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CHOLESTEATOMA CLASSIFICATION AND SURGICAL STRATEGY

■ B. FRAYSSE, J. FAYAD



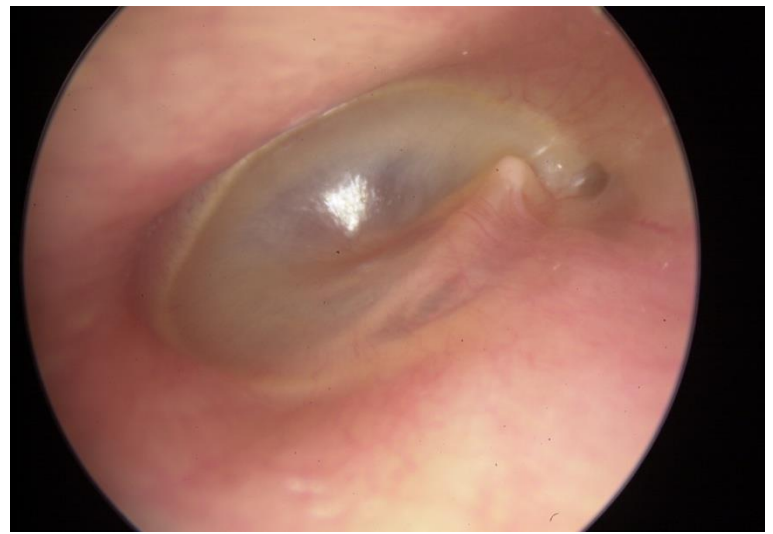
SELECTING THE GOOD APPROACH



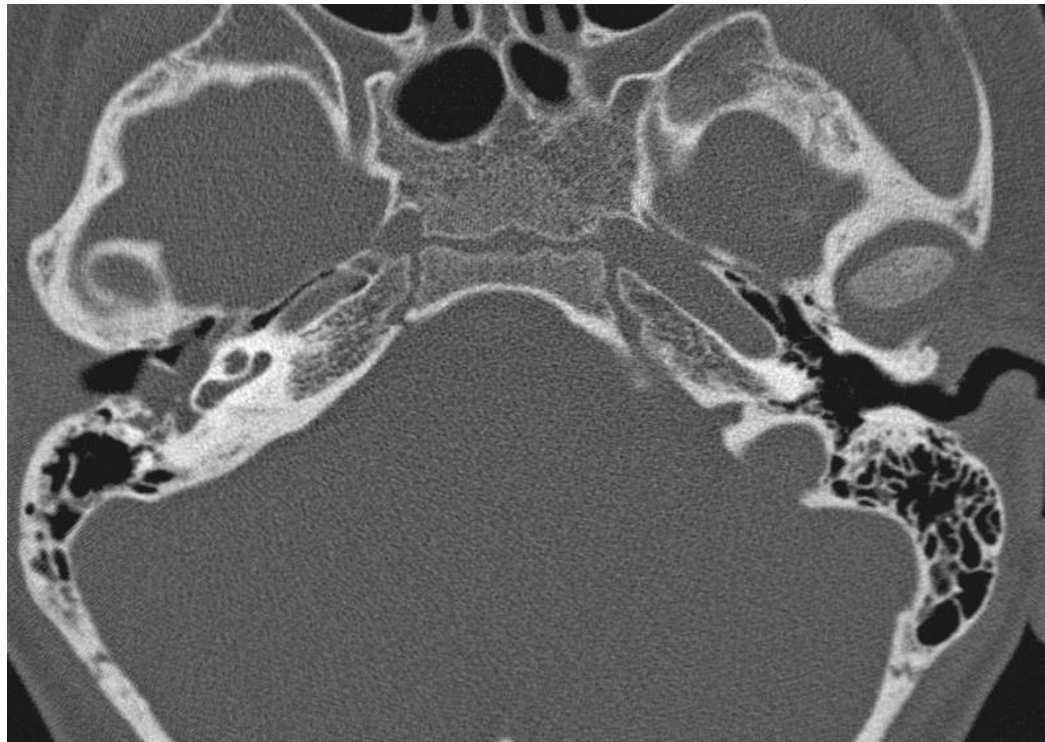
- Preoperative clinical factors :
 - Otoscopic examination
 - Audiometrical findings
 - High resolution CT-Scan
 - Use of endoscopy
- Intraoperative findings and surgical experience



● Right Ear



● Left ear



USE OF ENDOSCOPY



■ Preoperative

- Follow the evolution of a retraction pocket
- Selecting the approach

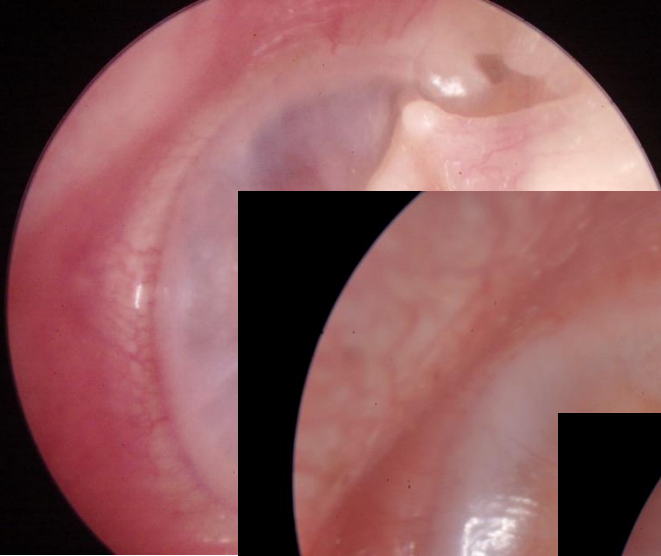
■ Intraoperative

- Due to the technical limitation we do not use as an exclusive method
- Diagnostic tool to look around the corner within the Middle ear space
(*sinus tymani, epitympanum, anterior angle*)

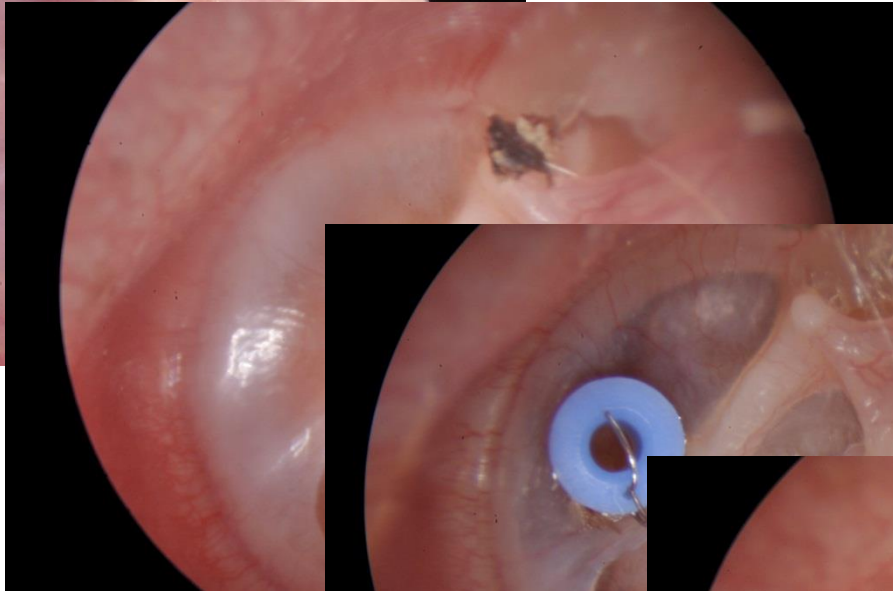
■ Postoperative

- Posterior second look ?

