1084

002b
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1 VIDEO

MANAGEMENT OF OTOSCLEROSIS

ROUND TABLE

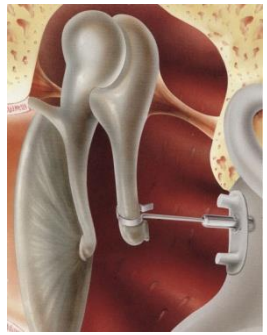
Moderator : Bernard FRAYSSE
Panelists : Milan PROFANT
Saim LOKMAN
Kaoru OGAWA
Seiji KAKEHARA
Seung-ha OH

HO CHI MINH
November 24th-26th, 2019

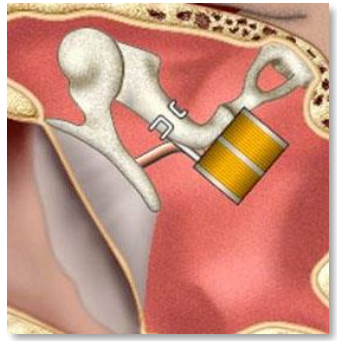
GOAL OF THE ROUND TABLE

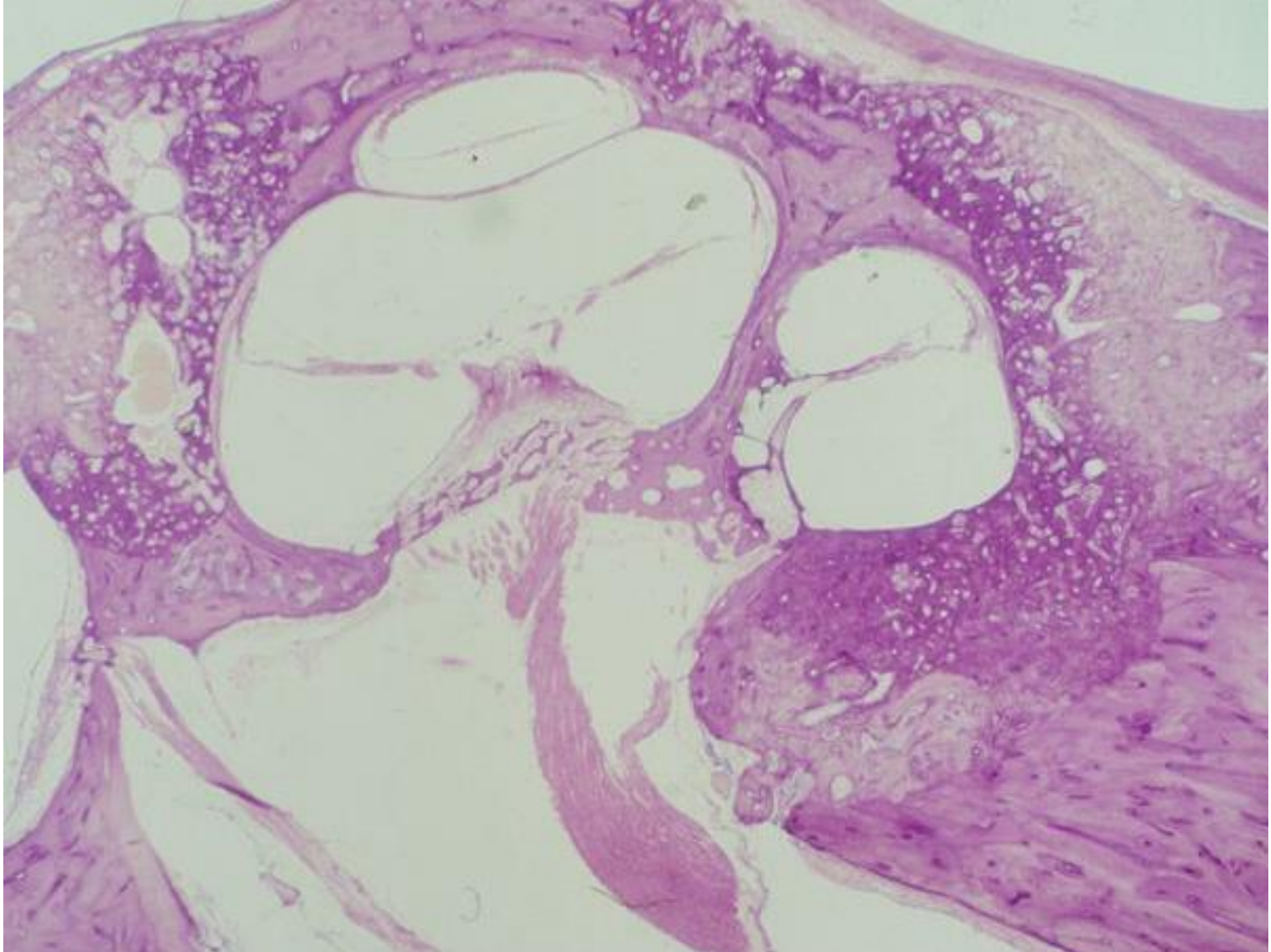
- To discuss the various factors which may influence the decision in councelling patient between :
  - Hearing aid

