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Chronic Otitis Media and Cholesteatoma

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Ear Institute of Illinois

Hinsdale,IL

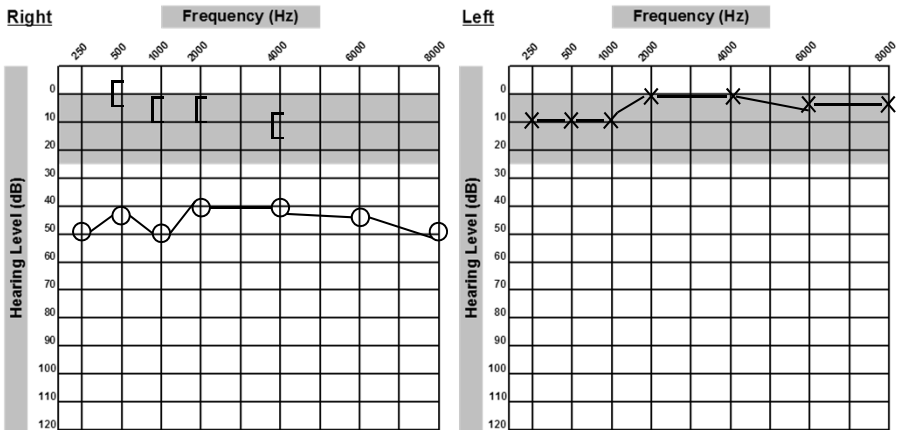
Learning Outcomes

1) Describe the definition and treatment options for chronic suppurative otitis media.
2) Explain how to recognize adhesive middle ear disease on otoscopic exam.
3) List the symptoms and signs of cholesteatoma.

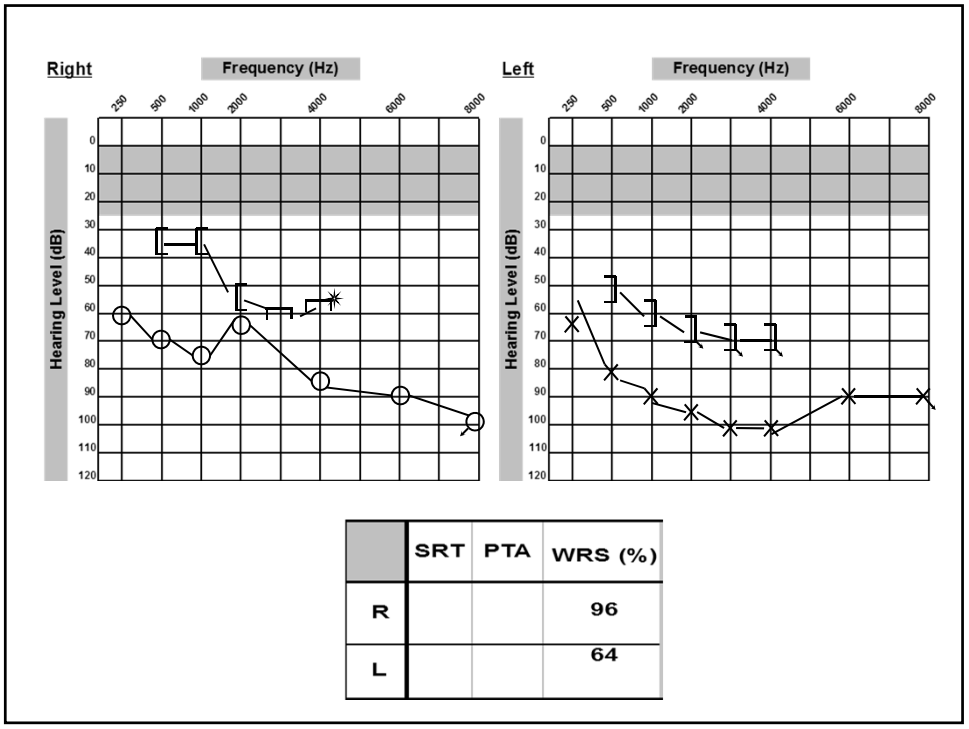
Chronic Ear Disease

- Chronic otitis media
  - Effusion
  - Suppurative
  - Adhesive
- Cholesteatoma
  - Acquired
  - Congenital

