Medical Management

Table 1: Medical Therapies for CSOM

Treatment	Description	Effectiveness
Aural toilet	Cleaning of ear discharge	Essential for all cases
Topical antibiotics	Ciprofloxacin or ofloxacin drops	First-line, effective
Systemic antibiotics	Oral or IV in acute exacerbations	For severe infections
Antifungals (if indicated)	Clotrimazole or fluconazole ear drops	For fungal infections

4. Indications for Surgery

Surgical intervention is considered when:

- Ear discharge persists despite optimal medical therapy.
- Hearing loss interferes with daily activities.
- Complications such as cholesteatoma, ossicular damage, or mastoiditis occur.

5. Tympanoplasty: Principles and Techniques

Tympanoplasty involves reconstruction of the tympanic membrane and, if necessary, the ossicular chain.

Types (Wullstein Classification):

Type	Procedure Description
I	Tympanic membrane repair only (intact ossicles)
II	Repair with partial ossicular erosion
III	Ossicles absent, graft on stapes head
IV	Graft over mobile footplate
V	Fenestration procedure (rare today)

Key Principles:

- Use of temporalis fascia, tragal cartilage, or perichondrium as graft material
- Elevation of the tympanomeatal flap
- Middle ear inspection and ossicular chain evaluation
- Microscopic or endoscopic approach depending on surgeon expertise

6. Outcomes and Complications

Table 2: Tympanoplasty Success Rates and Risks

Outcome	Rate (approx.)
Graft take-up rate	85–95%
Hearing improvement (ABG < 20 dB)	60–80%
Re-perforation	5–15%
Post-op infection	<5%
Sensorineural hearing loss	<1%

7. Innovations and Future Trends

- Endoscopic ear surgery: Minimally invasive with better visualization
- Biomaterials and stem cell scaffolds: Under research for tympanic membrane regeneration
- Intraoperative navigation: Enhances precision in complex cases
- 3D-printed ossicular prostheses: Promising for ossiculoplasty

8. Conclusion

Chronic suppurative otitis media remains a prevalent condition with significant impact on hearing and quality of life. Advances in topical therapy and surgical methods—especially tympanoplasty—have greatly improved outcomes. Understanding tympanoplasty principles and selecting appropriate cases for surgery are key to achieving functional restoration.

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