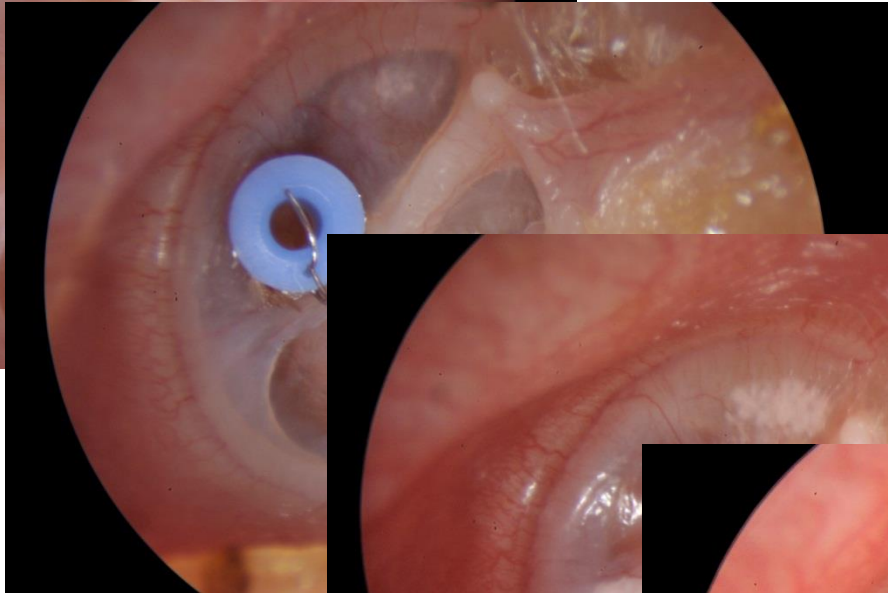




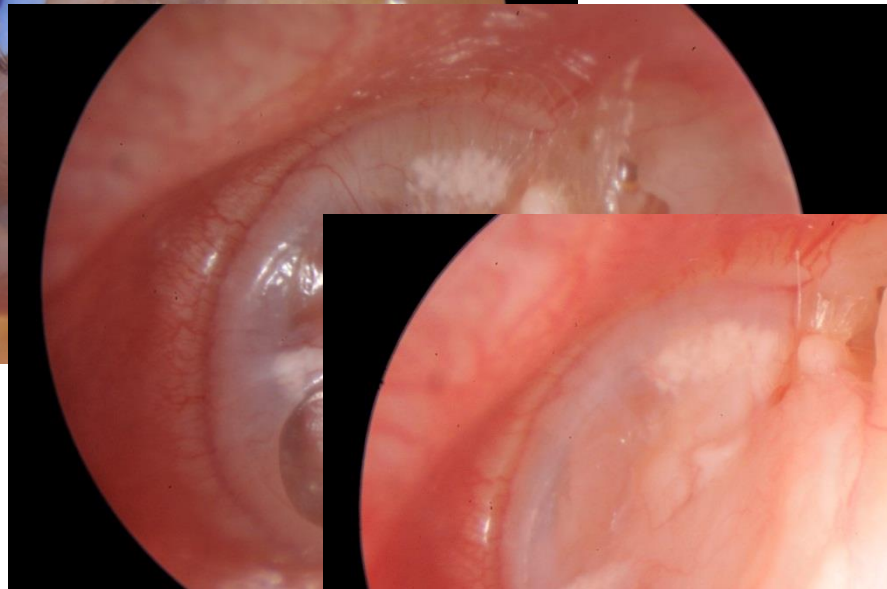
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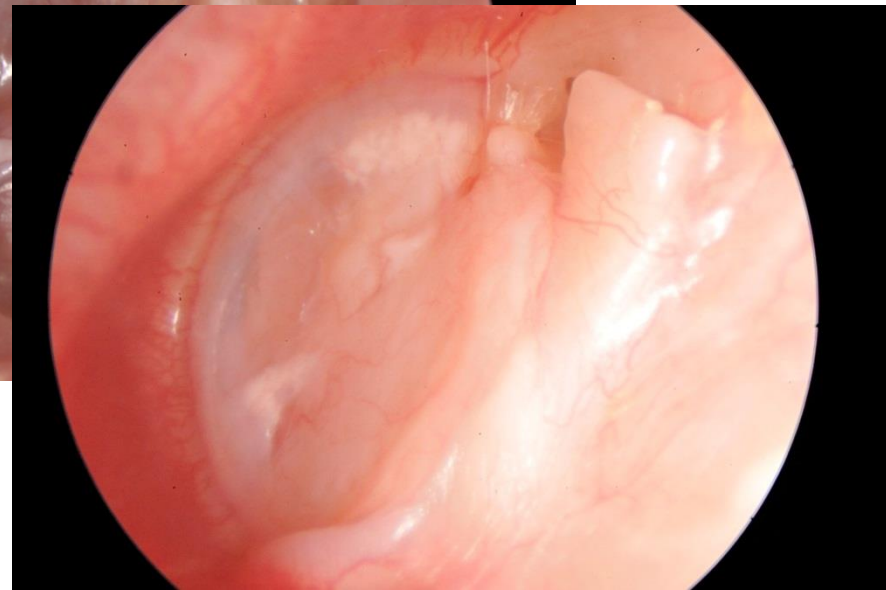
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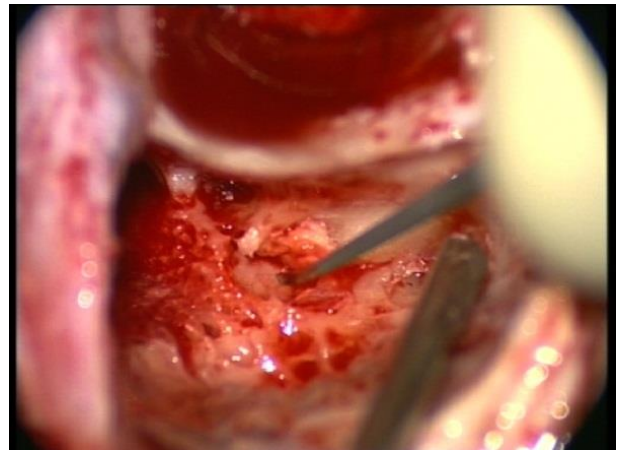
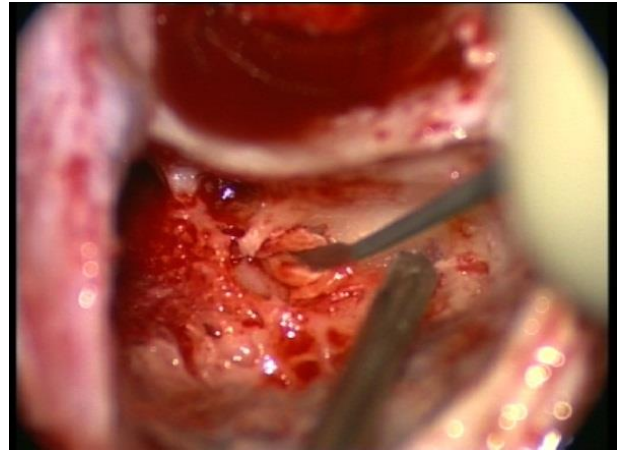
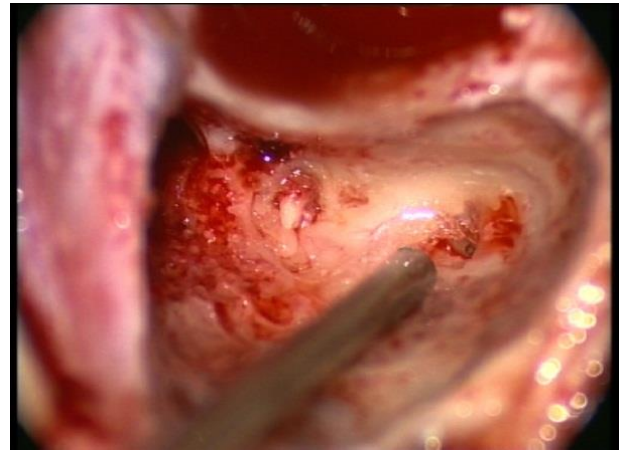
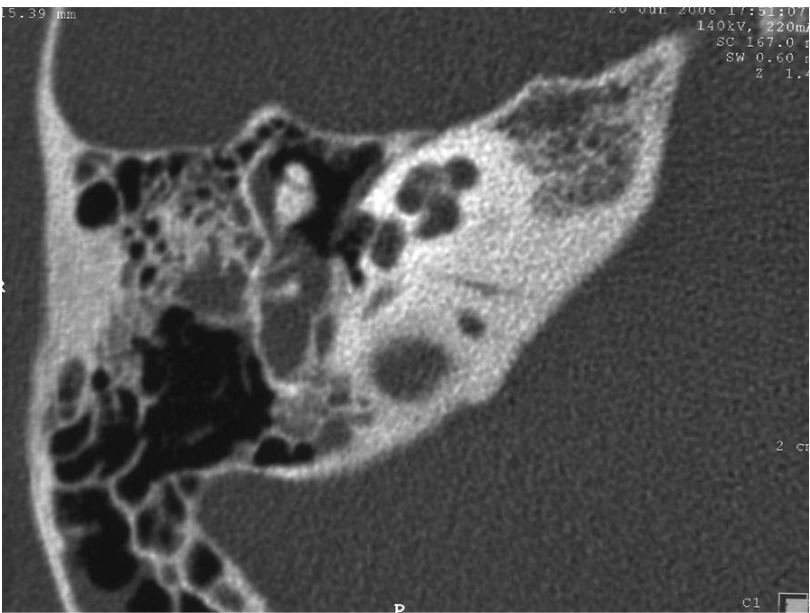


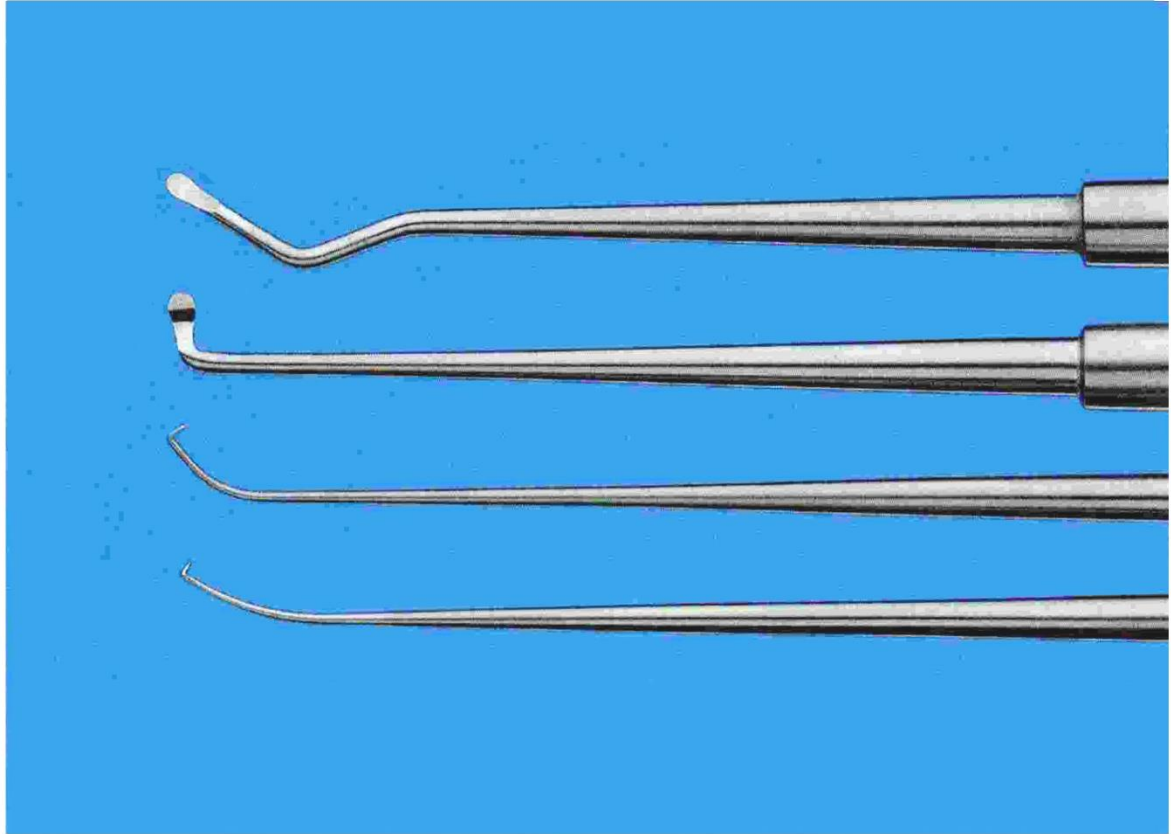
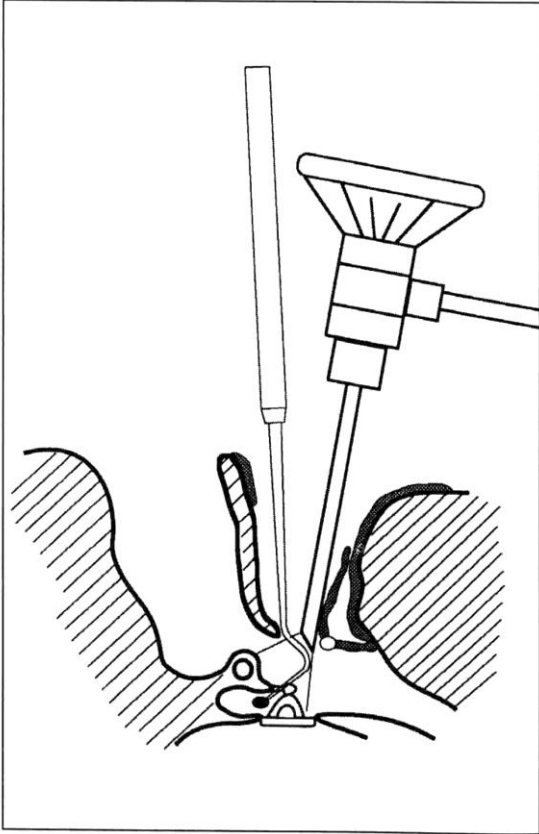
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Cartilage →