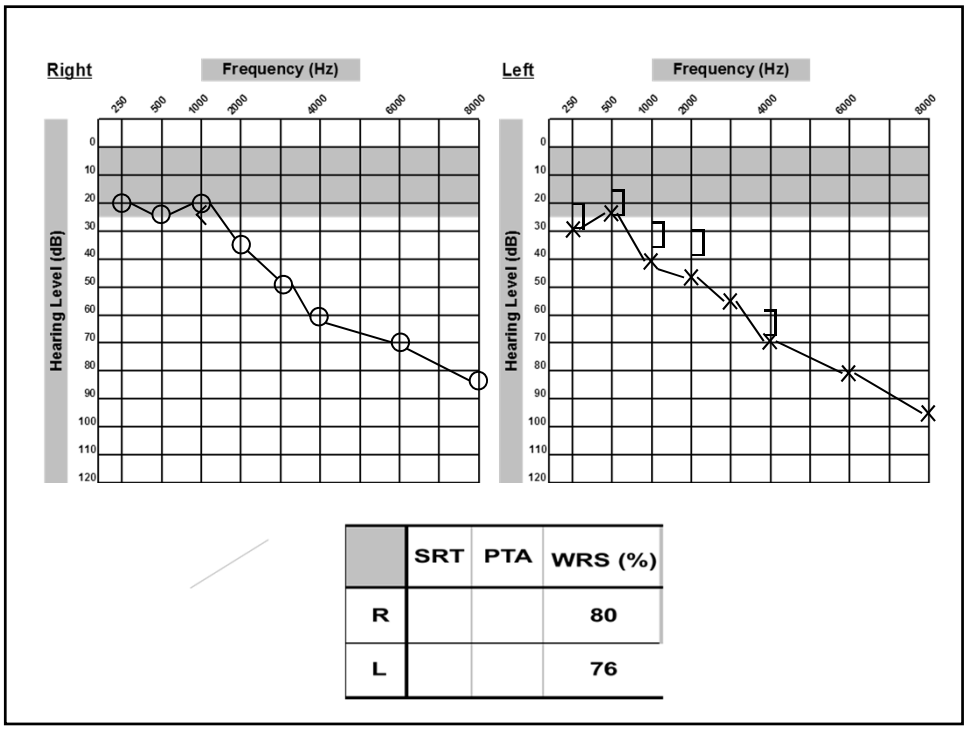
Ear Institute of Illinois



	SRT	PTA	WRS (%)
R			100
L			100



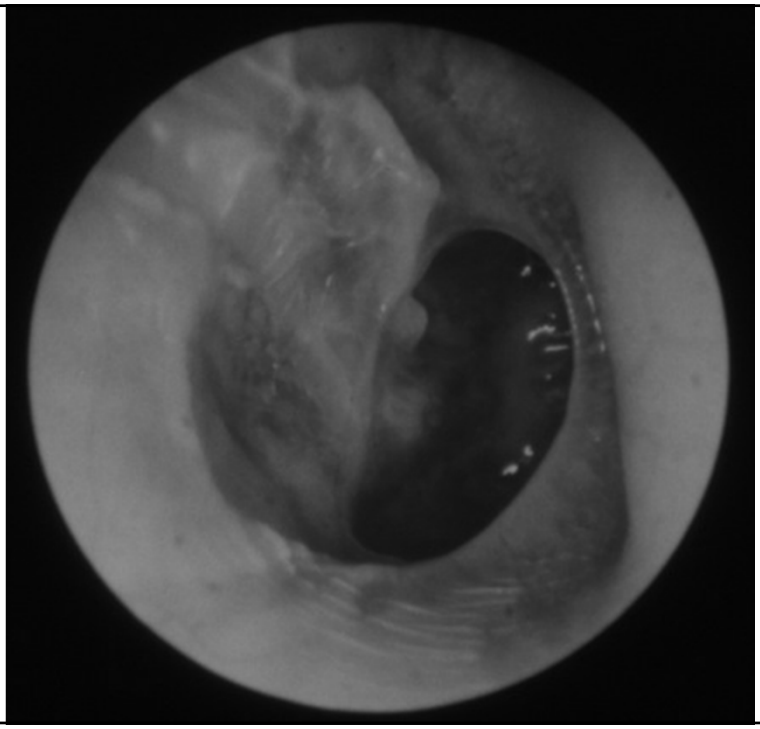
	SRT	PTA	WRS (%)
R			96
L			64

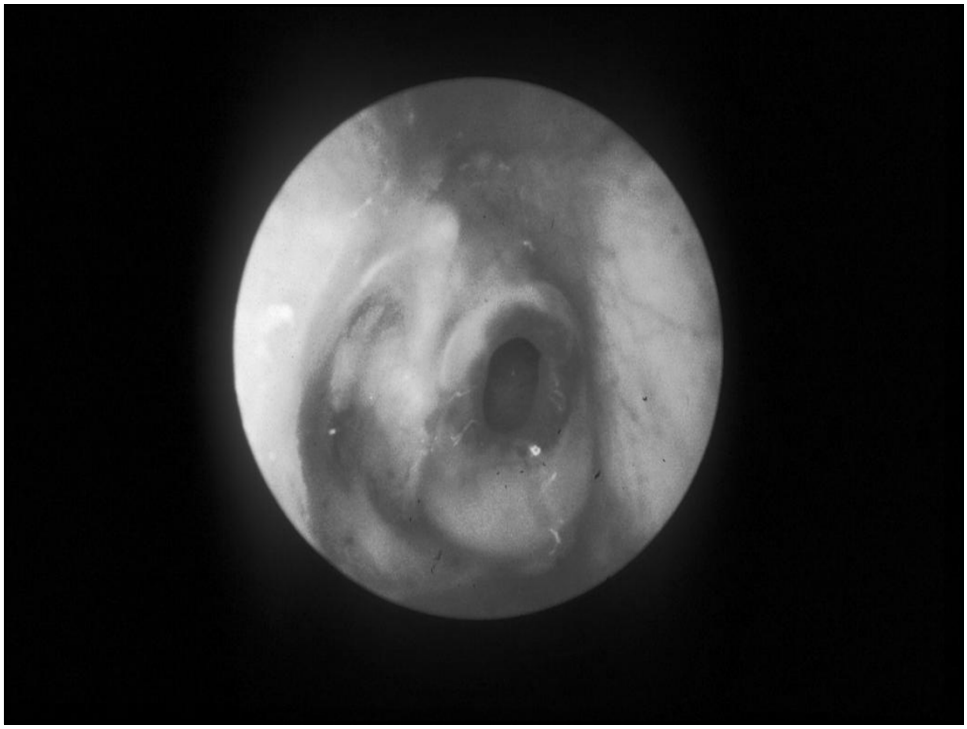


	SRT	PTA	WRS (%)
R			80
L			76

Chronic Suppurative Otitis Media (CSOM)

- Tympanic membrane perforation
- Chronic otorrhea
- > 3 months duration





CSOM: Treatment

- Aural cleansing
- Topical antimicrobials
- Oral/IV antibiotics

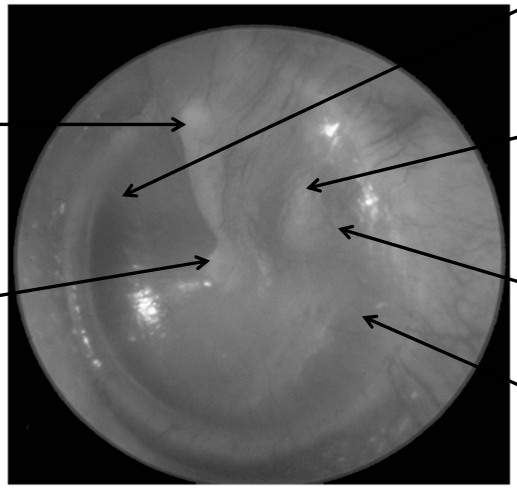
- Tympanomastoidectomy

TM Perforation: Hearing Loss

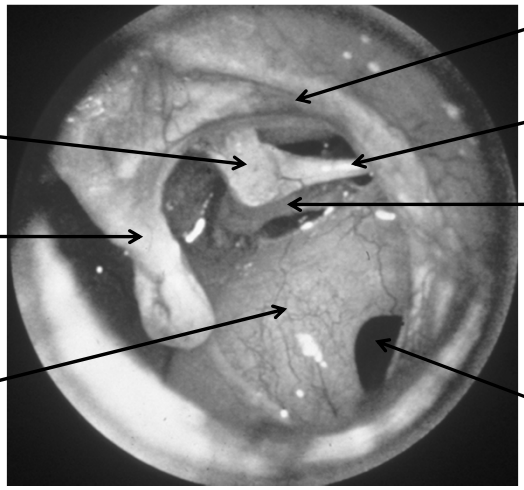
- In general:
  - Larger size: greater hearing loss
  - HL varies inversely with volume of ME/mastoid
  - HL not dependent on location of perforation