  - Stapes surgery

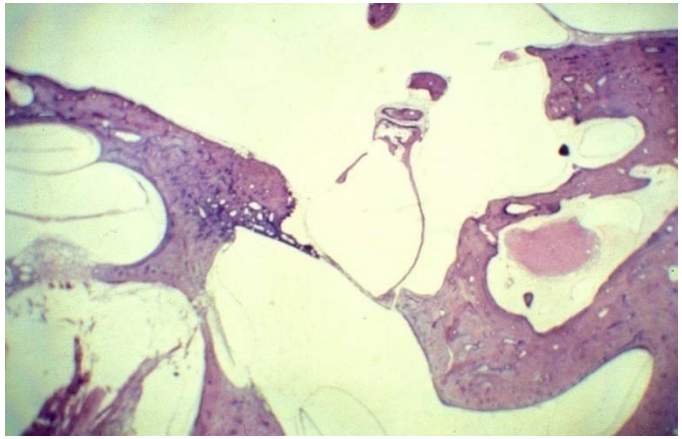


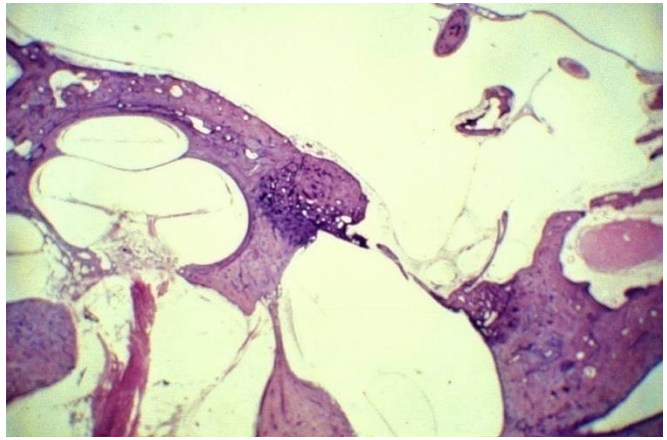
  - Auditory implant

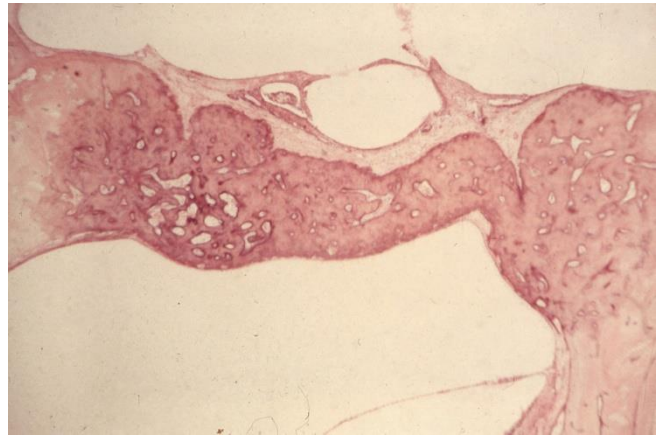


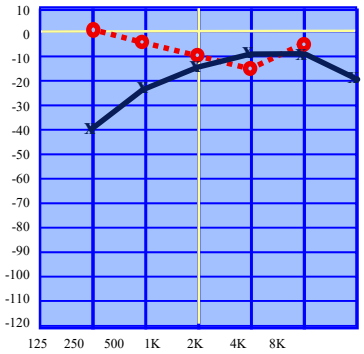


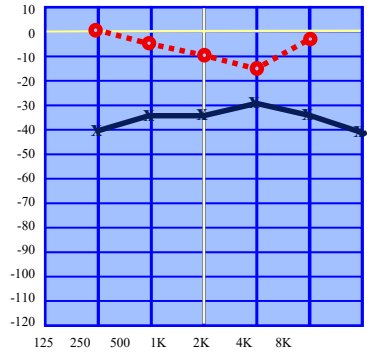
CONDUCTIVE HEARING LOSS
DEGREE OF STAPES FIXATION

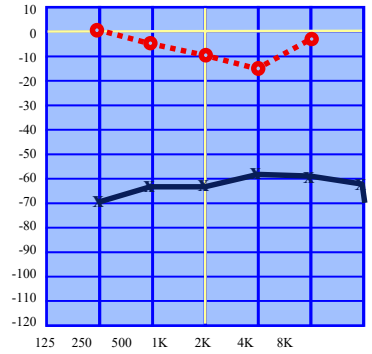