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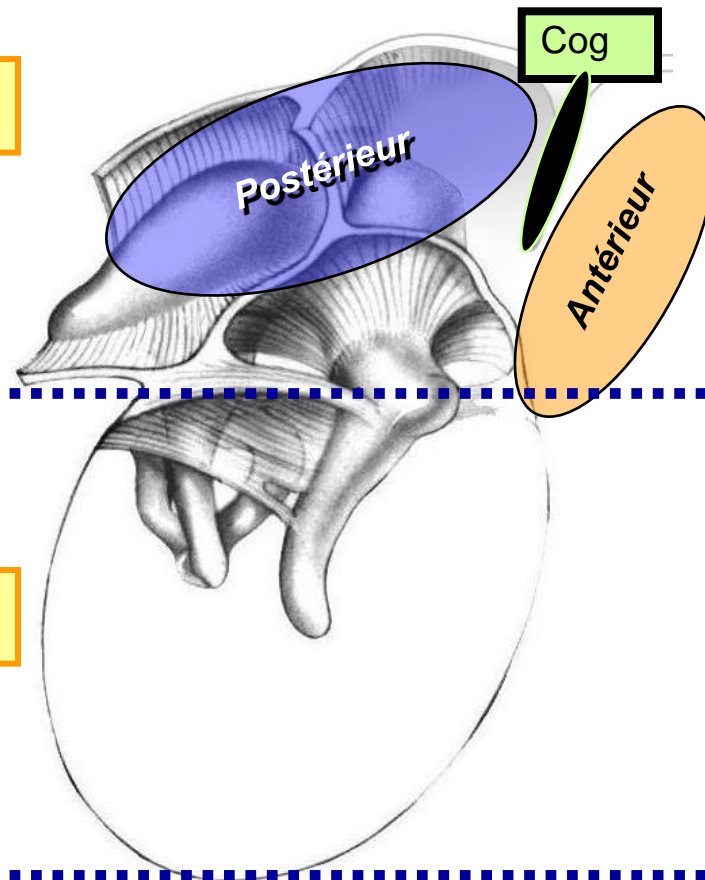
CLASSIFICATION OF CHOLESTEATOMA

Epitympanic cholesteatoma

- Lateral
- Anterior
- Posterior

Mésotympanic cholesteatoma

Hypotympanic cholesteatoma



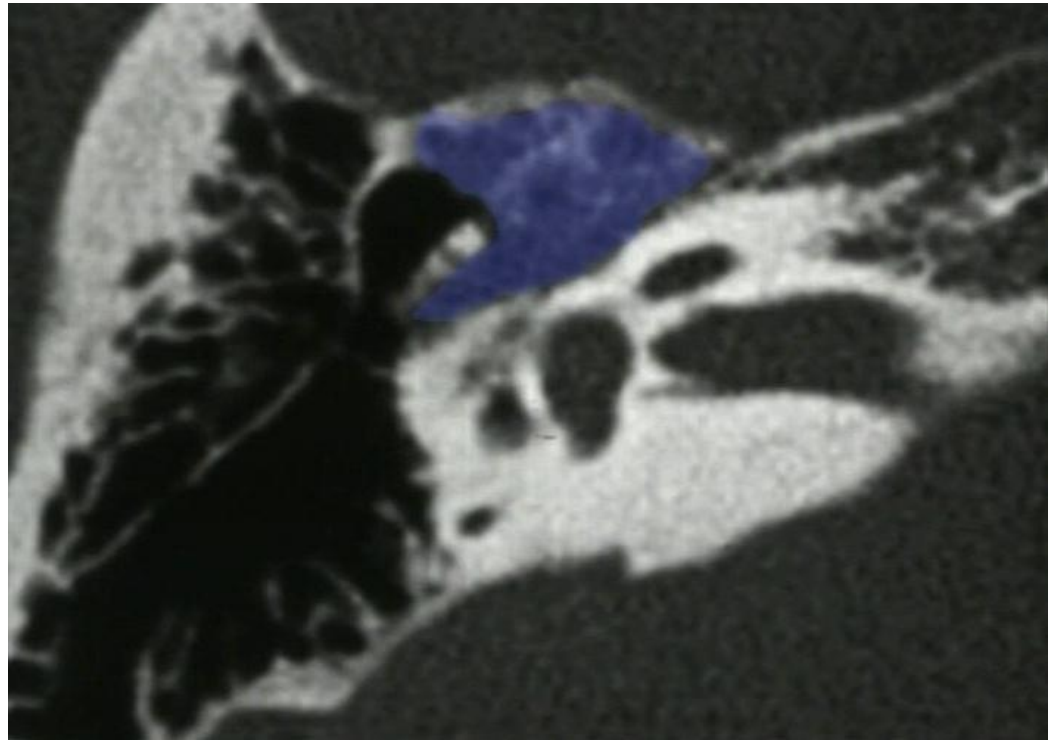
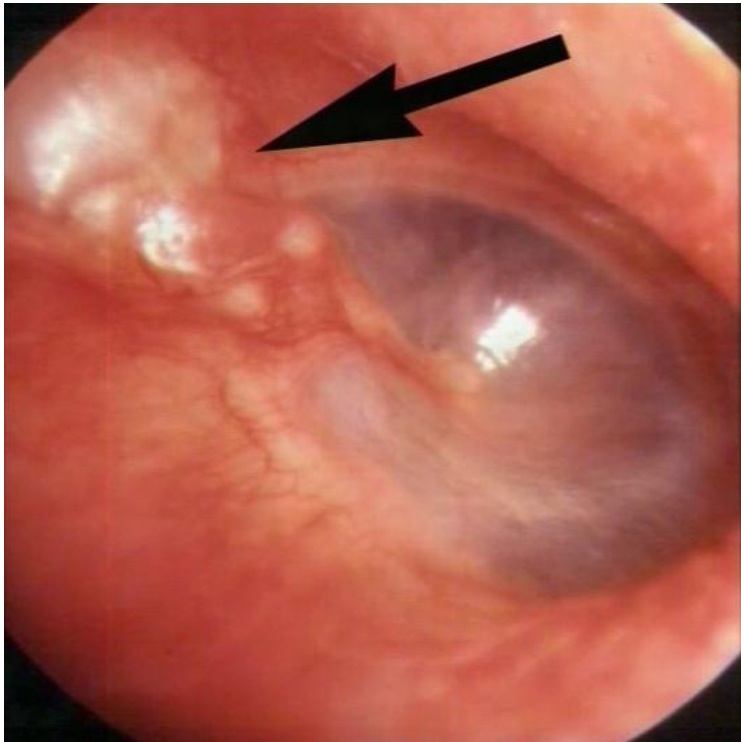
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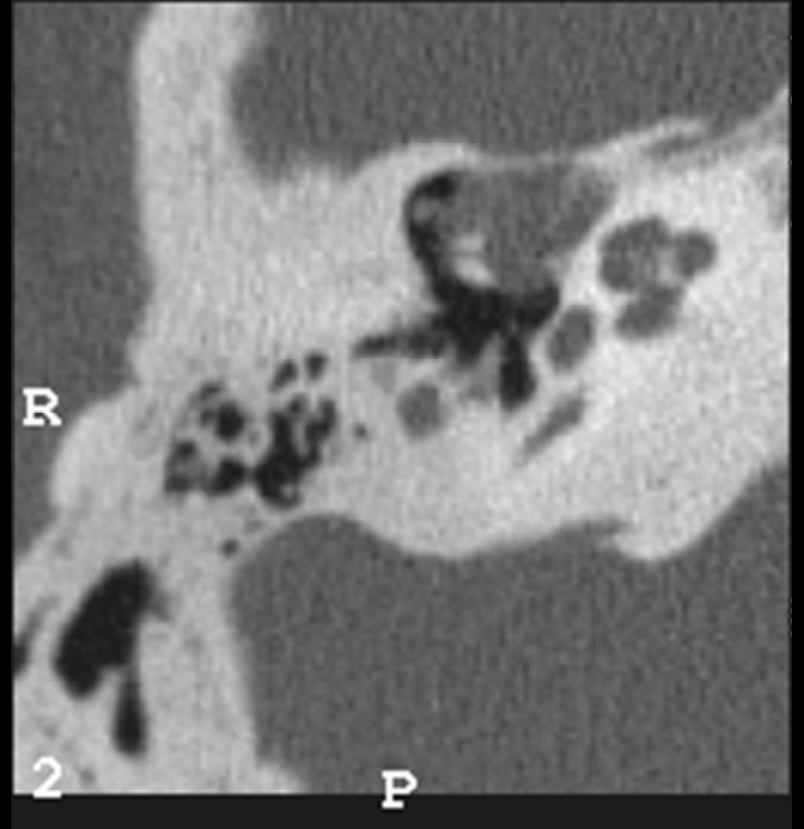
ANTERIOR EPITYMPANIC CHOLESTEATOMA

- The route of cholesteatoma is anterior to the malleus head with an extension into the supratubal recess. Facial nerve dysfunction may occur with these lesions.