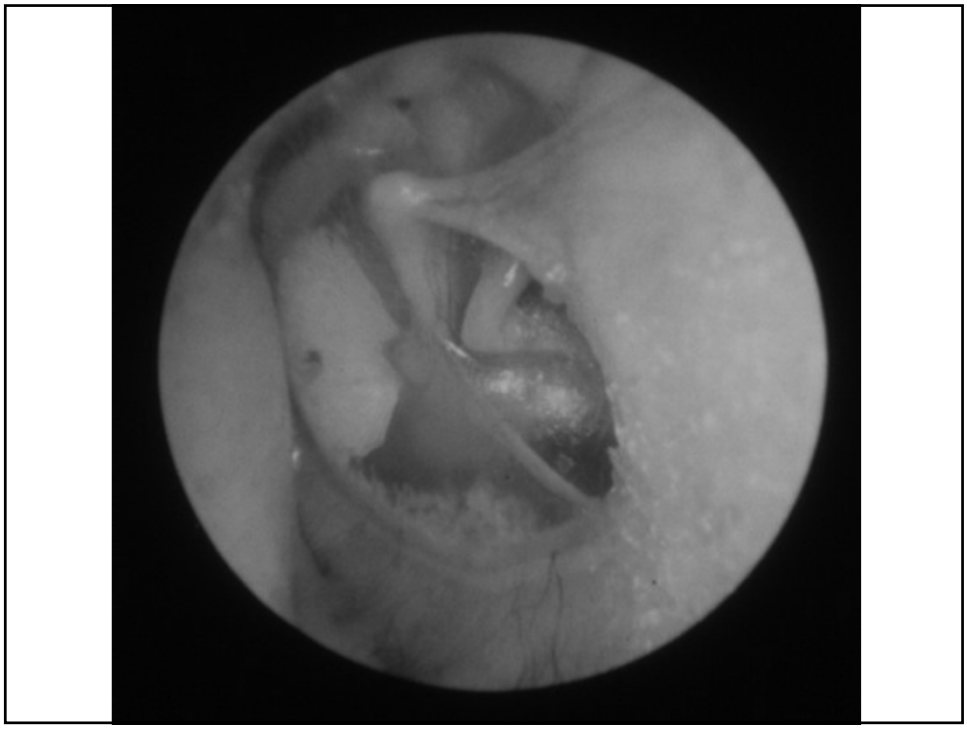
Adhesive Middle Ear Disease

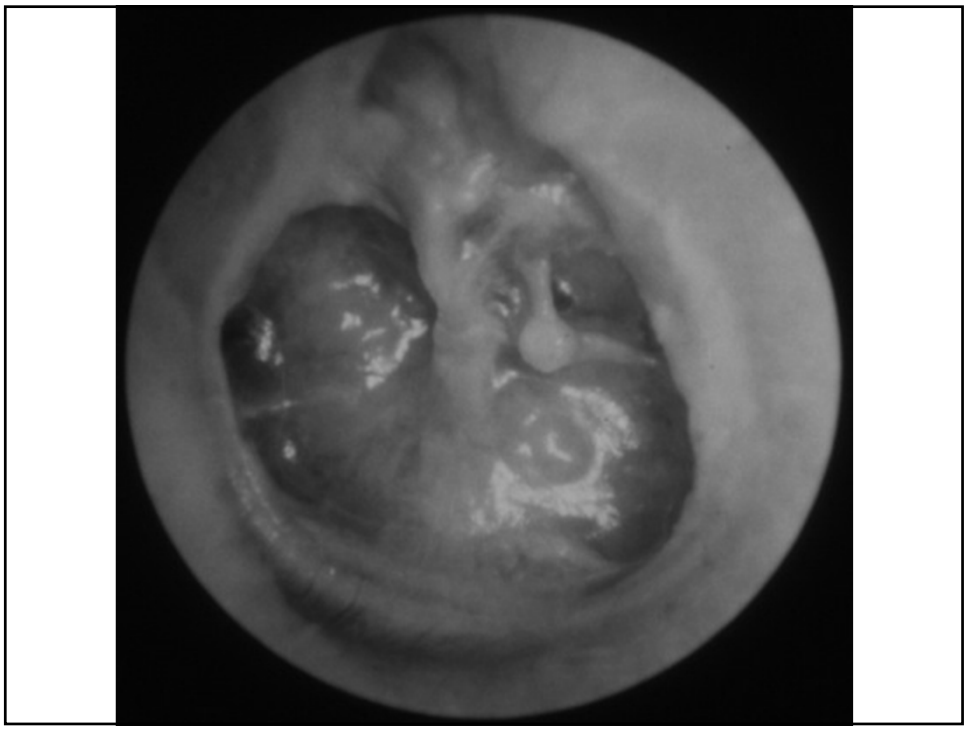
Tympanic Membrane: Anatomy

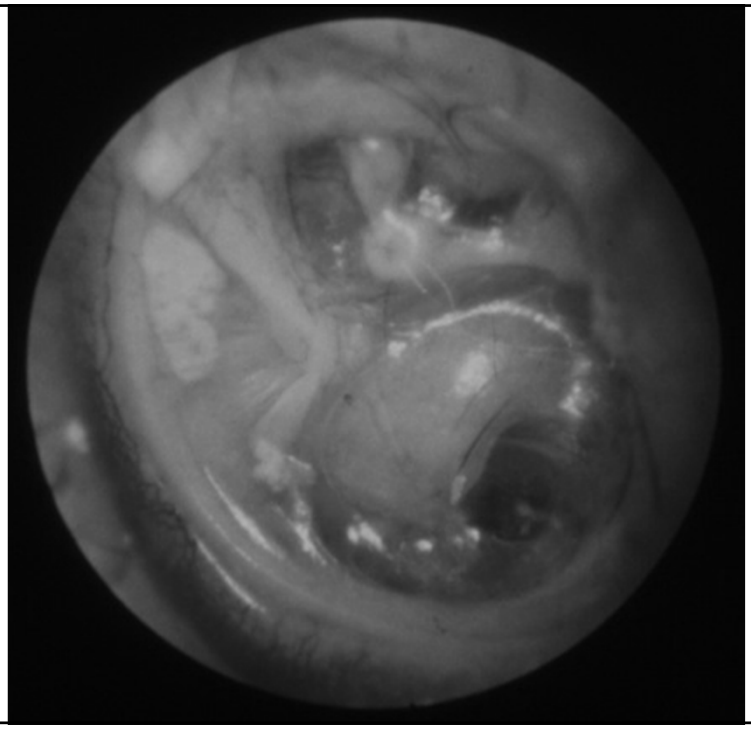


TM & Middle Ear: Anatomy









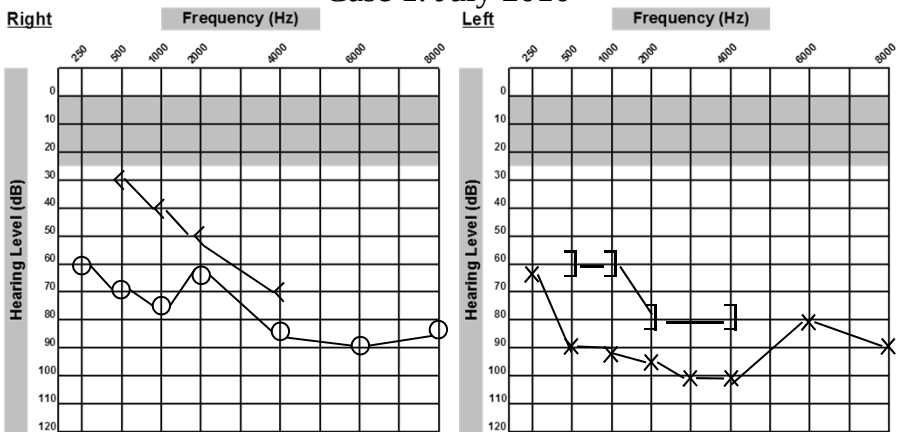
Cholesteatoma

Case 1

- 56 y.o. male
- Right: progressive loss over many months
- Left: no hearing since childhood
- Recurrent right ear infections
  - Ear pain
  - Ear drainage