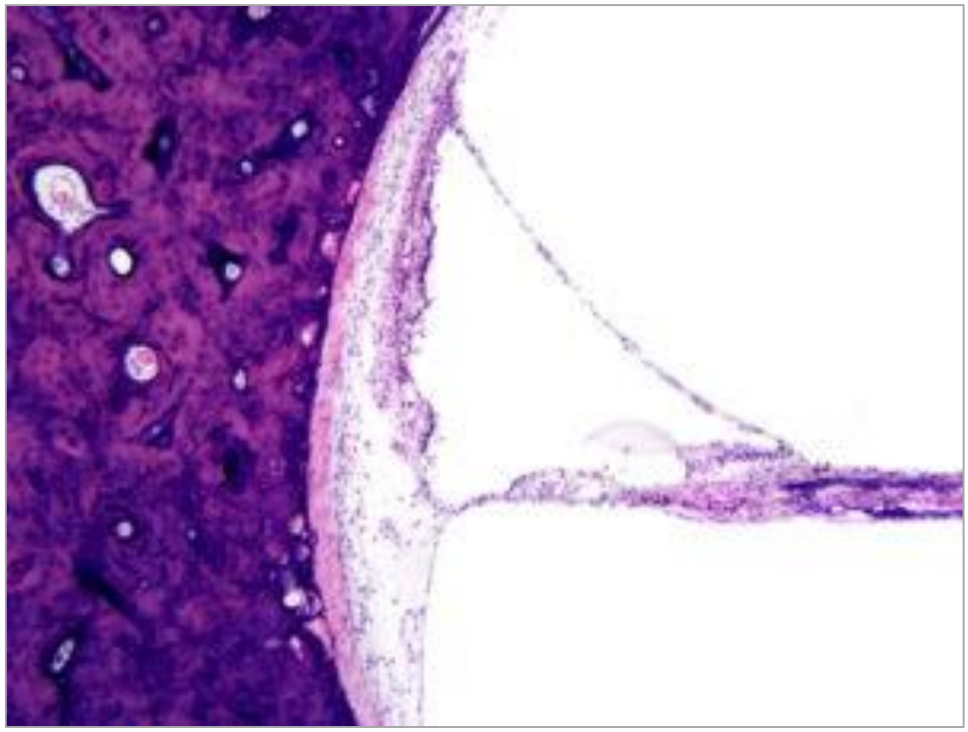


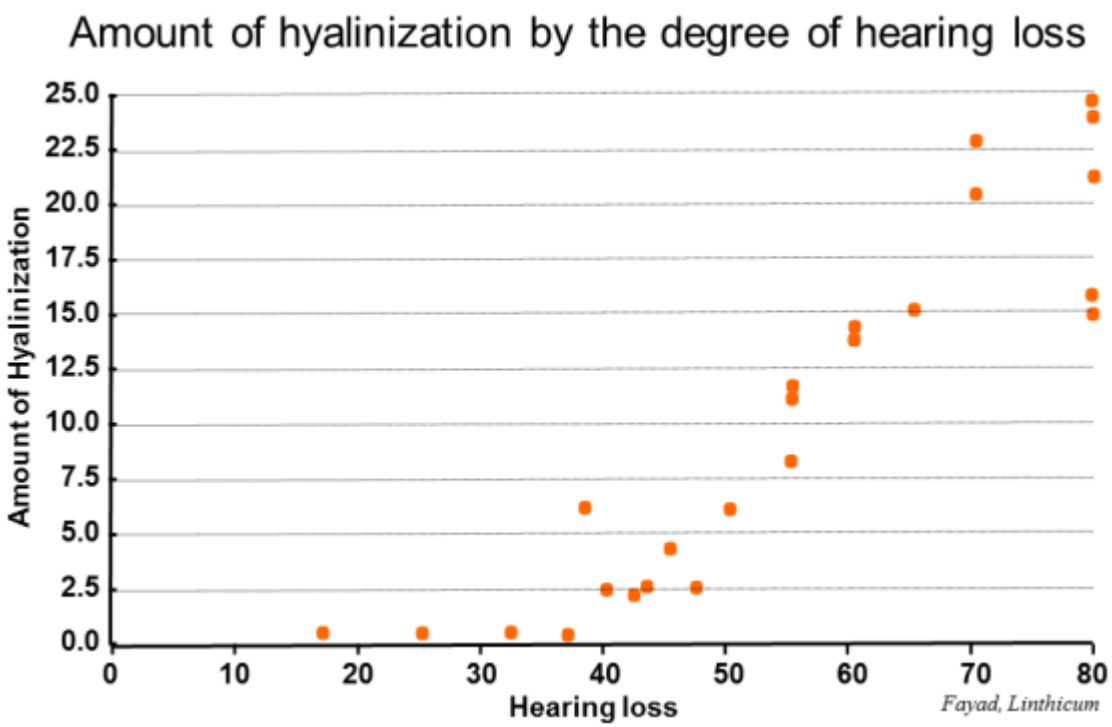




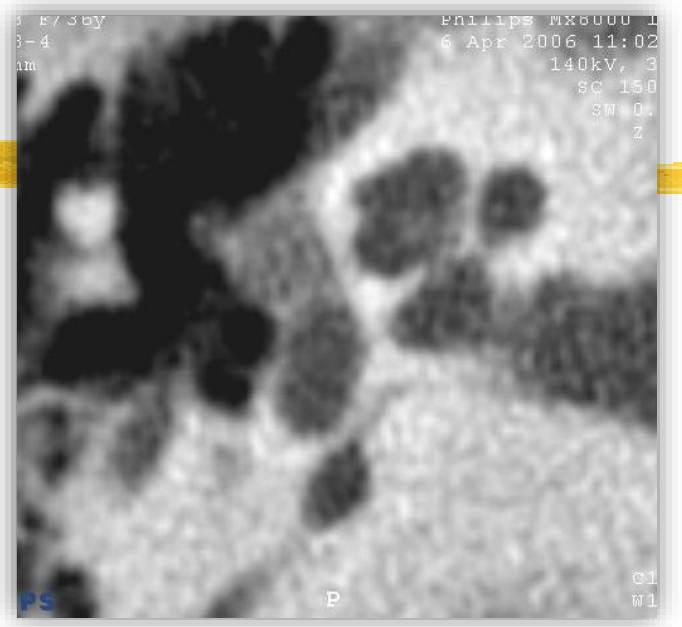


SENSORINEURAL HEARING LOSS
DEGREE OF HYALINIZATION

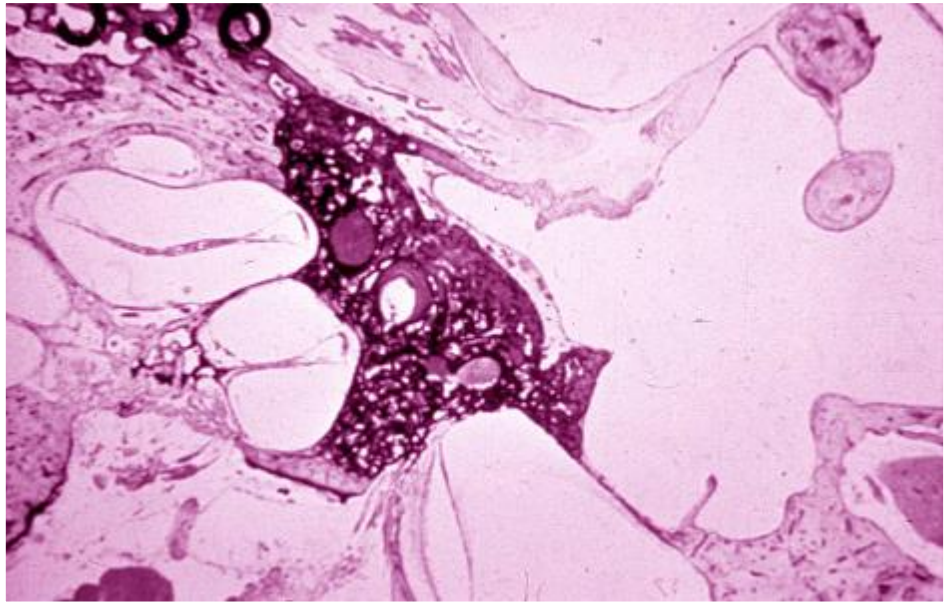


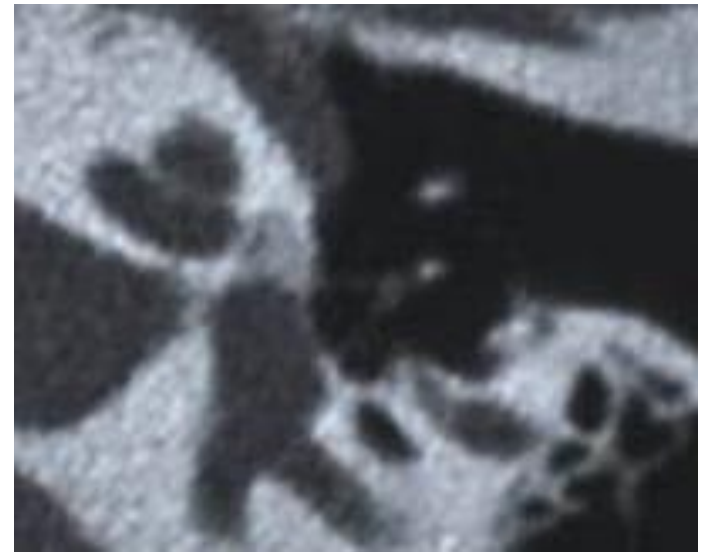


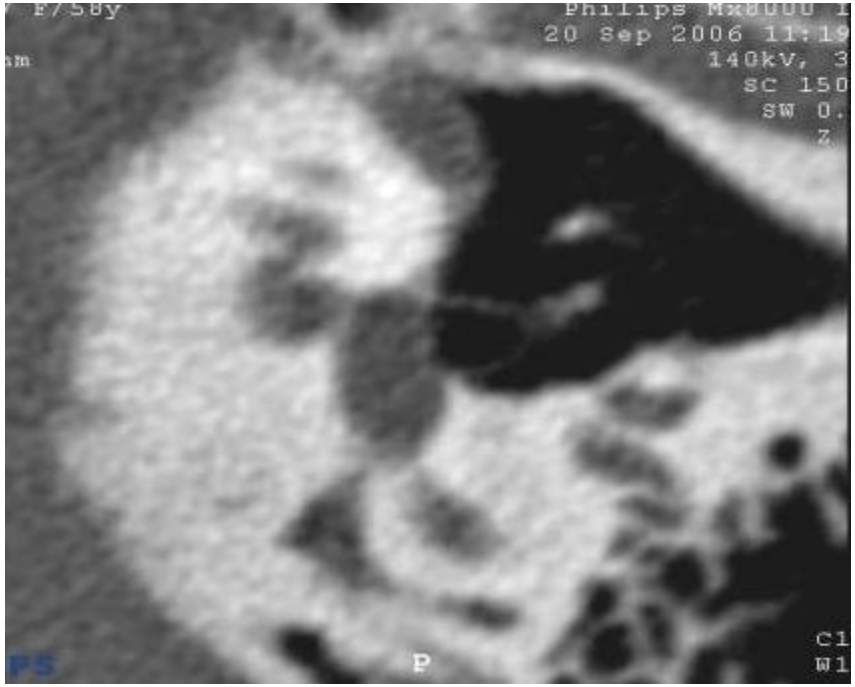
INTEREST OF IMAGING