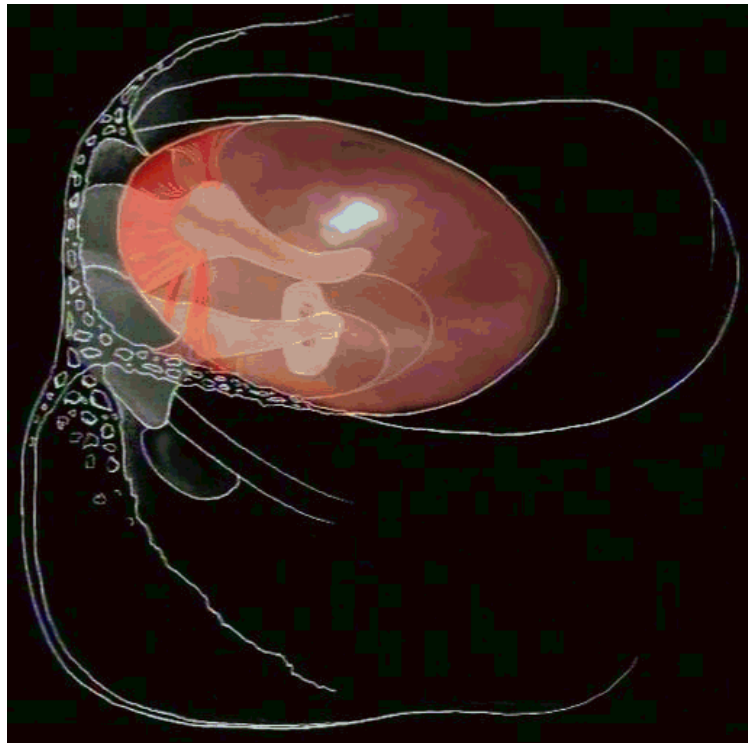
ANTERIOR EPITYMPANIC CHOLESTEATOMA



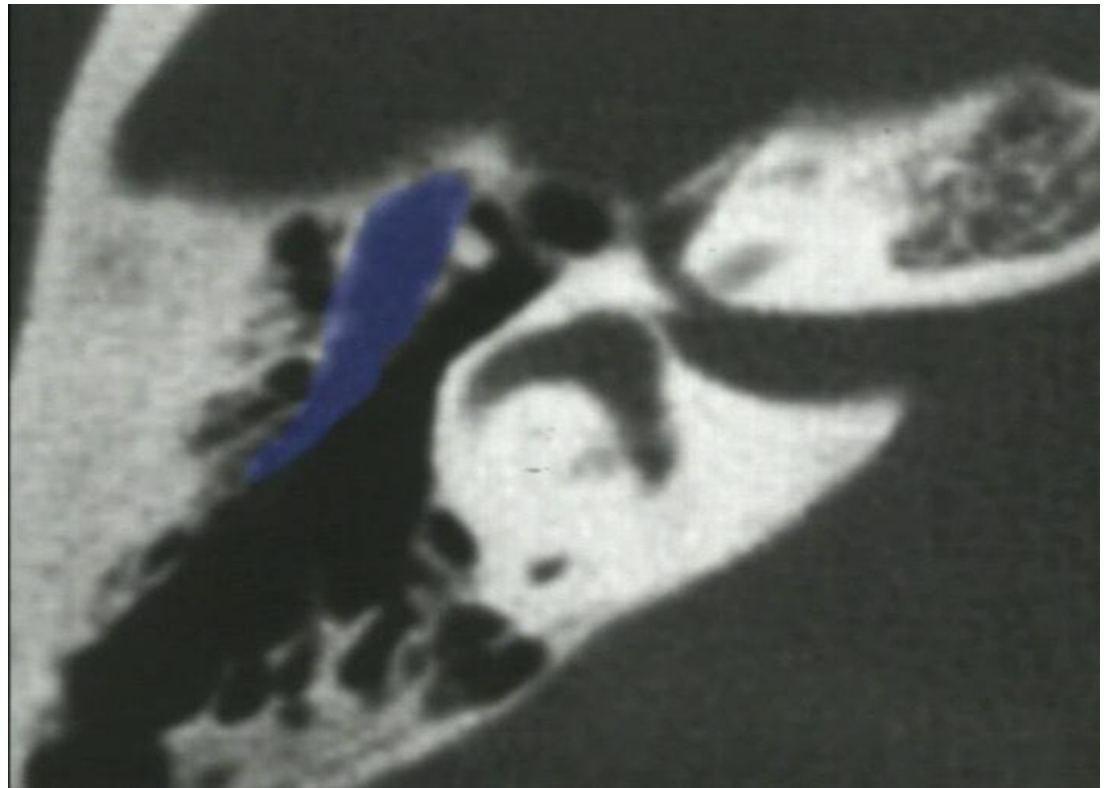
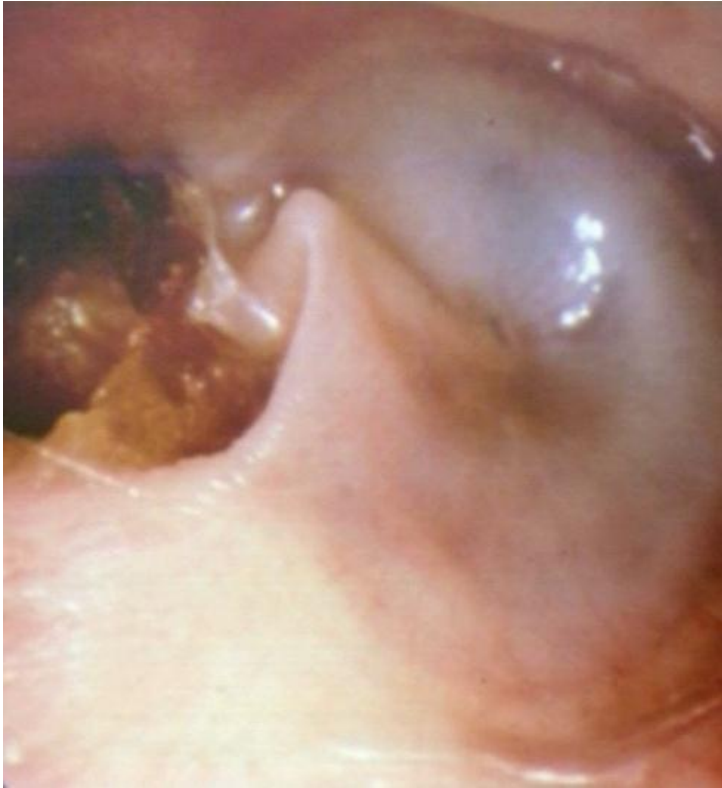


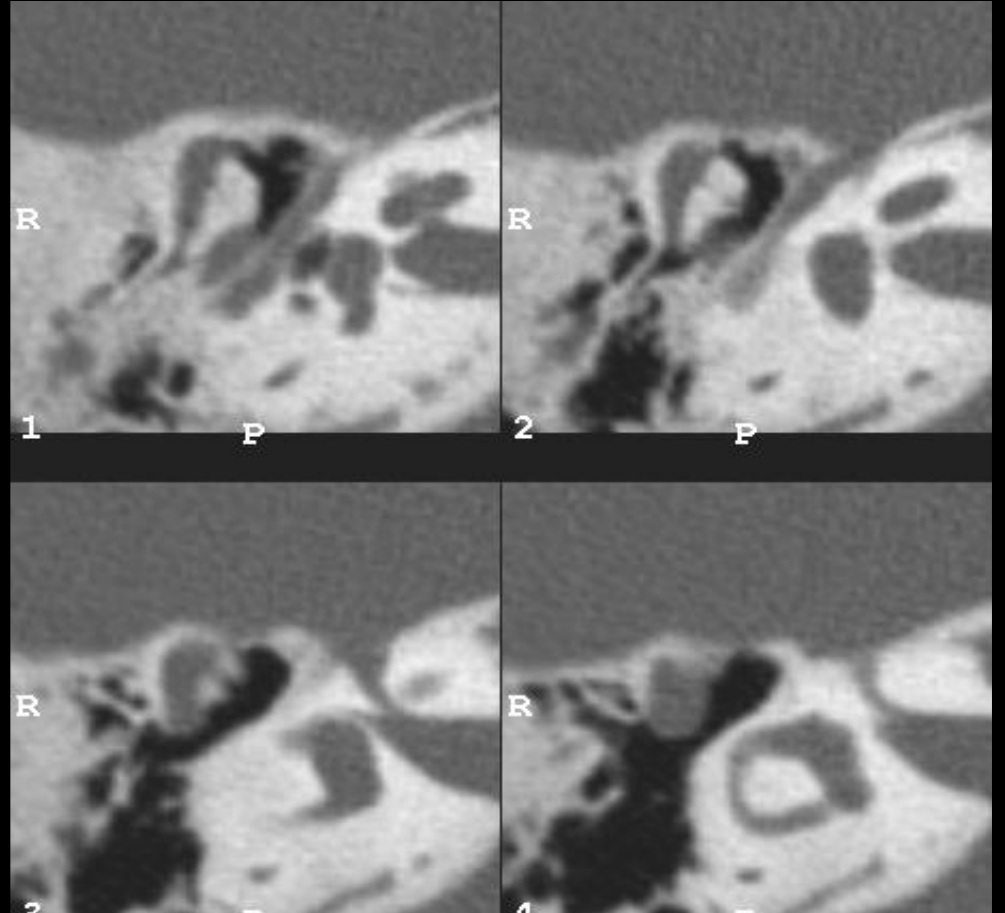
POSTERIOR EPITYMPANIC CHOLESTEATOMA

- From Prussack's space the cholesteatoma passes through the superior incudal space lateral to the incus body and then traverses the aditus and antrum to enter the mastoid.