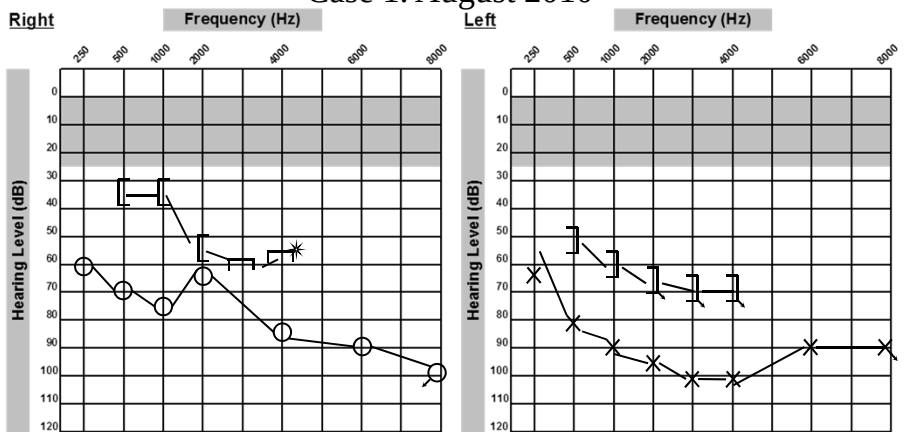
Ear Institute of Illinois

Case 1. July 2010



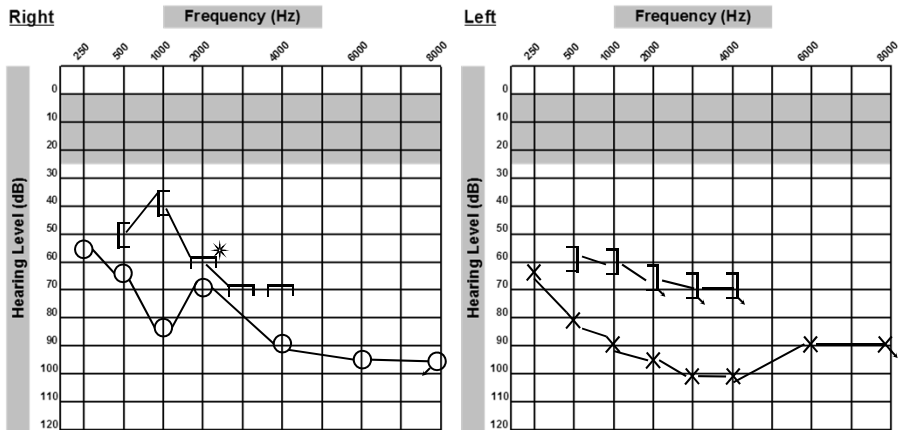
	SRT	PTA	WRS (%)
R			100
L			64

Case 1. August 2010



	SRT	PTA	WRS (%)
R			96
L			64

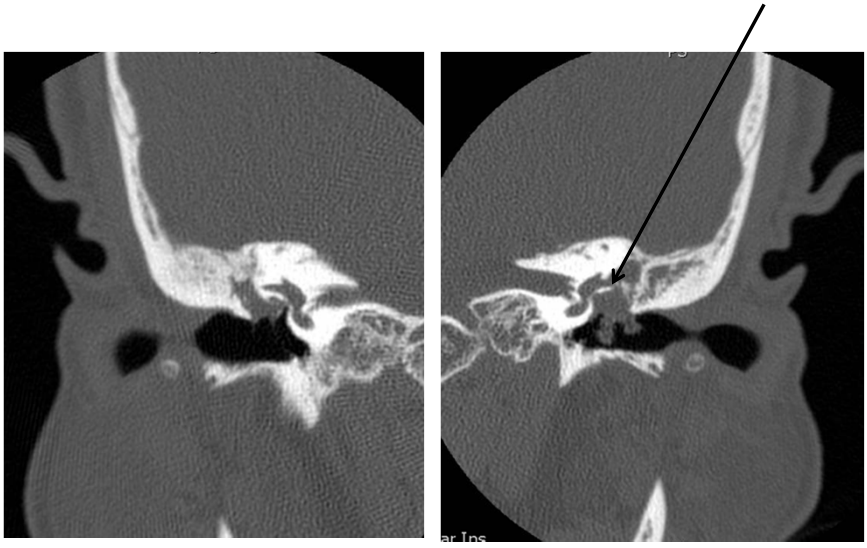
Case 1. March 2012



	SRT	PTA	WRS (%)
R			84
L			52

Case 1. Lateral Semicircular Canal Erosion

R



L

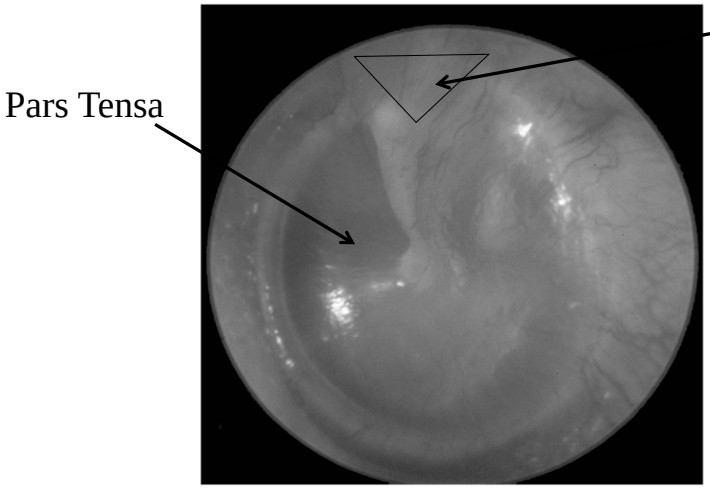
Cholesteatoma

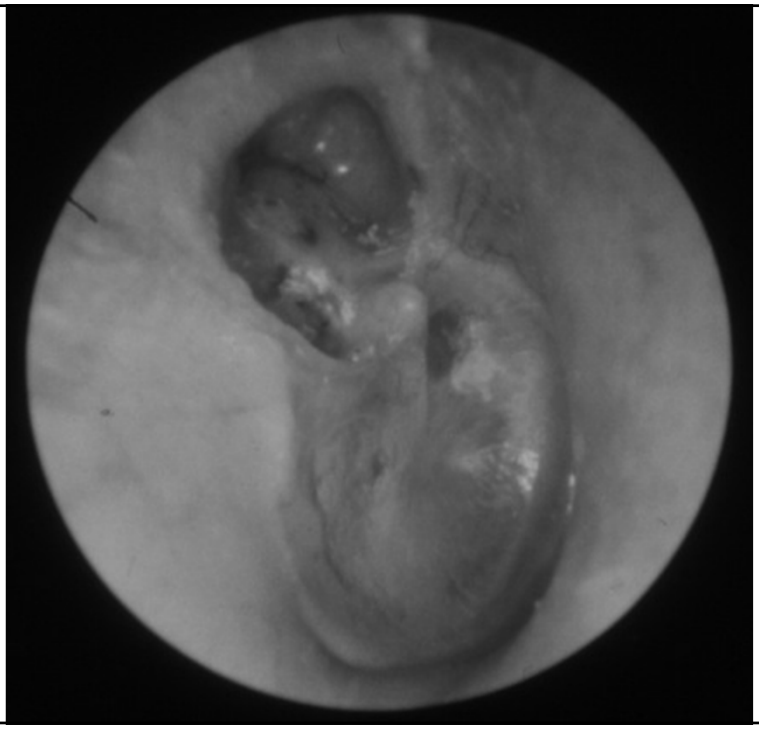
- Definition: “Trapped skin”
- Causes bone destruction
  - Pressure effects
  - Enzymatic action

Cholesteatoma: Definitions

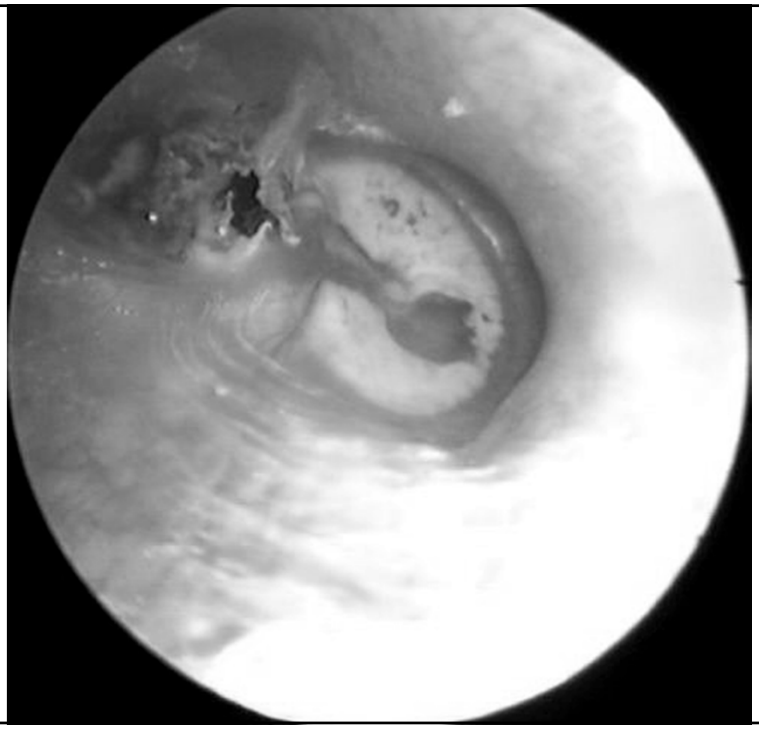
- Acquired
  - Primary: pars flaccida
  - Secondary: pars tensa
- Congenital