- To confirm a doubtful diagnosis
- To anticipate surgical difficulties
- To eliminate a possible conductive inner ear
- To analyse a cause of failure






20 Sep 2006 11:19
140kV, 3
SC 150
SW 0.
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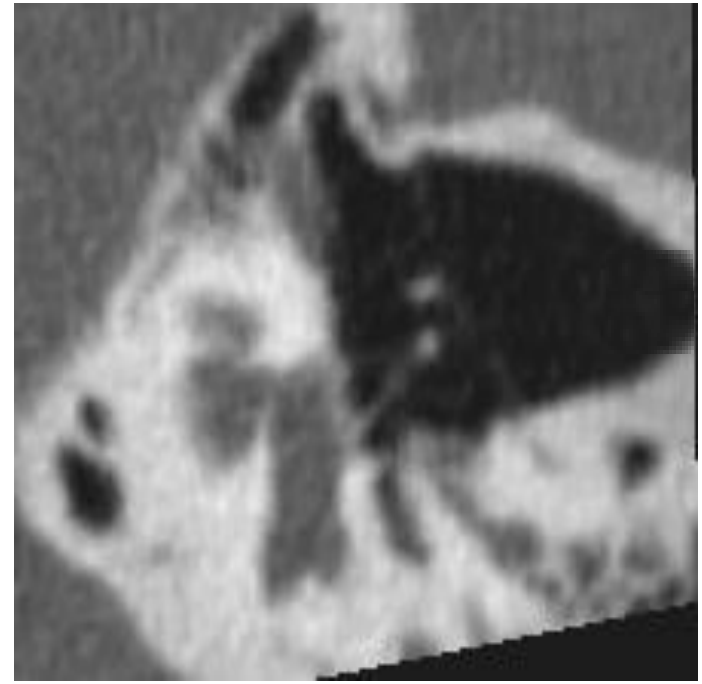
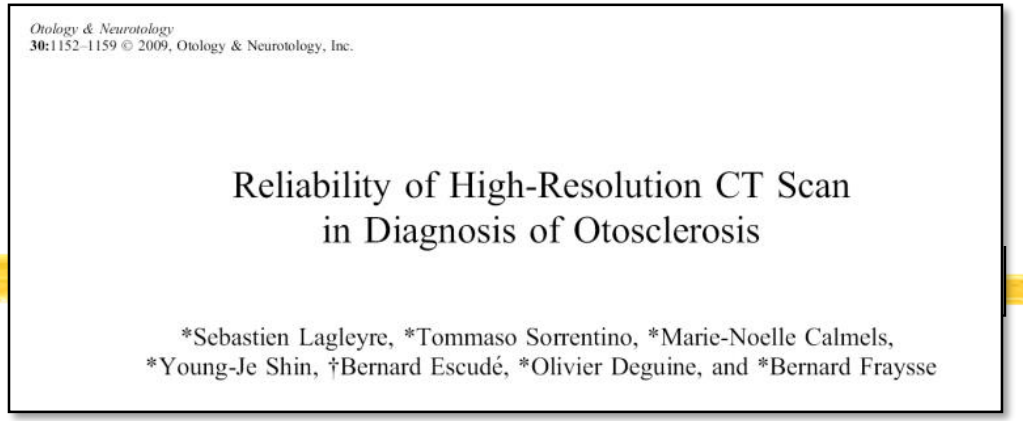
C1
W1