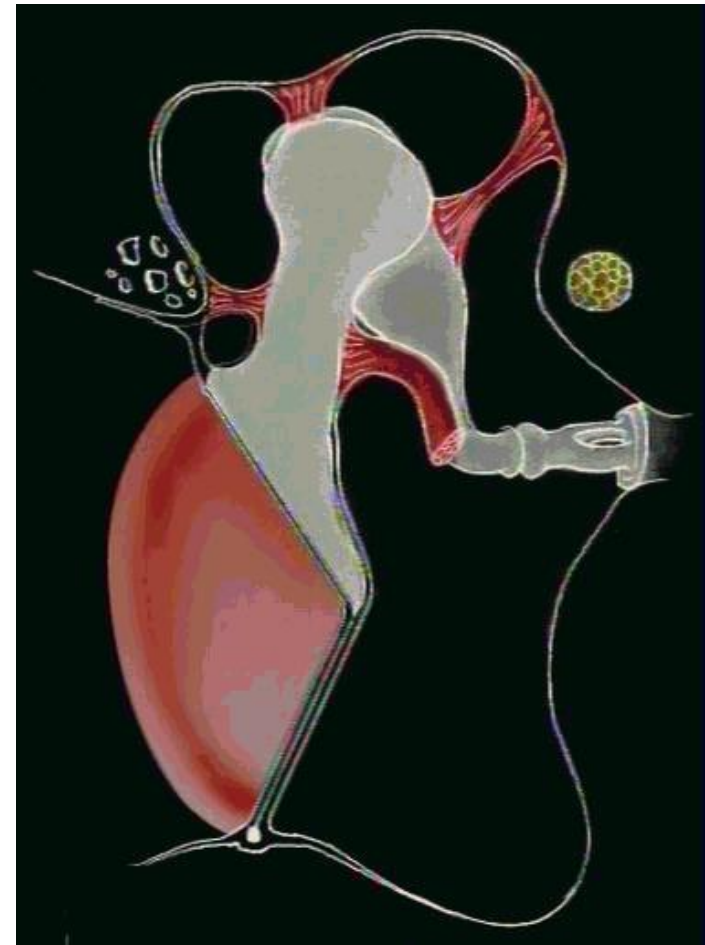
POSTERIOR EPITYMPANIC CHOLESTEATOMA



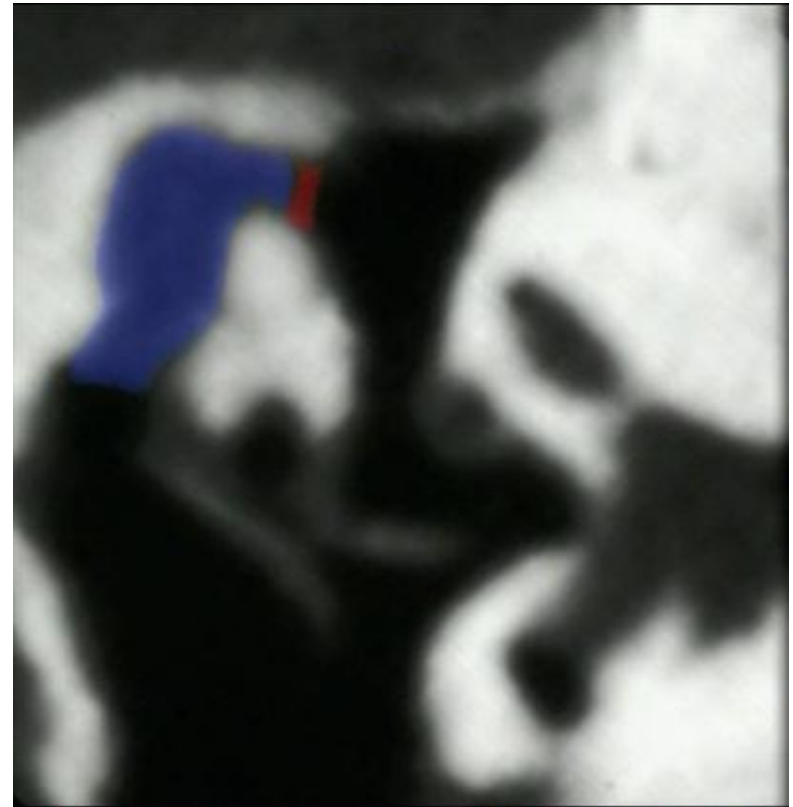
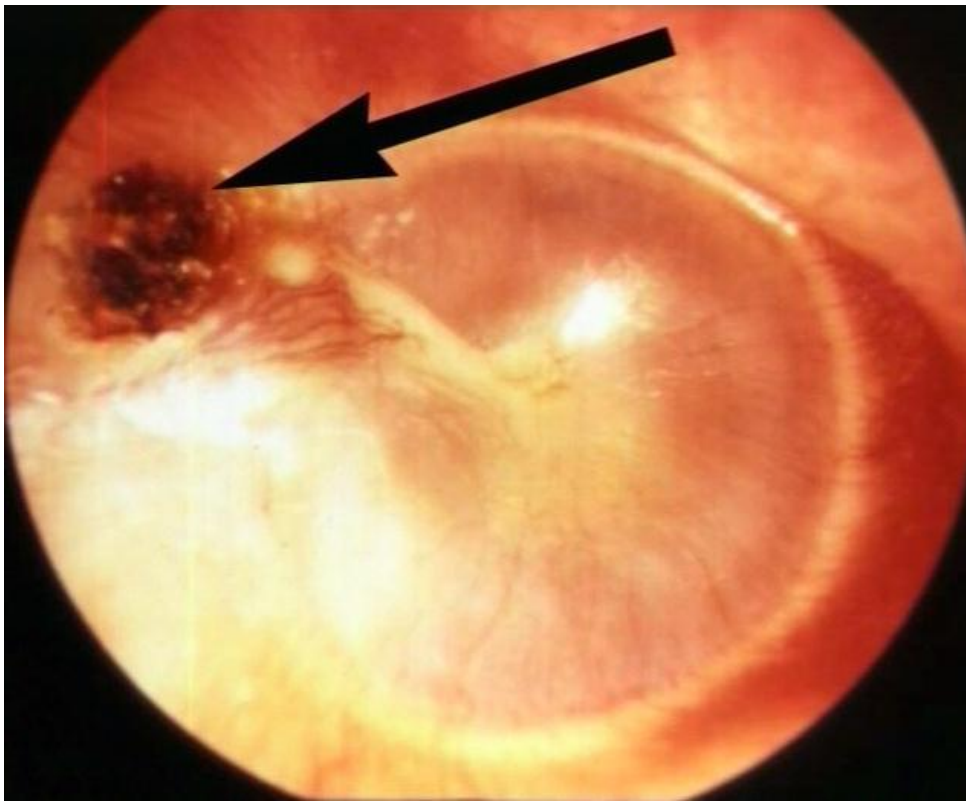


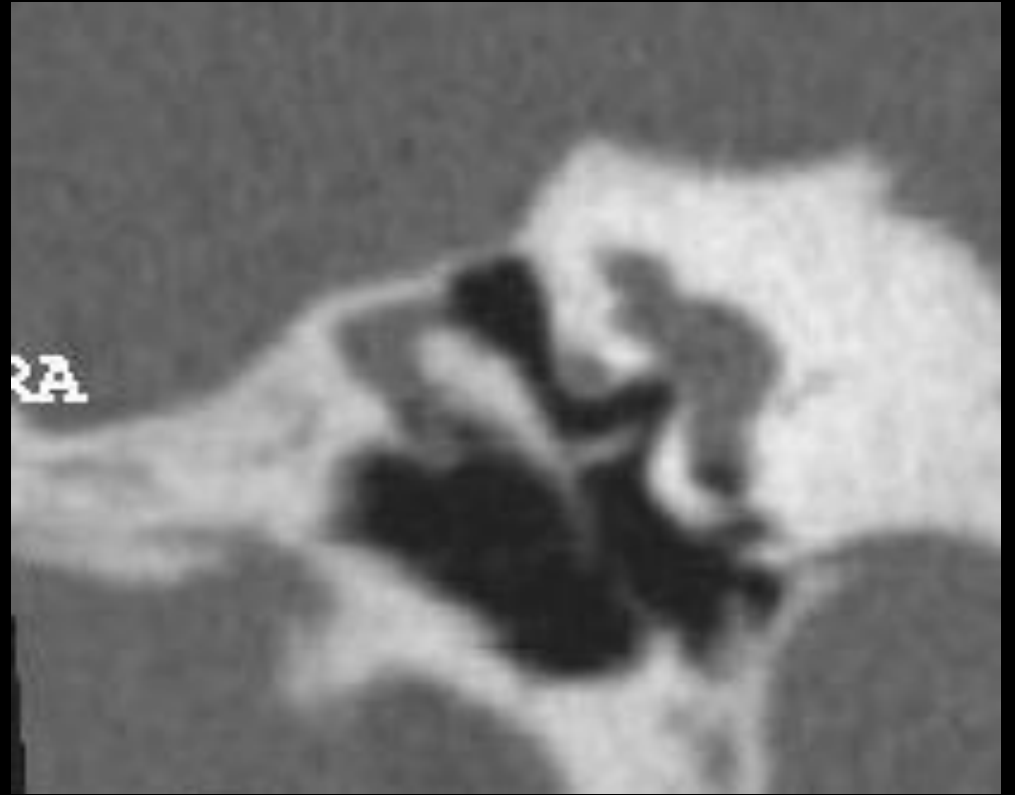
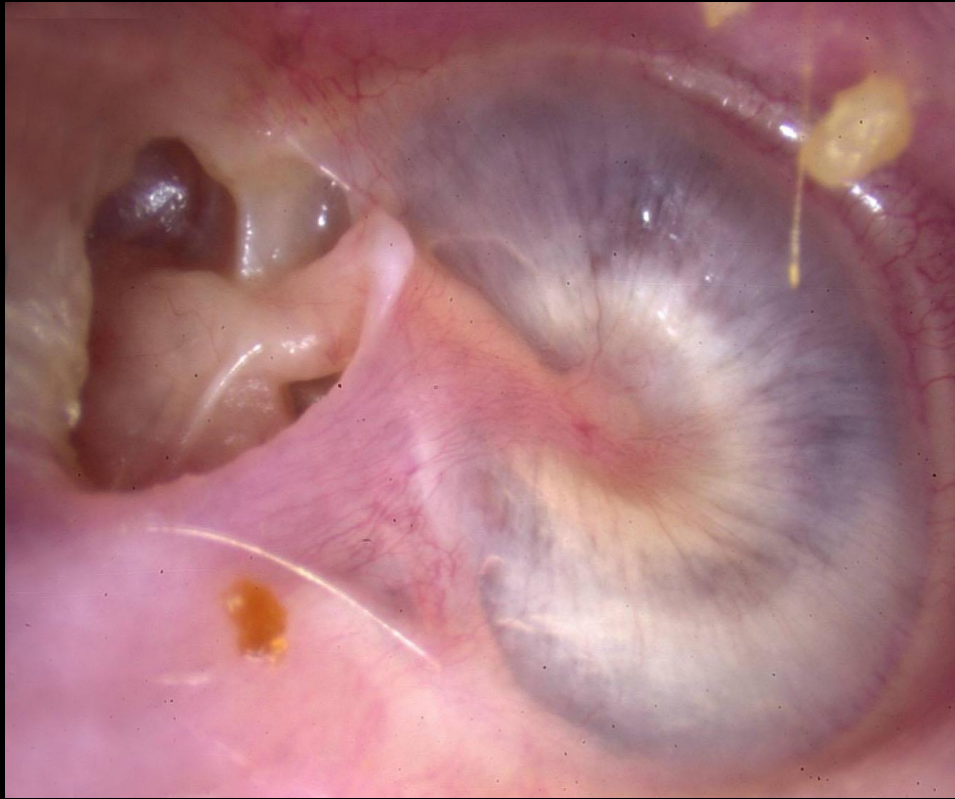
LATERAL EPITYMPANIC CHOLESTEATOMA

■ The cholesteatoma is located between the pars flaccida of the tympanic membrane and the neck of the malleus.



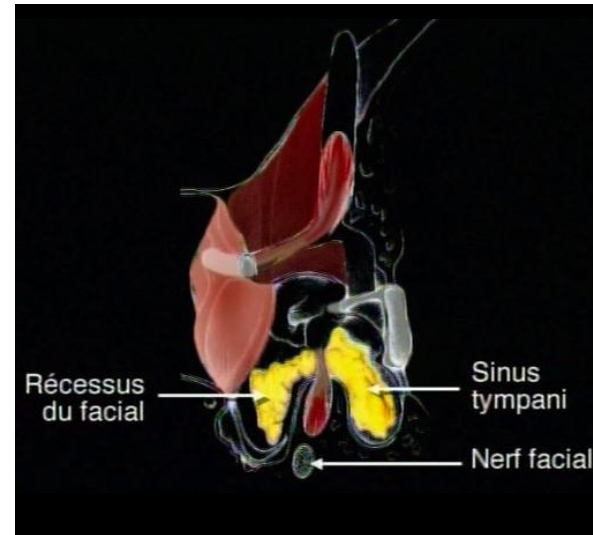
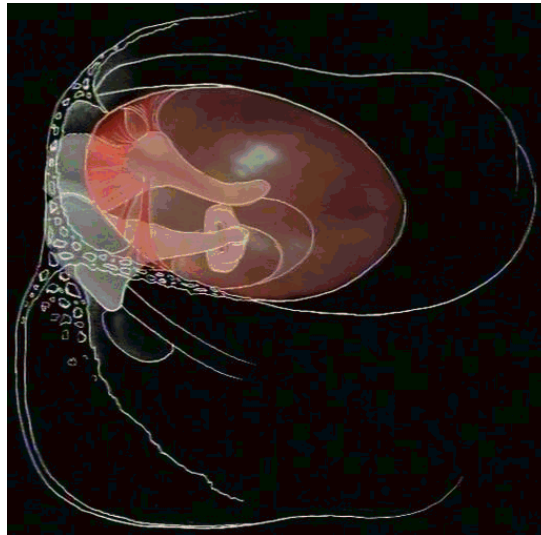
LATERAL EPITYMPANIC CHOLESTEATOMA