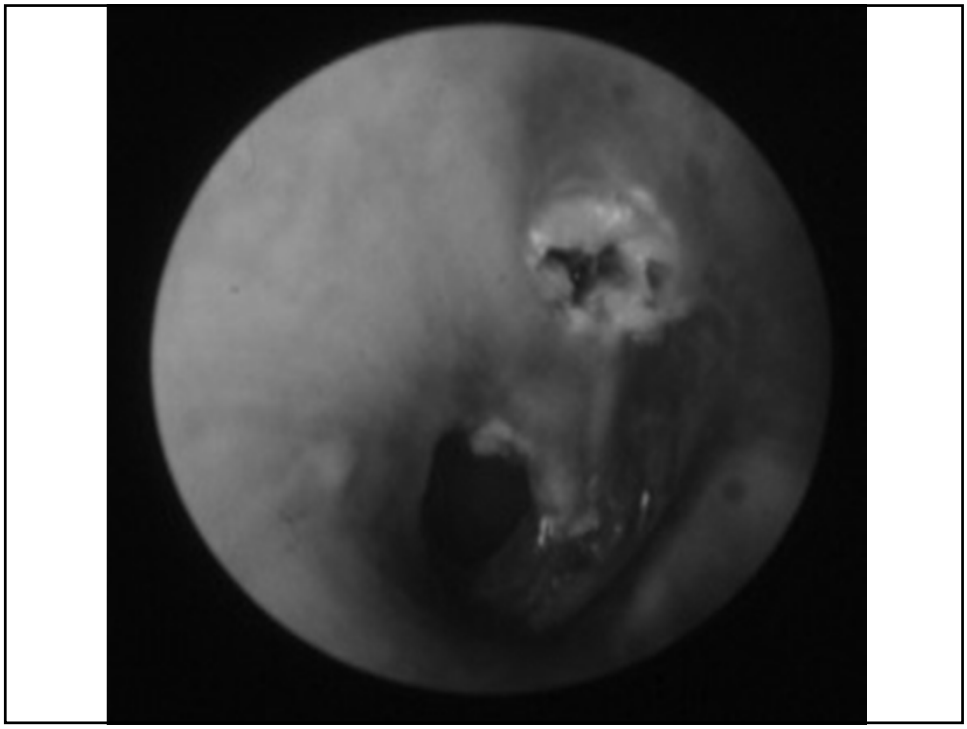
Tympanic Membrane: Anatomy

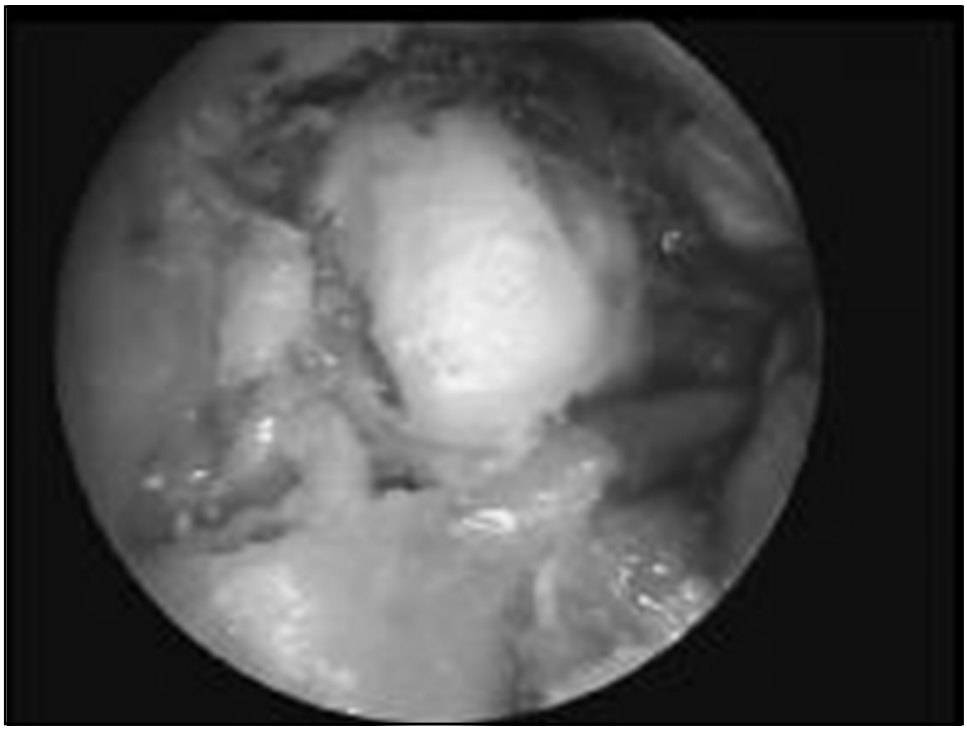





Cholesteatoma







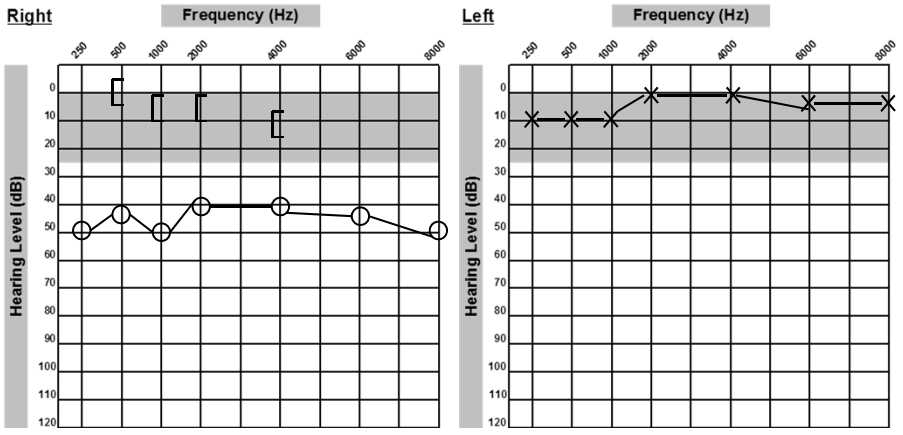
Acquired Cholesteatoma: Symptoms

- Chronic/recurrent otorrhea
- HL: conductive, mixed, SNHL
- Dizziness
- Headache: ?pending intracranial complication

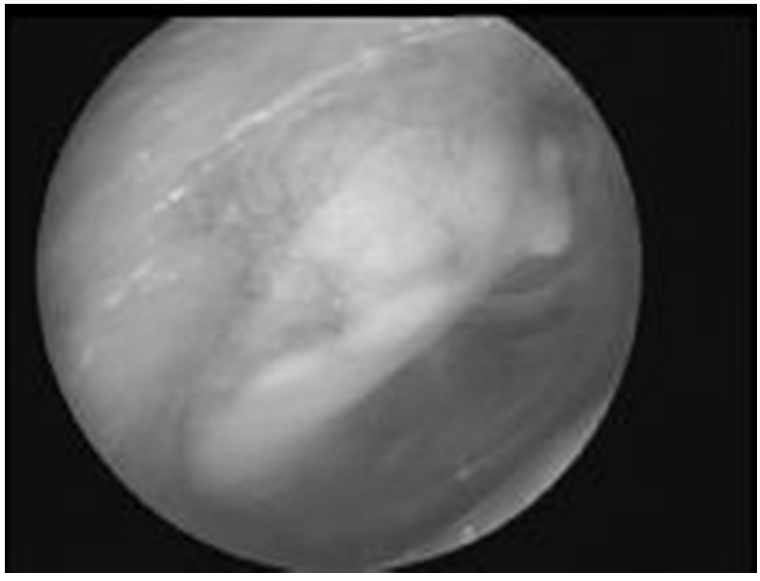
Case 2.

- 6 yo female
- Failed school hearing evaluation
- Cyst found behind right ear drum
- No prior history of ear infections