SPECIFICITY / SENSITIVITY



Otology & Neurotology
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Reliability of High-Resolution CT Scan in Diagnosis of Otosclerosis

*Sebastien Lagleyre, *Tommaso Sorrentino, *Marie-Noelle Calmels, *Young-Je Shin, †Bernard Escudé, *Olivier Deguine, and *Bernard Fraysse

CY-SCAN	N	POSITIVE SURGICAL OTOSCLEROSIS	OTHER DIAGNOSIS	
POSITIVE CT-SCAN	194	193	**1**	**Specificity 99.1%**
NEGATIVE CT-SCAN	15	**10 ***	5	**Sensitivity 95%**
TOTAL	209		6	

* The high specificity may be due to the inclusion criteria and advancement in scanner

COUNSELING PATIENTS IN CASE OF NEGATIVE CT-SCAN

- Middle ear exploration **BUT**

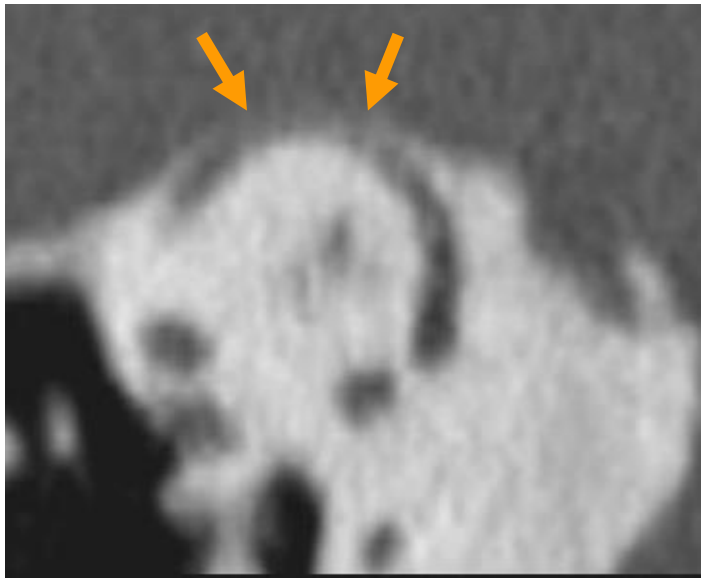
➔ **Risk of mobile footplate x 5**

- Early form with an incomplete fixation of the stapes

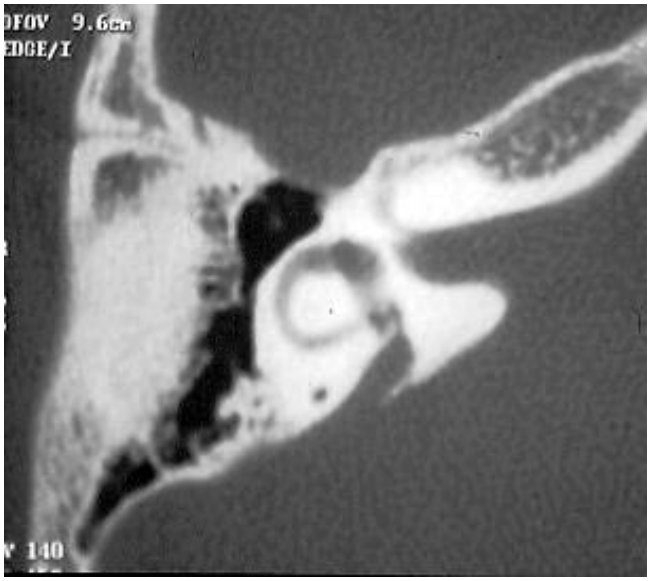
➔ **Possible inner ear conductive hearing loss due to :**

- An enlarged vestibular aqueduct
- Minor inner ear malformation
- Superior semicircular canal dehiscence
- Modiolus anomalies