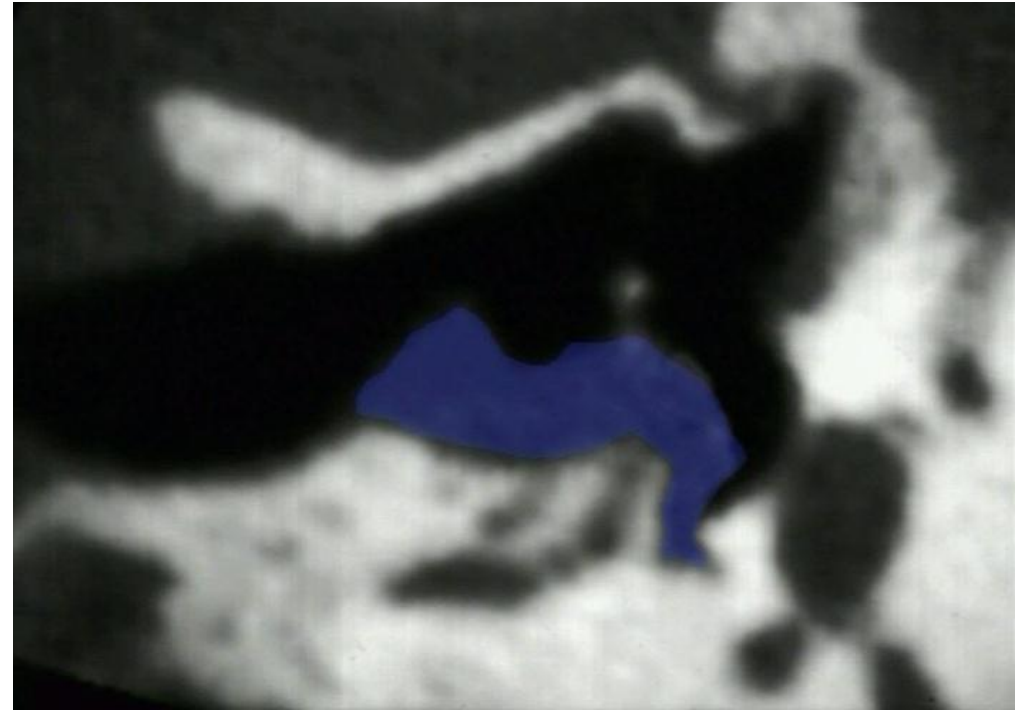
MESOTYMPANIC CHOLESTEATOMA

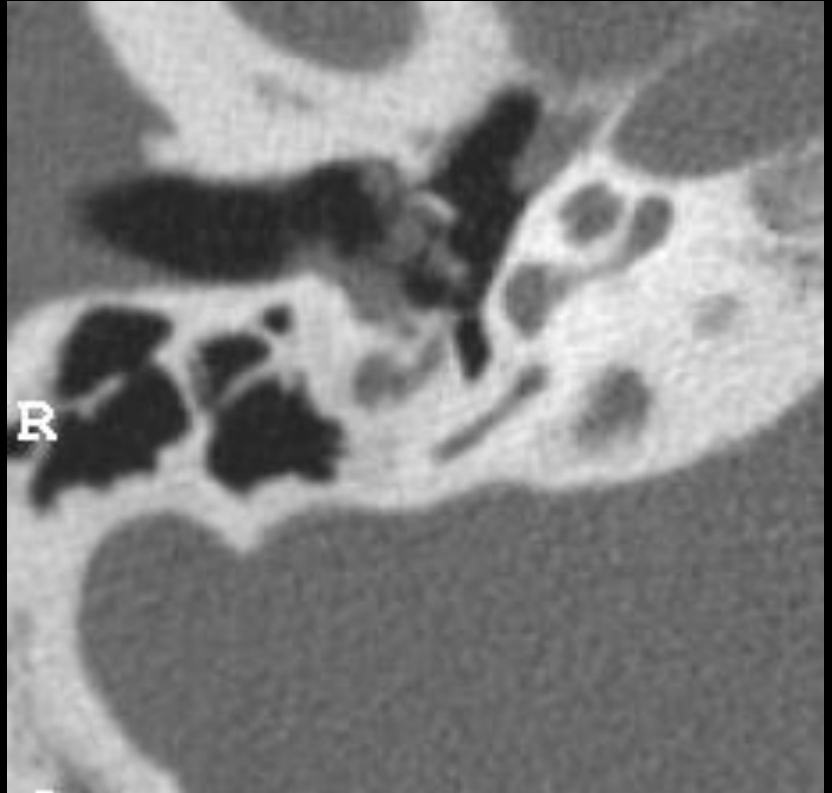
- The posterior portion of the pars tensa retracts into the mesotympanum and involves the sinus tympani and the facial recess.



- Type 1 : The facial recess
- Type 2 : The sinus tympani and the facial recess

MESOTYMPANIC CHOLESTEATOMA





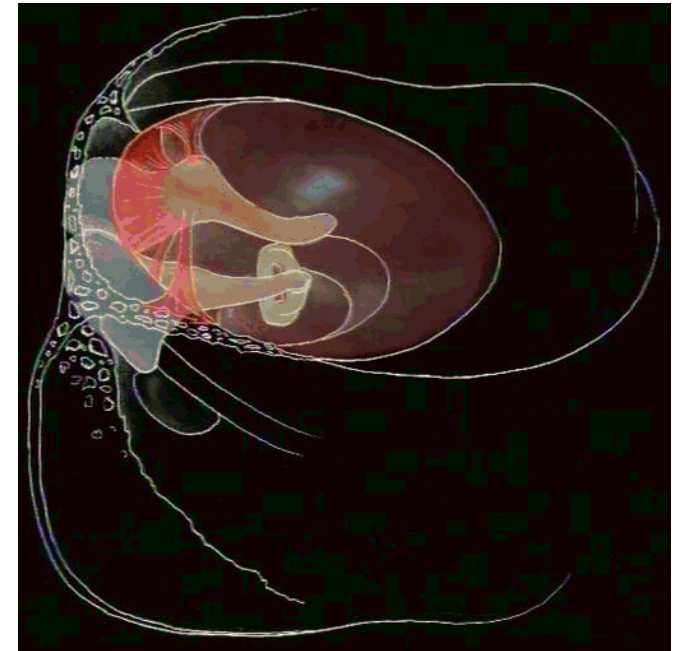
HOLOTYMPANIC CHOLESTEATOMA

Extension of a posterior mesotympanic

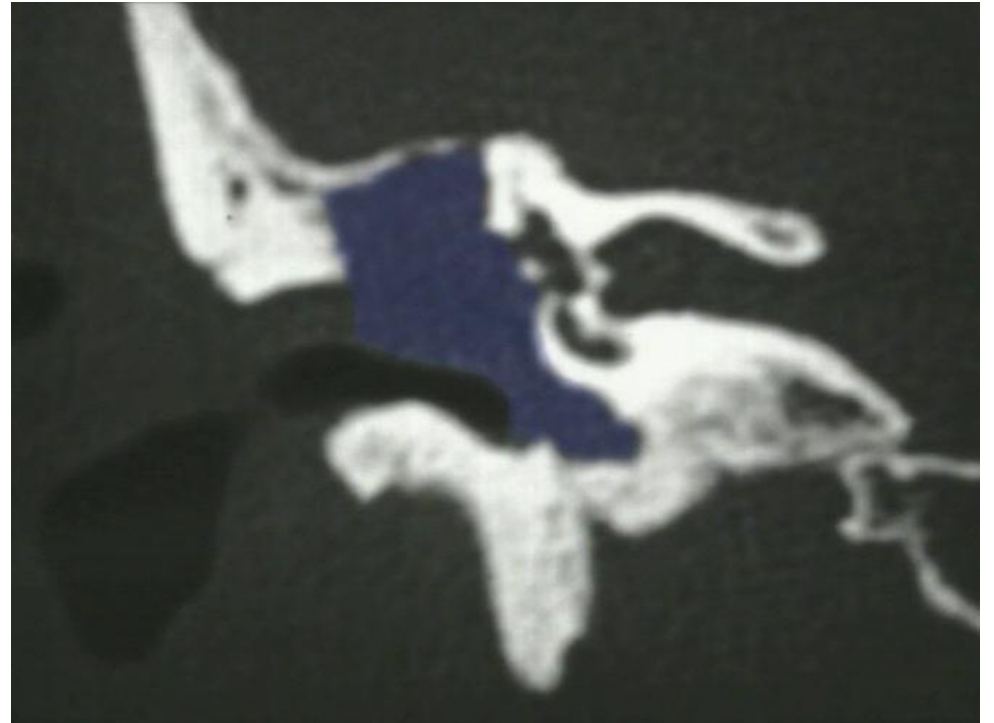
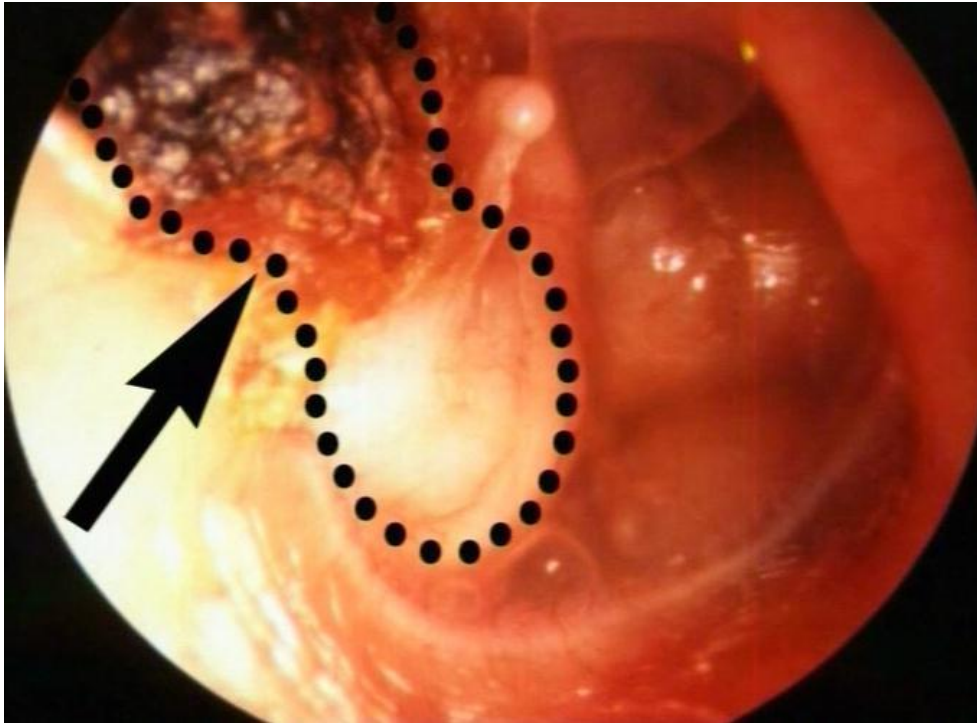
- Cholesteatoma to the mastoid

Extension of an epitympanic

- Cholesteatoma in the mesotympanum



HOLOTYMPANIC CHOLESTEATOMA



THE DIFFERENT SURGICAL TECHNIQUES



Intact canal wall up – Closed technique

- Transcanal epitympanotomy
- CWU with anterior epitympanotomy
- CWU with posterior tympanotomy
- Combined approach