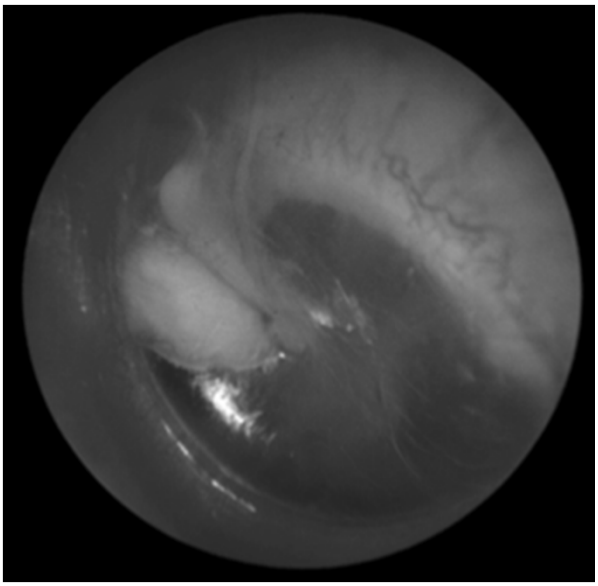
Case 2. November 2008



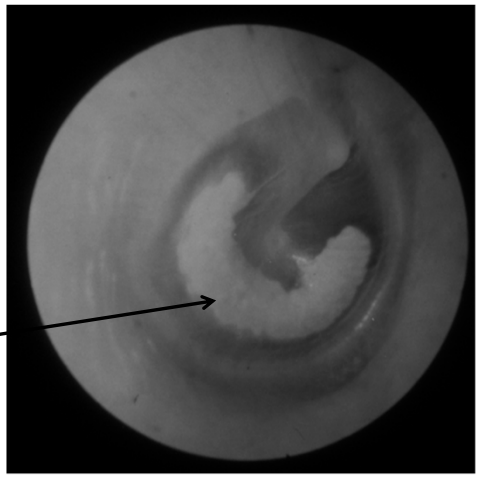
Case 2: Congenital Cholesteatoma



Congenital Cholesteatoma

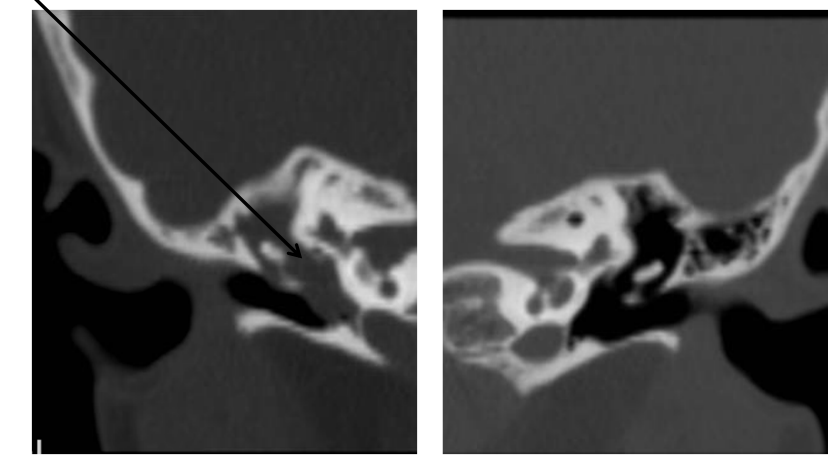


Tympanosclerosis



Case 2. Congenital Cholesteatoma

R

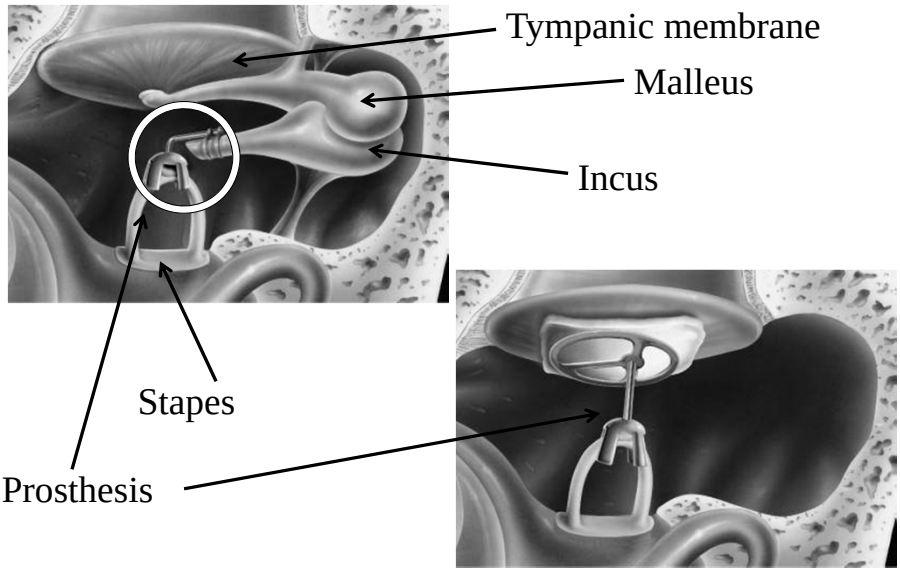


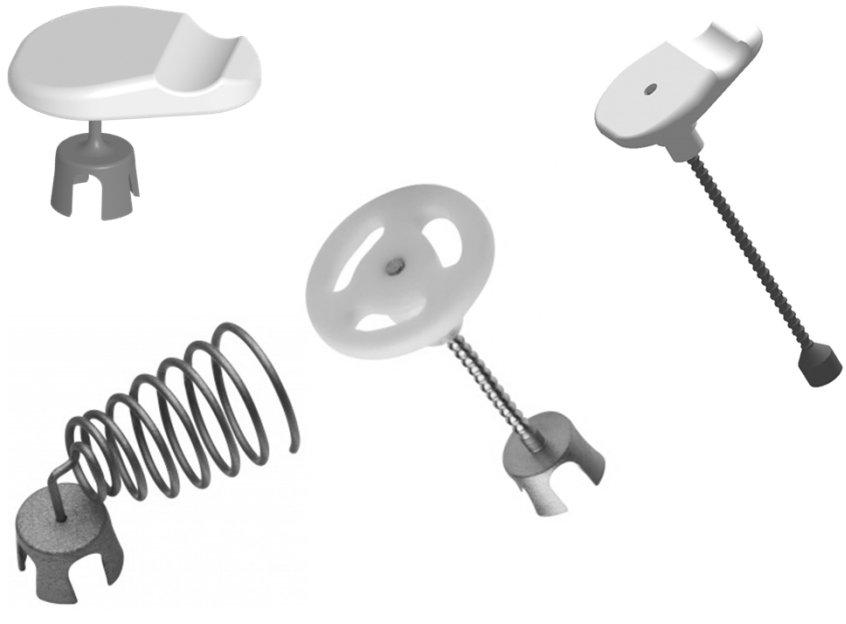
L

Congenital Cholesteatoma

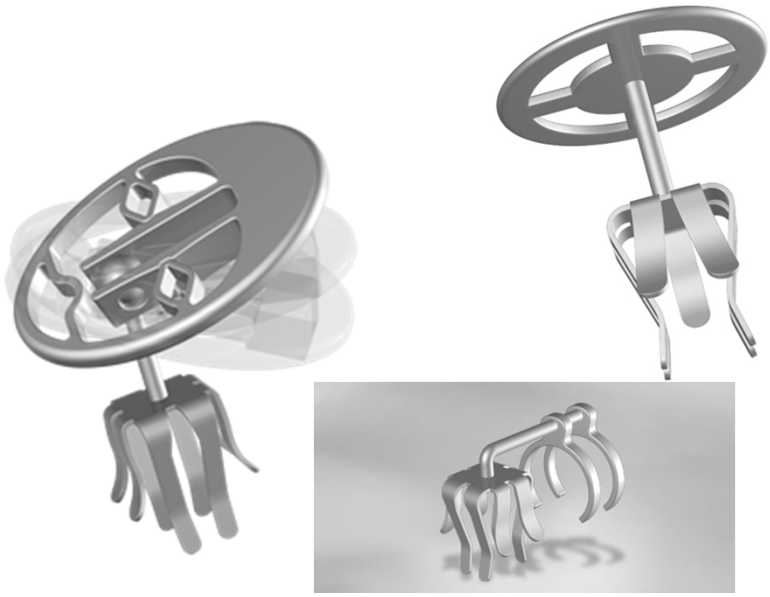
- Intact tympanic membrane
- Normal pars flaccida/tensa
- No history of:
  - Otorrhea
  - TM retraction
  - Previous otologic procedure

Ossicular Reconstruction

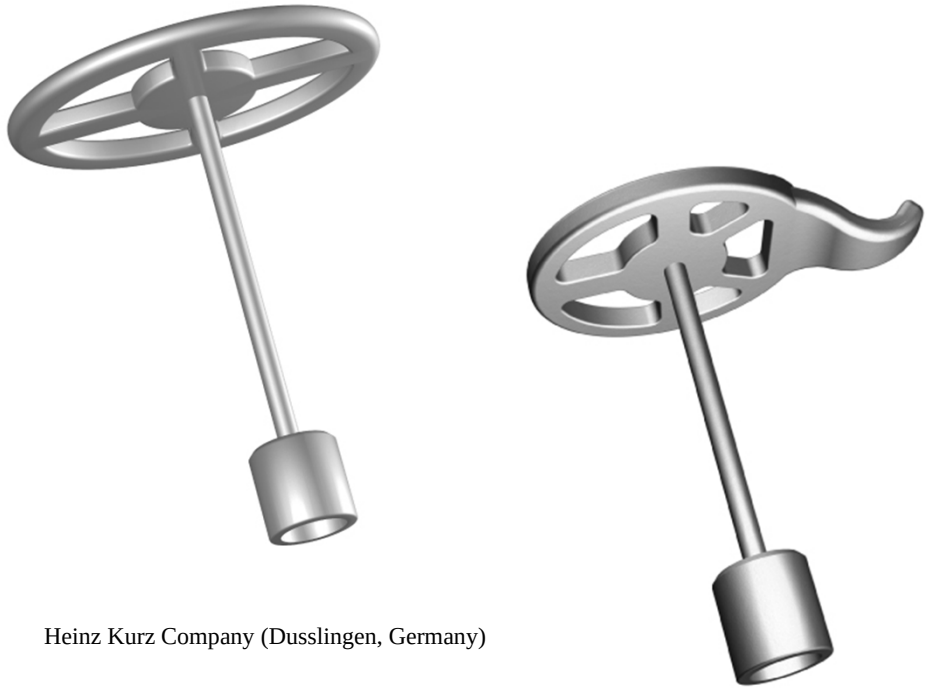




Grace Medical, Memphis, TN



Heinz Kurz Company (Dusslingen, Germany)

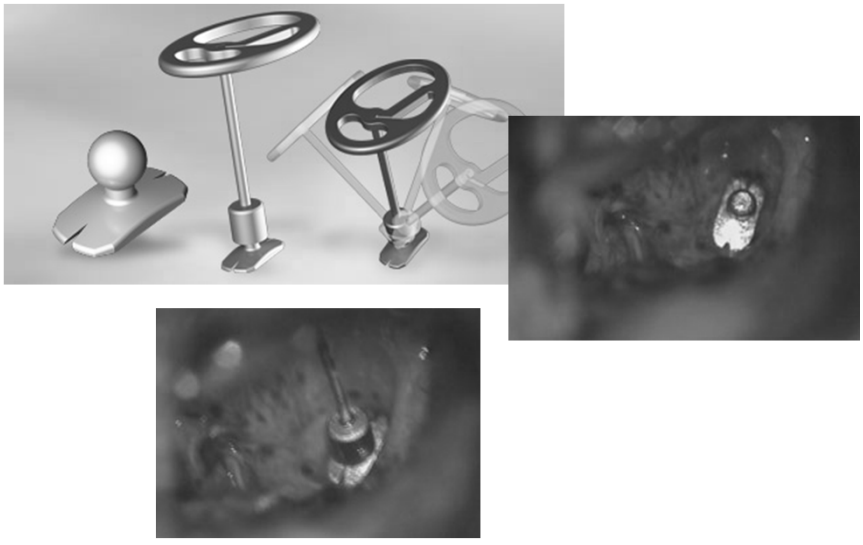


Heinz Kurz Company (Dusslingen, Germany)