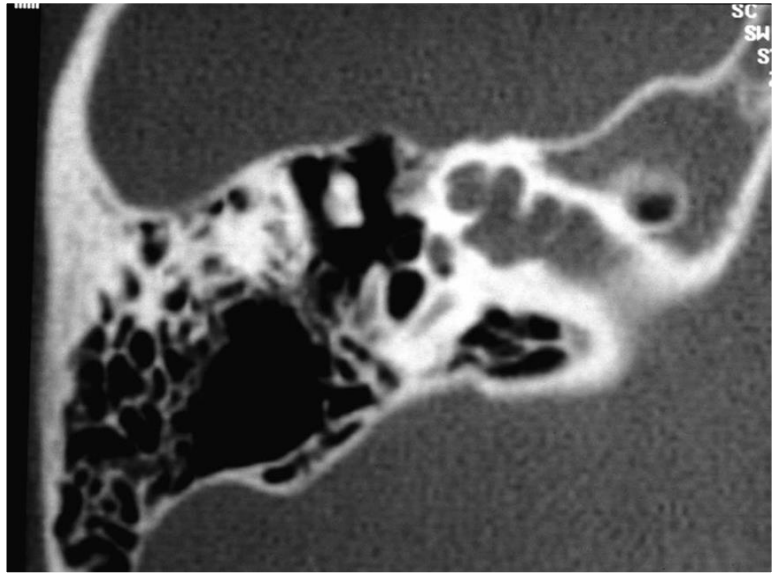
POSSIBLE INNER EAR CONDUCTIVE HEARING LOSS



▲ Superior semicircular canal dehiscence

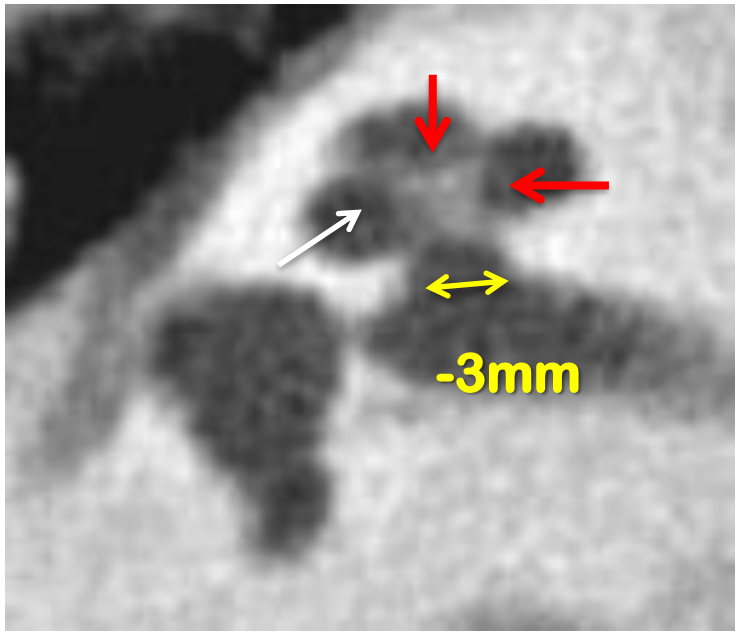


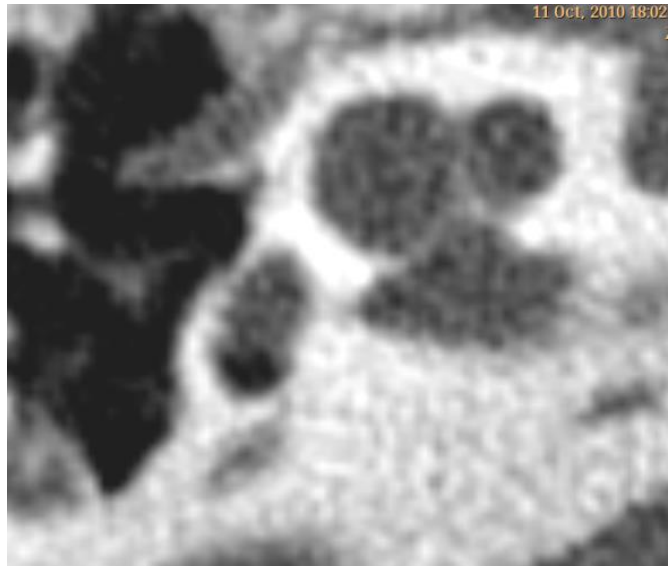
▲ Enlarged vestibular aqueduct

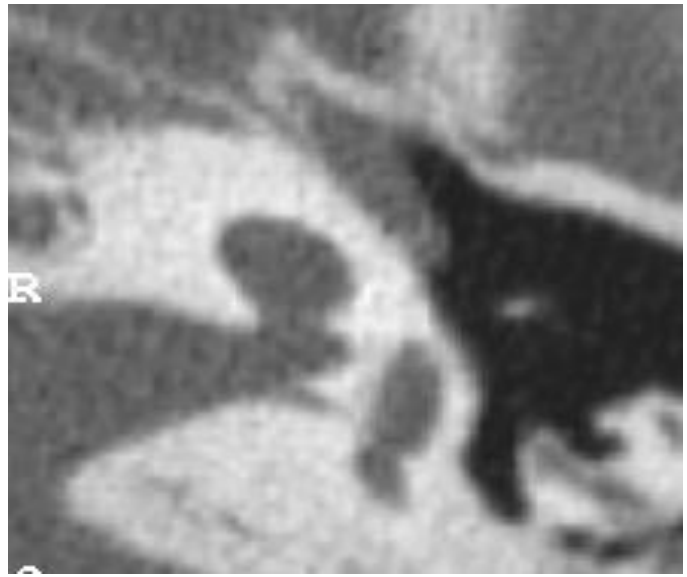


▲ Abnormal modiolus ▲

MODIOLUS MALFORMATION





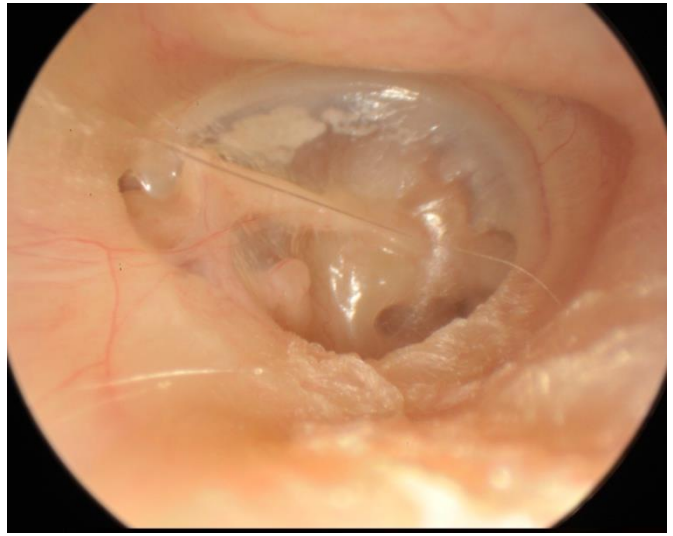


CLINICAL CASES

Which are the surgical contraindications ?

