Management of troublesome mastoid cavities

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Mastoid cavities
CAUSES OF FAILURE?

- Facial bridge
- Pneumatisation
- Skin
- Mucosa
- Meatoplasty
- Eustachian tube

Surgeon
TROUBLESOME MASTOID CAVITY

10% surgery of chronic otitis

F 34, 3 time surgery
Persistent Otorrhea?

Large meatoplasty

Facial ridge down

TO CURE TROUBLESOME MASTOID CAVITIES

• ENLARGED OPEN TECHNIQUE

• CANAL WALL RECONSTRUCTION

• MASTOID CAVITY OBLITERATION
ENLARGED MASTOID CAVITY
Our experience over 500 cases from 1976 to 2006

- Mastoid Cortical bone, Ceravital, Titanium
- Preoperative mastoid cavities: chole 75%, discharge 95%
- Postoperative SAFE EAR: 87% long term, revision under local anesthesia for exposed canal 8%, 5% otorrhea recurrence chole 2%, recurrence discharge 4%
OBLITERATION of the MASTOID CAVITY

F 34, 3 open techniques
Long lasting otorrhea?

Large meatoplasty

Facial ridge down
Otorrhea
Cholesteatoma

Skin in a wrong place
Mucosa in a wrong place

Post auricular aspect
Otoscopic aspect

Cholesteatoma
Mastoid cavity
Open technique
H 54, left radical cavity, 30 years with otorrhea
BIOLOGY

Wound Healing

SKIN: in a wrong place
loss of the self-cleaning

Similar to cholesteatoma

mucosa: conflict with skin
wrong ventilation

CHOLESTEATOMA
OPEN TECHNIQUES

- Good wound healing: Skin in a wrong place
- Defective: Wrong skin in a wrong place
Rehabilitation of the ear anatomophysiology

To get a good wound healing

**MATERIALS**
- Cartilage
- Cortical bone
- Prosthesis
  - ceravital
  - hydroxyapatite
  - titanium
- With or without Obliteration

**Troublesome**
**OPEN TECHNIQUE**

**CLOSED TECHNIQUE**

Canal wall Reconstruction

Defective wound healing conditions

Good wound healing conditions
RECONSTRUCTION OF CANAL WALL

HOW?

• In restoring the anatomo-physiology of the ears, middle and external

• Anatomic reconstruction of the canal wall, as well as possible

Reconstruction of the canal wall

• 1107 cholesteatomas
  763 partial reconstructions of canal wall (69%)

• 336 Troublesome mastoid cavity rehabilitations
  (10% of chronic otitis surgery)
Reconstruction of the canal wall
1994-2004

- 1107 cholesteatomas
  763 partial reconstruction of canal wall (69%)

- 336 Troublesome mastoid cavity rehabilitations
  228 Titanium canaloplasties
  108 Mastoid cortical bone canaloplasties
  with mastoid obliteration in 11 cases
MASTOID CORTICAL BONE

**Advantages**
- integration of the bone
- viability of the skin

**Disadvantages**
- inconstant availability
- difficult shaping
CANAL WALL PROSTHESIS

Advantages:
- available
- simple procedure

Disadvantages:
- cost
- covering skin
TITANIUM PROSTHESIS

Biocompatibility
Anatomic frame
No need to shape
Easy to put in place
Viability of the covering skin
1- Eradication of the disease

- Retroauricular approach

-- Matrice removal

--- Respect of skin flaps
2- Reconstruction

- Anatomic

-- Fix in

--- Soft junctions

---- Covering graft
**Troublesome mastoid cavities**

N previous surgery

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**Titanium canal wall prosthesis**

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<th>PRE OPERAT.</th>
<th>POST OPERAT.</th>
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<td>Safe ear</td>
<td>11/228</td>
<td>218/228</td>
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<td>Vertigo</td>
<td>56/228</td>
<td>3/228</td>
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<tr>
<td>Otorrhea</td>
<td>216/228</td>
<td>14/228</td>
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<tr>
<td>Cholesteatoma</td>
<td>176/228</td>
<td>5/228</td>
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<td>Canaloplasty</td>
<td>187/228</td>
<td>82%</td>
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Patient GK, CT-scan AS

Patient GK, otoscopy AS postop
First question:
Can we remove all size of cholesteatoma from middle ear?

Second question:
What is the best way to prevent recurrence?

Third question:
Are we able to respect or restore the normal anatomo-physiology of both external canal and middle ear?
RECONSTRUCTION OF THE CANAL WALL

- To prevent tympanic retraction pockets
- To cure troublesome mastoid cavities

To prevent recurrence of cholesteatoma

- 1107 cholesteatomas
- 763 reconstructions of canal wall (69%)
Cholesteatoma comes from the bottom of the ear canal

Lateral epidermal migration → self-cleansing

Abnormality of the epidermal migration and proliferation → cholesteatoma

Small or Attic cholesteatoma
- Transcanal Atticotomy

Antro-attical cholesteatoma
- Transmastoidectomy

Large cholesteatoma
- First stage
- Second stage
- Combined approach

From Moriyama
To prevent recurrence of cholesteatoma

- 1107 cholesteatomas

- 763 reconstructions of canal wall (69%)
  - 590 cartilage
  - 25 cortical bone
  - 38 bone paté
  - 11 obliteration
  - 99 unknown