Cadaver Footplate Placement

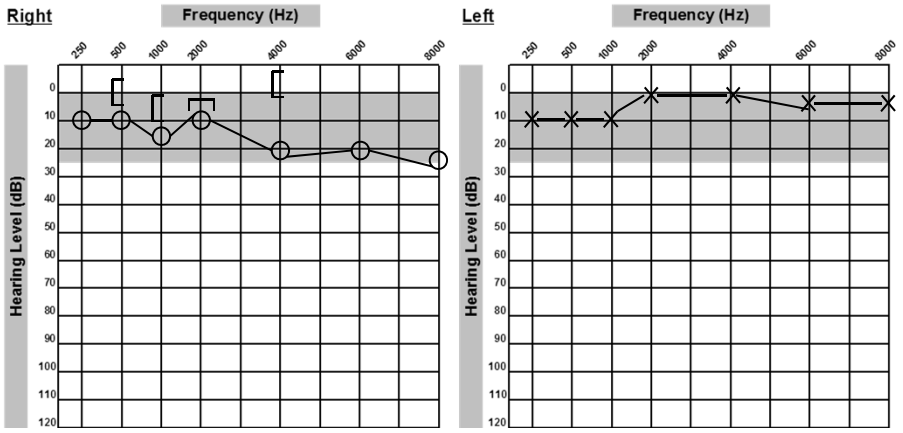
Heinz Kurz Company (Dusslingen, Germany)

Footplate Shoe (Omega Connector)

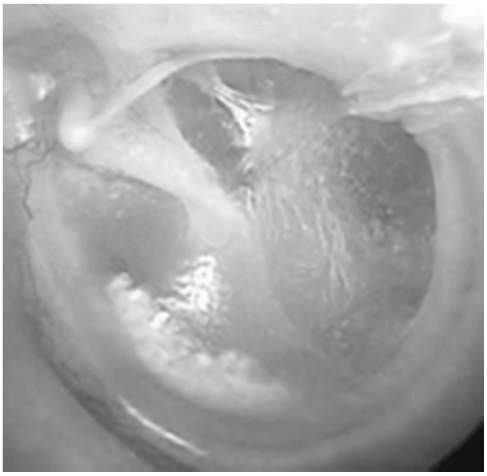


Heinz Kurz Company (Dusslingen, Germany)

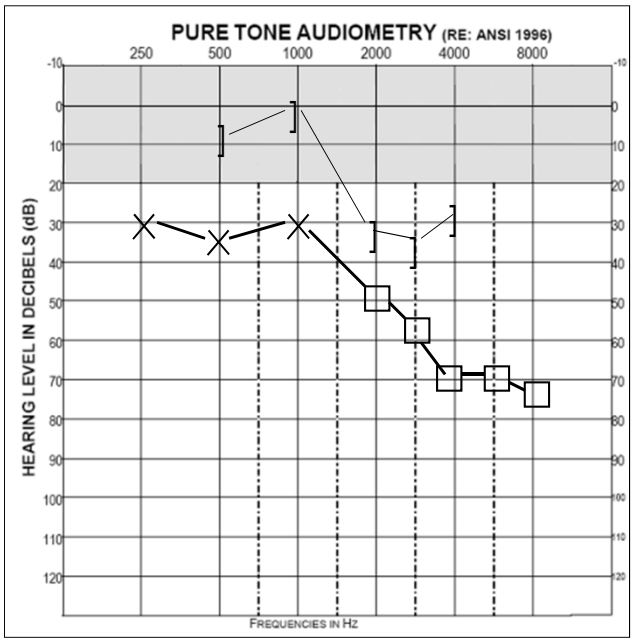
Case 2. April 2012



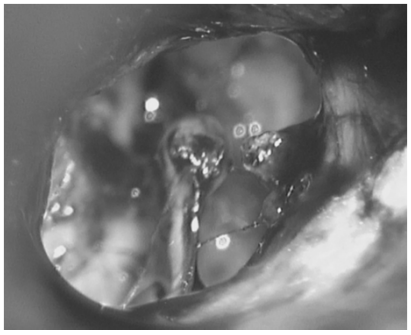
Incus Erosion

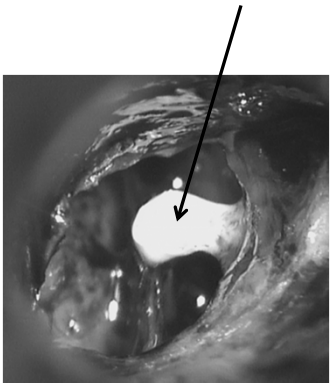


Goebel J. 2005


PURE TONE AUDIOMETRY (RE: ANSI 1996)
250
500
1000
2000
4000
8000
HEARING LEVEL IN DECIBELS (dB)
FREQUENCIES IN HZ

Bone Cement

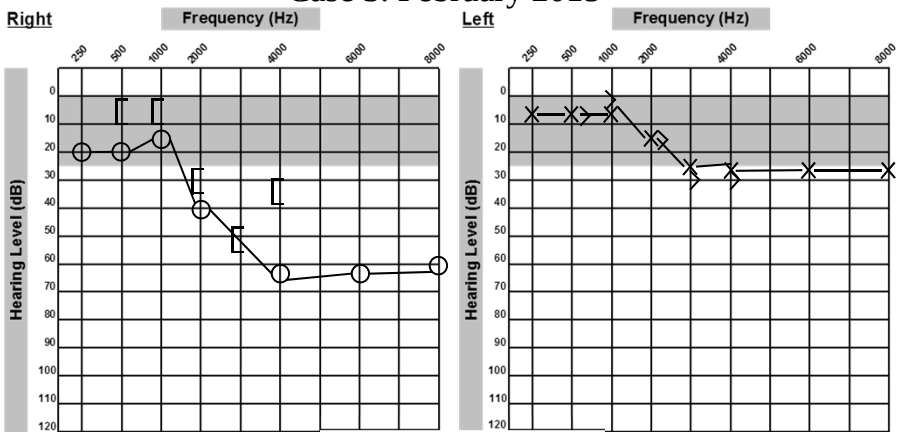




Surgical Treatment: Definitions

- Tympanoplasty: surgery that involves the tympanum (middle ear)
- Mastoidectomy: surgery performed in the mastoid
- Tympanomastoidectomy: combination of the above
- Ossiculoplasty: repair or reconstruction of the ossicles
- Canal wall up mastoidectomy: preserve the external ear canal
- Canal wall down mastoidectomy: remove the posterior bony ear canal

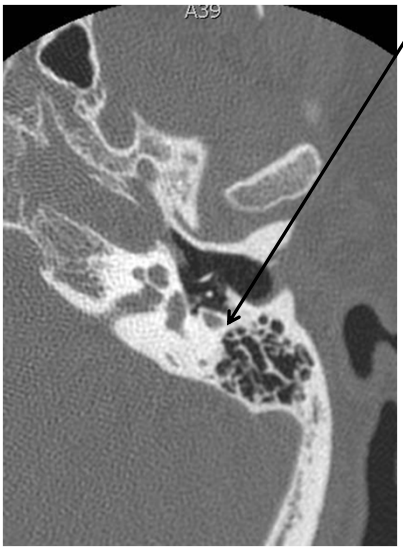
Case 3. February 2015



	SRT	PTA	WRS (%)
R			92
L			100

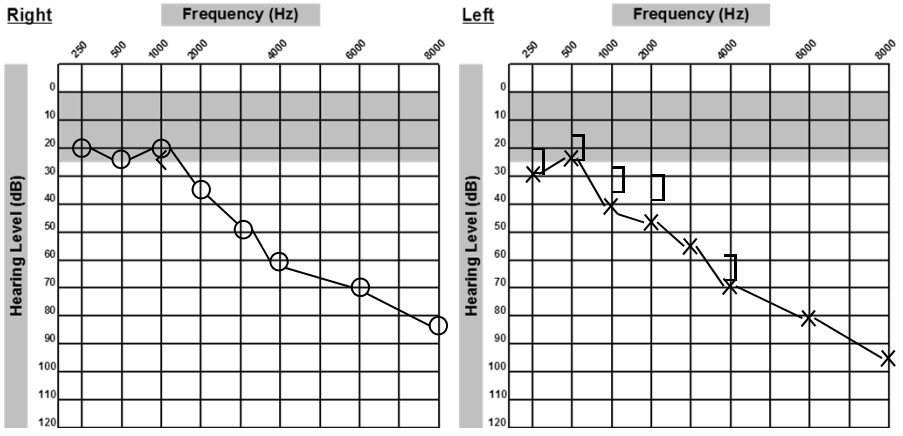
Case 3. Lateral Semicircular Canal Erosion & Facial Paralysis