Canal wall down – Open technique

Obliteration technique

SURGICAL APPROACH ACCORDING TO THE TYPE OF CHOLESTEATOMA

Lateral epitympanic cholesteatoma

→ **Transcanal epitympanotomy**

Posterior and anterior epitympanic cholesteatoma

→ **CWU with anterior tympanotomy**

Mesotympanic cholesteatoma

→ **CWU with posterior tympanotomy**

Holotympanic cholesteatoma

→ **Open technique or combined approach**

CHOLESTEATOMA AND SURGICAL STRATEGY



Lateral epitympanic cholesteatoma



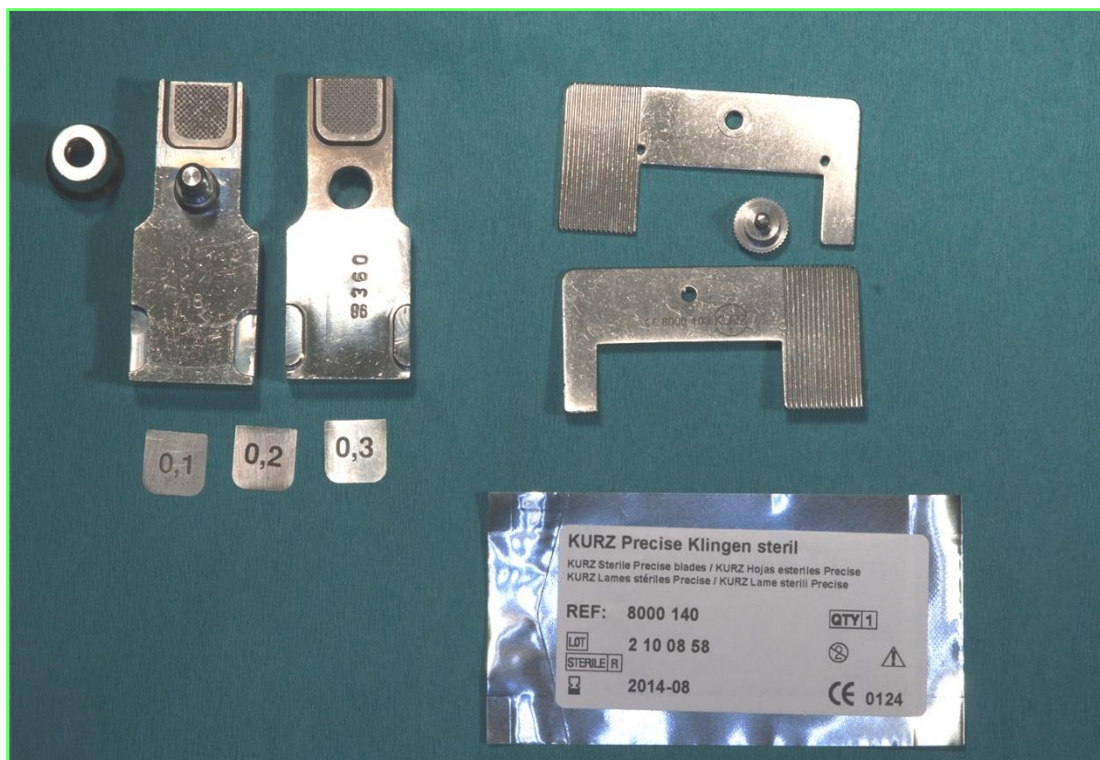
Transcanal epitympanotomy



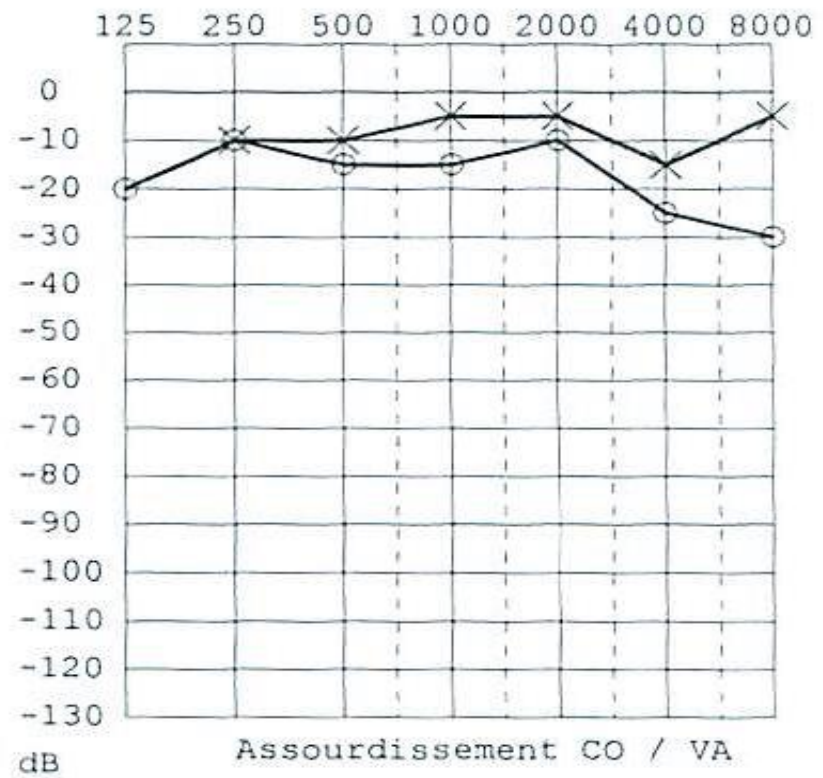
- *An endaural incision is performed*
- *The superior part of the external auditory canal is drilled to visualize the lateral epitympanum*
- *Reconstruction of the lateral attic wall with bone or cartilage*

RECONSTRUCTION ATTICALE

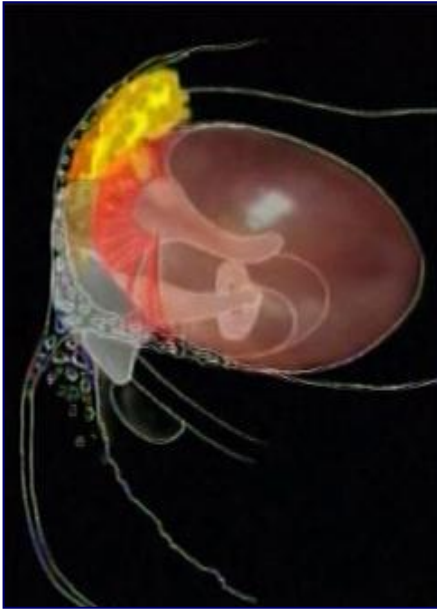
■ Cartilage fin



TECHNIQUE



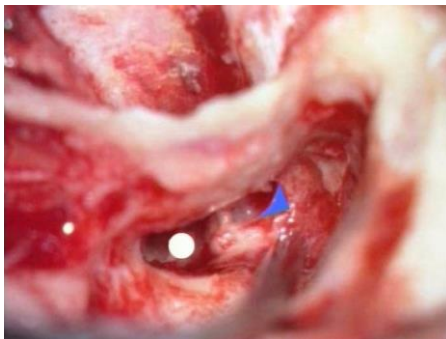
CHOLESTEATOMA AND SURGICAL STRATEGY



Anterior and posterior
epitympanic cholesteatoma

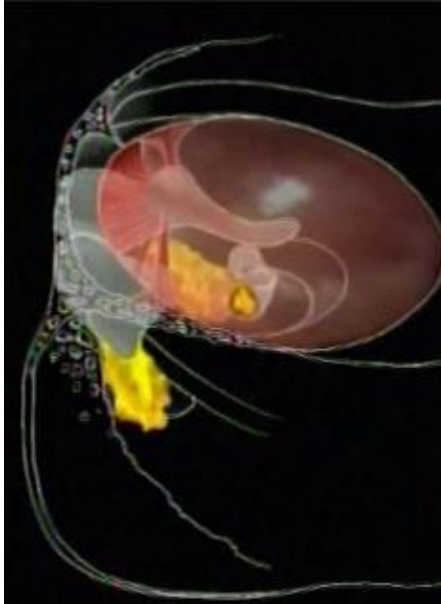


Canal wall up technique with
anterior epitympanotomy



- *Removal of the incus, head of the malleus, attic bony plate, tensor fold*
 - *To improve accessibility*
 - *To create a new aeration pathway from the supratubal recess to the antrum*

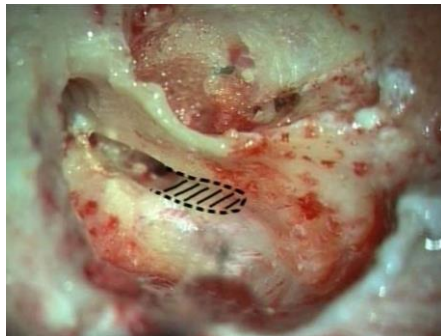
CHOLESTEATOMA AND SURGICAL STRATEGY



Mesotympanic cholesteatoma

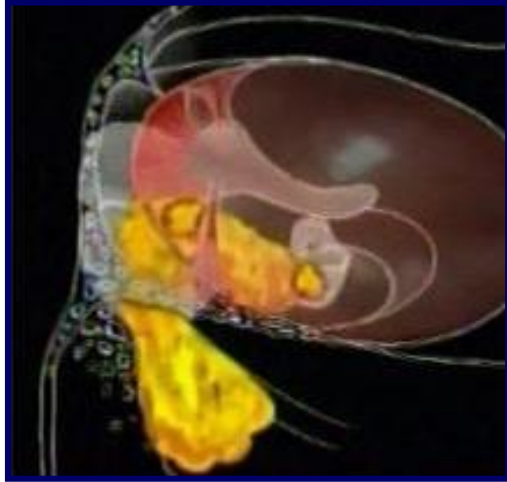


Canal wall up technique with posterior tympanotomy



- *Identification of the vertical (mastoid) segment of the facial nerve*
- *Opening of the facial recess and large posterior tympanotomy (extended facial recess)*