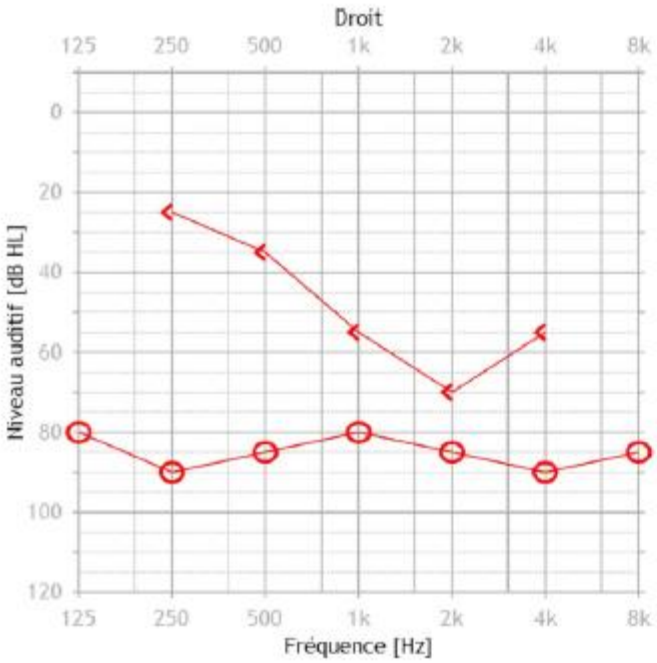
SURGICAL CONTRAINDICATIONS

- Severe tubal dysfunction
- Pure sensorineural hearing loss
- Patient refuse any risk
- Fluctuating hearing loss
- History of sudden hearing loss
- Only hearing ear *****



ONLY HEARING EAR

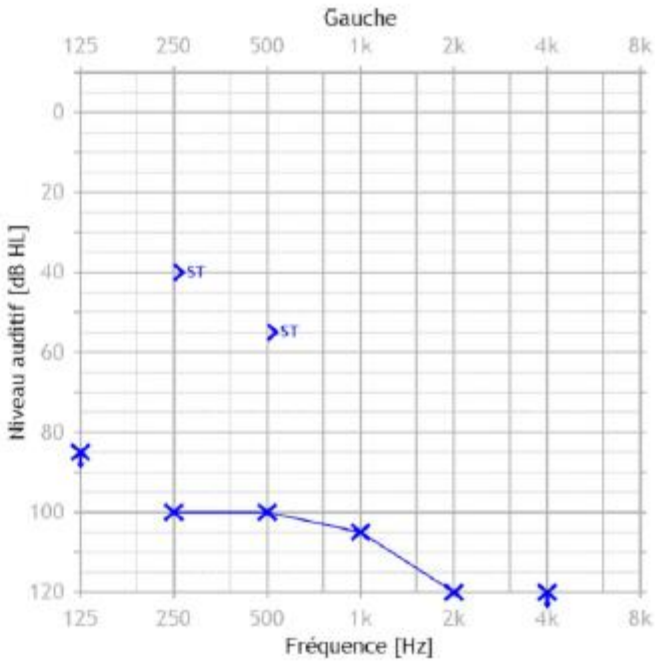
- 51 years woman
  - Right mixed HL and left cophosis post stapedotomy
  - CT-Scan positive with anterior focus



