Chronic otitis media: new alternatives in the treatment of cholesteatoma and functional reconstruction

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Alexandria, 2010
Treatment of the cholesteatoma

- **Open techniques:**
  - Low risk of cholesteatoma relapse
  - But …
    - Otorrhea
    - ENT follow-up
    - Limitations to water

- **Closed techniques:**
  - No otorrhea
  - No limitations to water
  - But …
    - Increase the risk of residual or recurrent cholesteatoma
    - ENT follow-up
Rule for the treatment of the cholesteatoma

Variables:
Anatomy, cholesteatoma type, associated diseases, socio-cultural environment, age, etc.

Individualize operative management

Surgical technique indication

**Open techniques:**
- Small sclerotic mastoid.
- EAC bone erosion
- Labyrinthine fistula
- Facial nerve or intracranial complications
- Poor eustachian tube function

**Closed techniques:**
- Pneumatized mastoid.
- Integrity of the EAC.
- Encapsulation
- Good eustachian tube function

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Are there alternatives for the cholesteatoma treatment?

Attic-Exposition
Antrum-Exclusion

Open Cavities
Reconstruction Techniques
Active Middle Ear Implants

Vibrant Sound Bridge RW

Attic-Exposition
Antrum-Exclusion
Anatomical concepts

Surgical concept

Attic-Exposition (Marsupialization)

Attic-Exclusion
Squamous epithelium, without cilia, cells, or glands. 

E. Hentzer, Ultrastructure of the middle ear mucosa, 
Acta Otolaryngol (Stockh) Suppl 414, 1984

Attic exposition - Exclusion of antrum Indication:

- Attical cholesteatoma not crossing the **additus**, with erosion of the attic wall, regardless of it is medial or lateral to the malleus-incus axis.
Indication samples

Endoscopic vision
Indications samples

Superior canal wall

Surgical technique

Cholesteatoma

Ramirez Camacho
Surgical technique

2

Attic control

Tegmen

Ramírez Camacho

Surgical technique

3

Cartilage or Cortical of bone

Ramírez Camacho
Surgical technique

Extended AE-AE

Fascia graft
Extended Indication for Attic exposition-Antrum exclusion:

- Attical cholesteatoma crossing the additus, with invasion of the mastoid antrum, well encapsulated, and not eroding the ottic capsule.
Cartilage to close the additus

Attic

Pars tensa

POP

MT

Attic

Pars tensa

Cartilage to close the additus

TM
Cartilage to close the additus

Attic

Pars tensa TM

Cartilage to close the additus

Attic

Pars tensa TM
Cartilage to close the additus

2 months postop

Attic

Pars tensa

TM
A. AE-AE technique

B. Extended AE-AE technique
Attic exposition-Antrum exclusion

• If indications are correctly followed, the control cholesteatoma is excellent:
  0 cases of residual cholesteatoma

Atico exposicion-Antro exclusion

• The closure of the additus does not provoke any mastoid disease:
  0 cases of relapsing cholesteatoma due to cartilage resorption and/or formation of a retraction pocket
Atico exposicion-Antro exclusion

- Attic-exposition converts the tegmen into the “superior wall of the EAC”, and the antrum-exclusion convert the cartilage and remaining structures into the “posterior wall of the EAC”:

  Auto-cleanable spaces, compatible with water entering

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Atico exposicion-Antro exclusion

- Attic-exposition and the antrum-exclusion does not impair chances of ossicular chain reconstruction:

  Functional results depend on the status of the ossicular chain and possible medial attic invasion by the cholesteatoma.
Open Cavities Reconstruction Techniques

Objetives

- To avoid retractions and relapsing cholesteatoma, by an attic exteriorization
- To reduce the mastoid cavity volume, by an obliteration using “bone paté”
- To reproduce the anatomy, by an EAC reconstruction
- To improve hearing, by the creation of a “mini-box” and simultaneous ossiculoplasty
SURGICAL STEPS

- Revision of mastoidectomy
- Bone dust recollection
- Extraction of the osseous cortical and bone fragments
- Preparation of a Palva’s flap and/or periosteal flap
- Filling of the cavity with “bone pate”
- Reconstruction of the posterior EAC wall
- Ossicular reconstruction
- Graft allocation, and flap reposition
- EAC package
Revision of mastoidectomy

Filling of the cavity with “bone pate”
Reconstruction of the posterior EAC wall
Reconstruction of the posterior EAC wall

Cartilage grafting
CONTRAINDICATIONS

- Small mastoid cavities
- Cholesteatomatosis
- Poor infection control
- Otoneurological complications
- Labyrinthine fistula

ADVANTAGES

- Good access to the attic, and reduction of rate of tympanic membrane retractions
- Lower dependence of ENT, although patients need periodic controls
- Watering, Hearing-aids
DISADVANTAGES

- Two surgical procedures
- Possible infections
- Risk of residual cholesteatoma

RESULTS

n: 7, 3 yr of follow-up

- No cholesteatoma
- No infections (Gantz 11%)
- No retraction pockets
- 1 case of partial resorption of posterior EAC wall
FOLLOW-UP:
ENT examination
Diffusion MRI