R



L

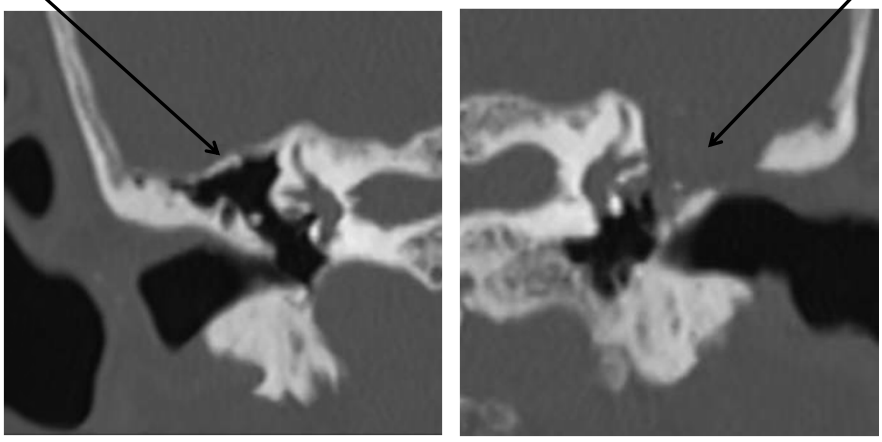
Case 4. Patient LS



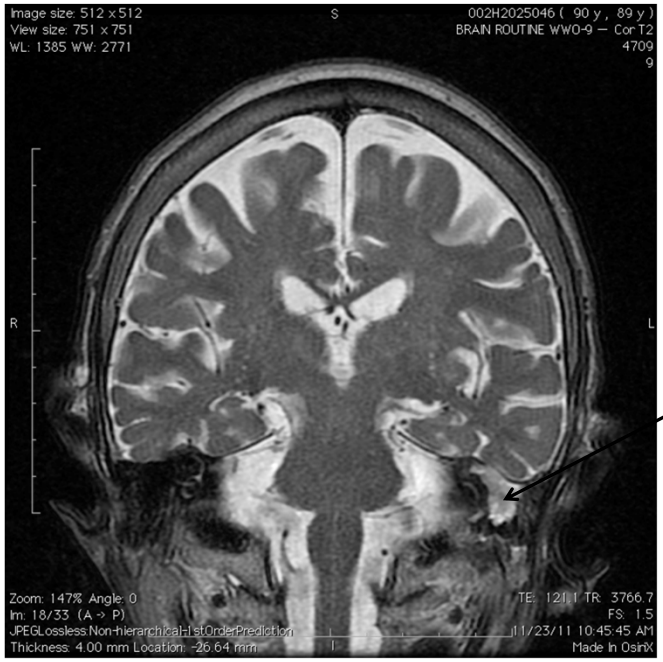
	SRT	PTA	WRS (%)
R			80
L			76

Case 4. Erosion of Tegmen

R



L

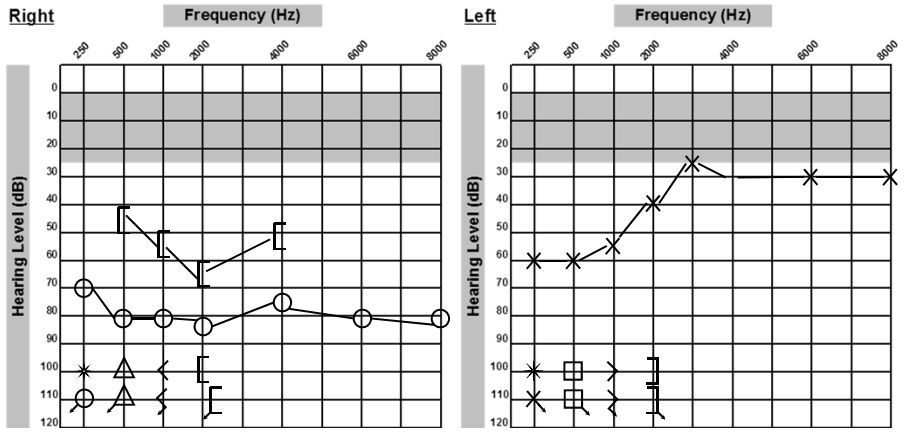


THANK YOU!

r-battista2@northwestern.edu

(630) 789-3110

Title



	SRT	PTA	WRS (%)
R	40		92
L	5		100

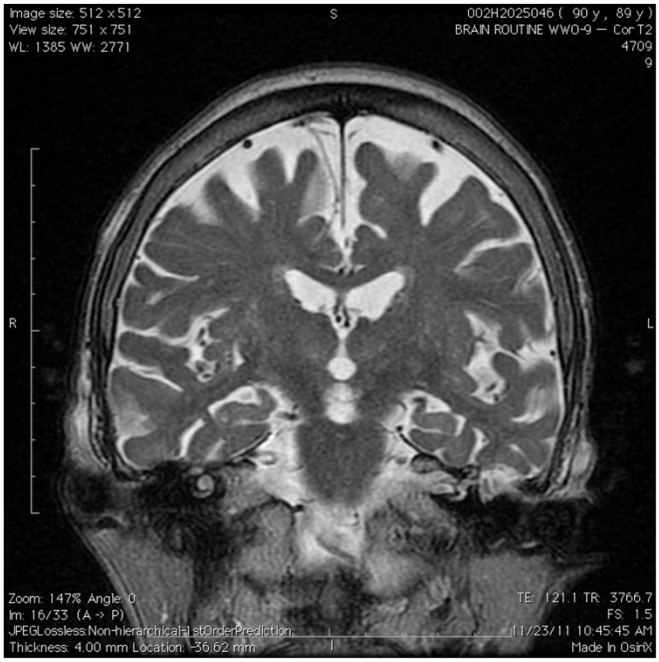
Acoustic Reflex Thresholds (dB HL)

Probe tone ear	R	L	R	L
Test tone ear	L	R	R	L
500 Hz				
1000 Hz				
2000 Hz				
4000 Hz				

Differentiation Between Middle Ear & Third Window Lesions

	Middle Ear	**Third-window lesion**
Air-bone gap	0-60 dB, all freq	0-60 dB, greatest at < 2 kHz
Bone cond threshold	Rarely < 0 dB	May be neg. (-5 to -20 dB < 2 kHz
Acoustic reflex	Absent	Present
VEMP	Absent	Present, low thresholds
OAEs	Absent	May be present
Sound- and/or pressure-induced vertigo	Absent	May be present
CT scan	May show middle ear finding	Inner ear lesion
Surgical findings	Ossicular lesion: fixation or discontinuity	Normal ossicular mobility


Image size: 512 x 512
View size: 751 x 751
WL: 1385 WW: 2771
S
002H2025046 (90 y , 89 y)
BRAIN ROUTINE WWO-9 — Cor T2
4709
9
R
L
Zoom: 147% Angle: 0
Im: 17/33 (A -> P)
JPEGLossless:Non-hierarchical-1stOrderPrediction
Thickness: 4.00 mm Location: -31.63 mm
I
TE: 121.1 TR: 3766.7
FS: 1.5
11/23/11 10:45:45 AM
Made in OsirixX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S
002H2025046 (90 y , 89 y)
BRAIN ROUTINE WWO-9 — Cor T2
4709
9
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JPEGLossless:Non-hierarchical-1stOrderPrediction
Thickness: 4.00 mm Location: -36.62 mm
I
TE: 121.1 TR: 3766.7
FS: 1.5
11/23/11 10:45:45 AM
Made in OsirixX