CHOLESTEATOMA AND SURGICAL STRATEGY



Holotympanic cholesteatoma



Sclerotic mastoid



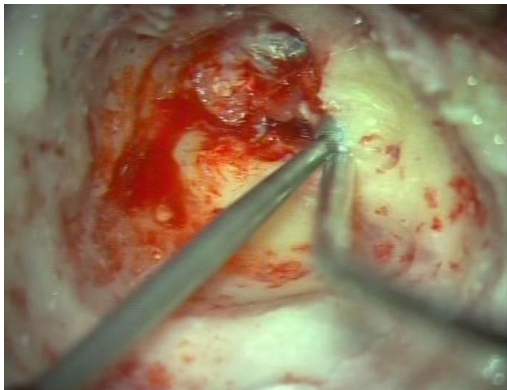
Large mastoid



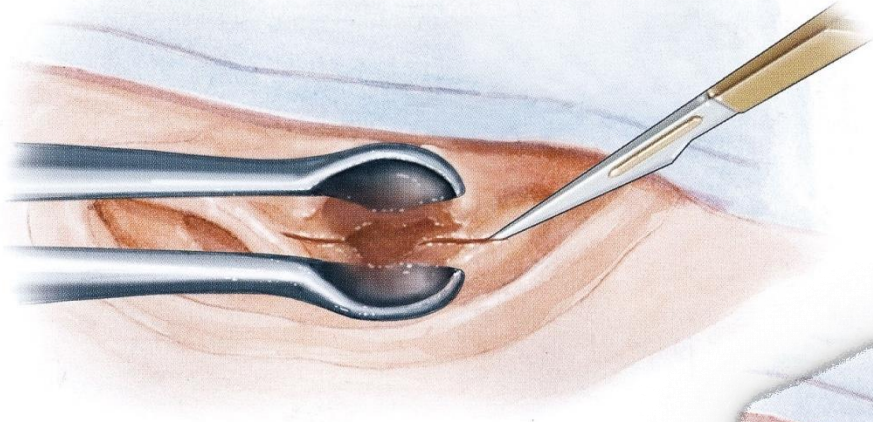
Open technique



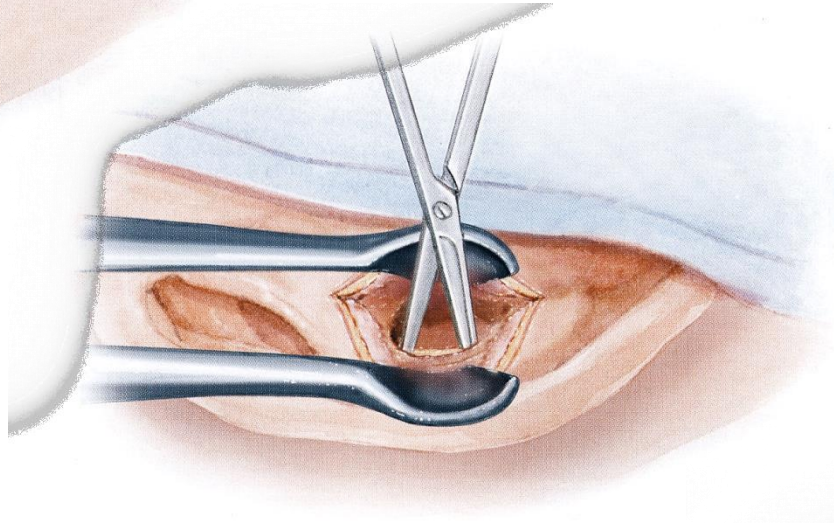
Combined approach
Anterior and posterior tympanotomy



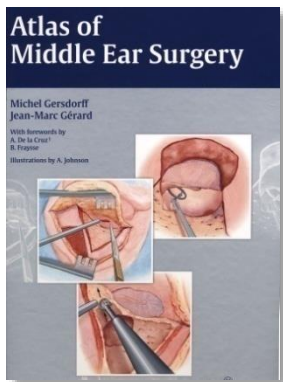
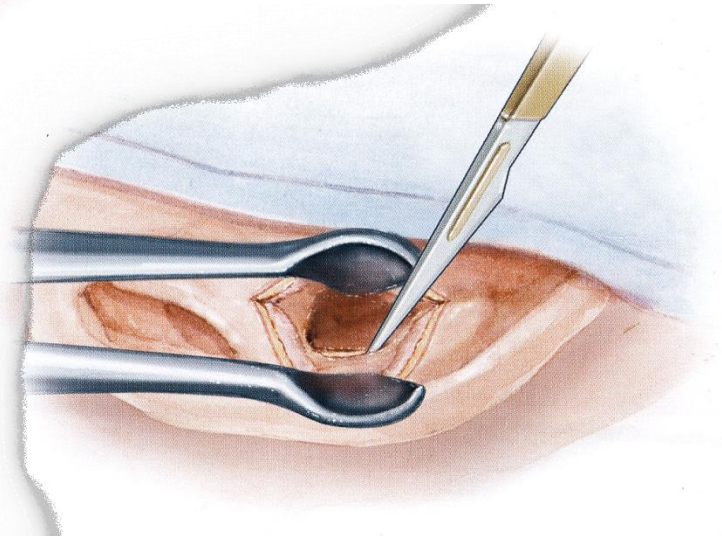
- Lateral incision



- Skin dissection



- Cartilage removal



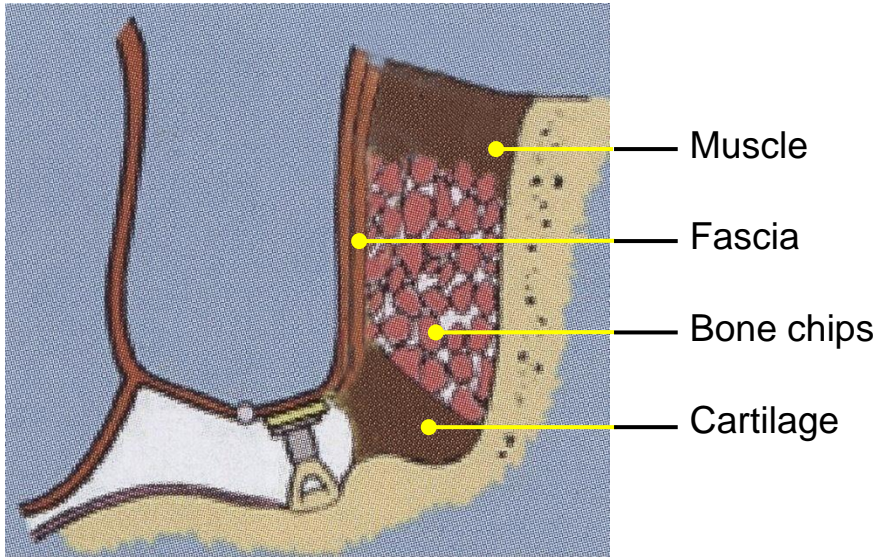
OBLITERATIVE TECHNIQUE



« **The obliteration technique consists of meticulous reconstruction and obliteration of the mastoid** »

- Theoretically the obliteration technique :
 - Should not permit recurrent cholesteatoma to appear (as retraction pocket) and reduced the number of residual cholesteatoma due to the wide exposure
 - Should avoid the disadvantage of open cavity :
 - ➔ recurrent infection
 - ➔ water intolerance
 - ➔ caloric induced vertigo
 - ➔ difficulty to wear hearing aid

OBLITERATIVE TECHNIQUE

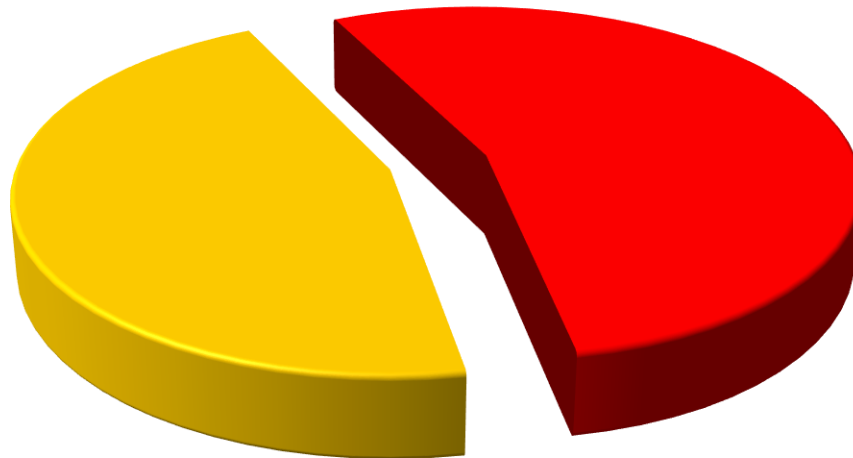


- FELDMANN 1978
- MERKE 1987
- GANTZ 2005
- VERCRUYSSSE 2008

SURGICAL PROCEDURE

717 cases

- Canal wall up technique (Closed technique)
587 (82 %)



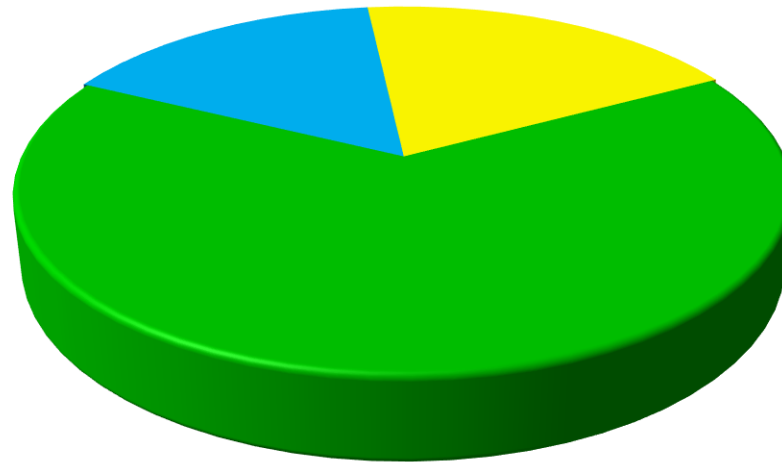
- Open technique
130 (18 %)

SURGICAL PROCEDURE CLOSED TECHNIQUE

587 cases

■ Posterior tympanotomy
(16 %)

■ Anterior tympanotomy
(19 %)

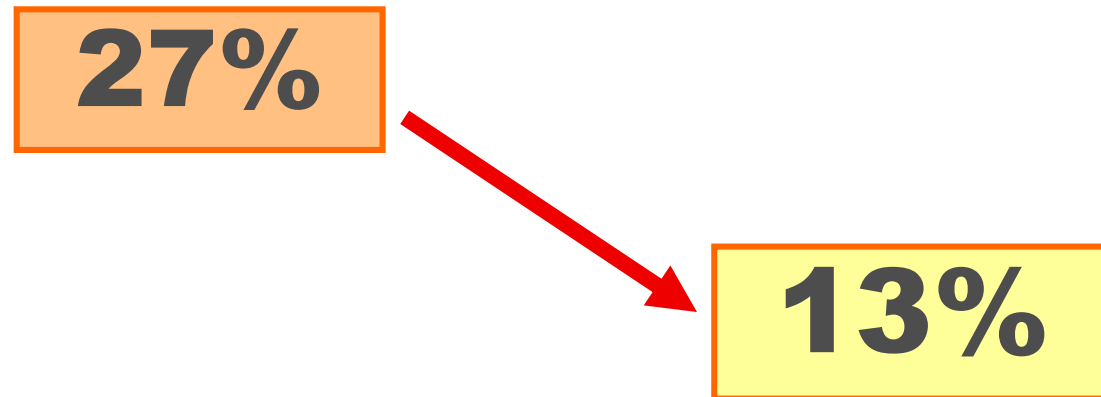


■ Combined approach : anterior & posterior
(65 %)

RESULTS

Residual cholesteatoma

- By selecting the most appropriate approach the percentage of residual cholesteatoma decrease





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Thank you for your attention