	D	B	G
Rinne			
CPT-AMA [%]	96.1		100.0
PTA [dB]	85.0	---	---
dB PA	83.5		---

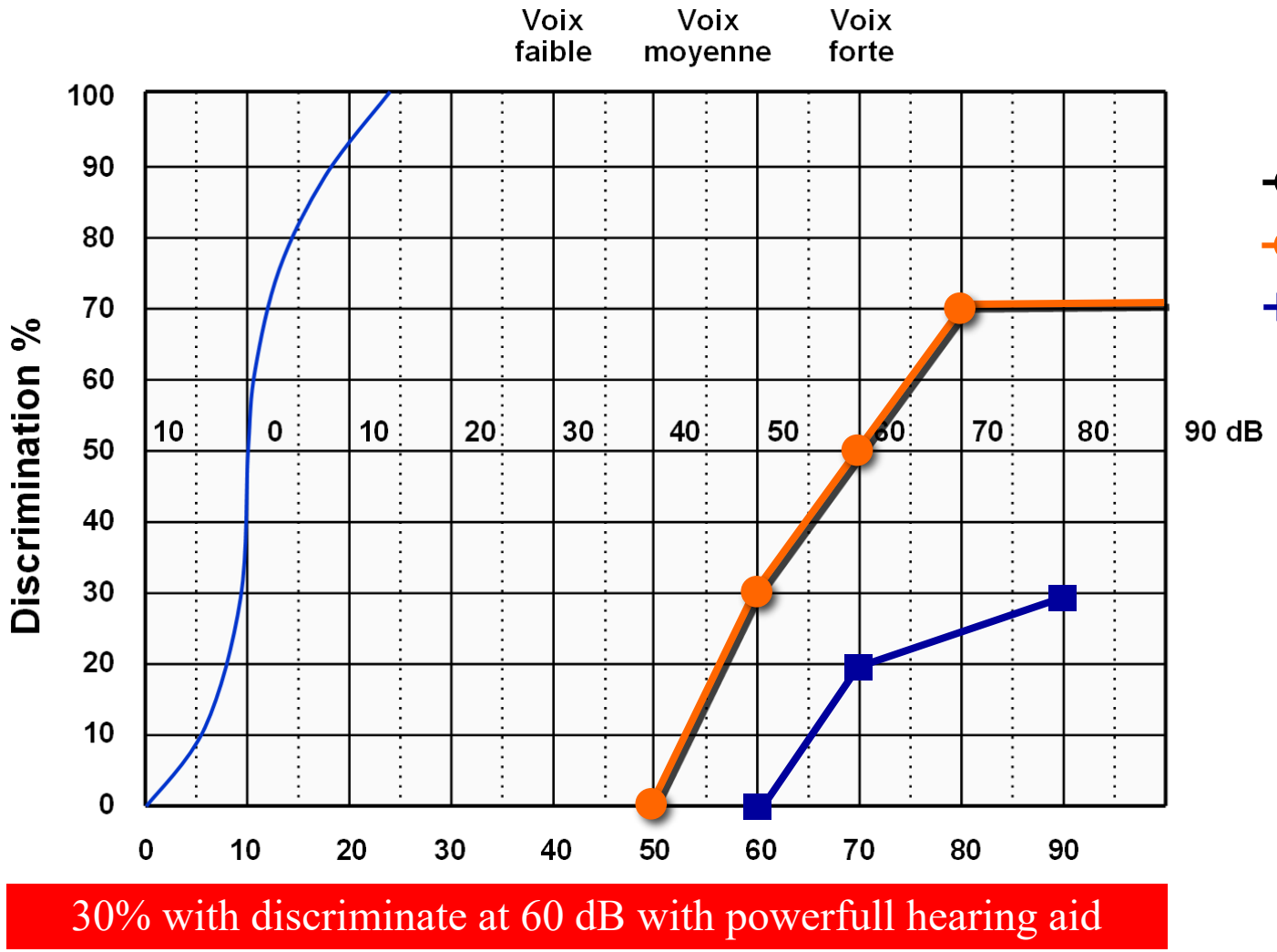
Sans masquage			
CA	○		×
CO	<		>
CL	◁	△	▷
CL proth.	◀	▲	▶
Seuil incon.	m		m
A. masqué	T		T
Pas entendu	ı	ı	ı
Masque			
CA	△		□
CO	[		]
CL	◁	△	▷
CL proth.	◀	▲	▶

Weber				
250	500	1k	2k	4k



SPEECH DISCRIMINATION WITH POWERFULL HEARING AID

Powerfull hearing aid

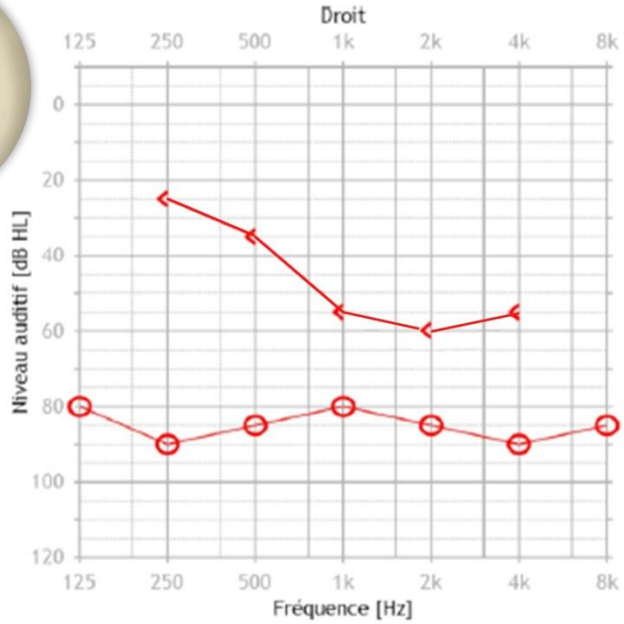


30% with discriminate at 60 dB with powerfull hearing aid

No improvement with BAHA Cordelle

SURGICAL DECISION

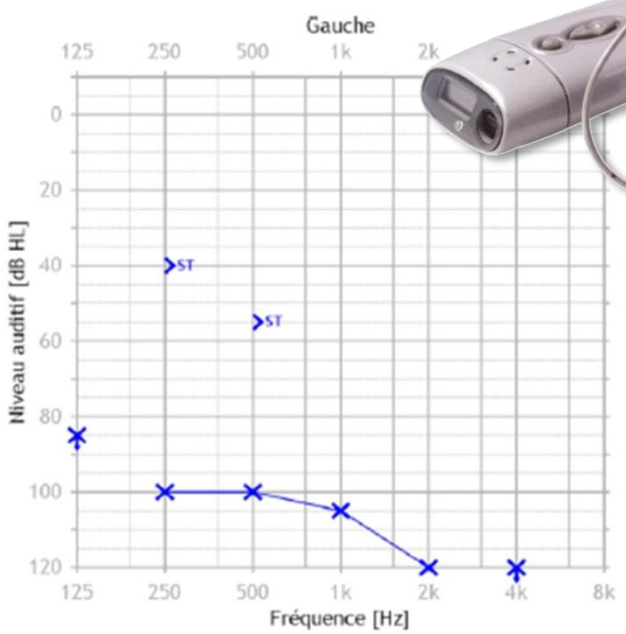
- CI on the Left side
- Right stapedotomy when the CI result will be superior to the right ear with hearing aid



	D	B	G
Rinne			
CPT-AMA [%]	96.1		100.0
PTA [dB]	85.0	---	---
dB PA	83.5		---

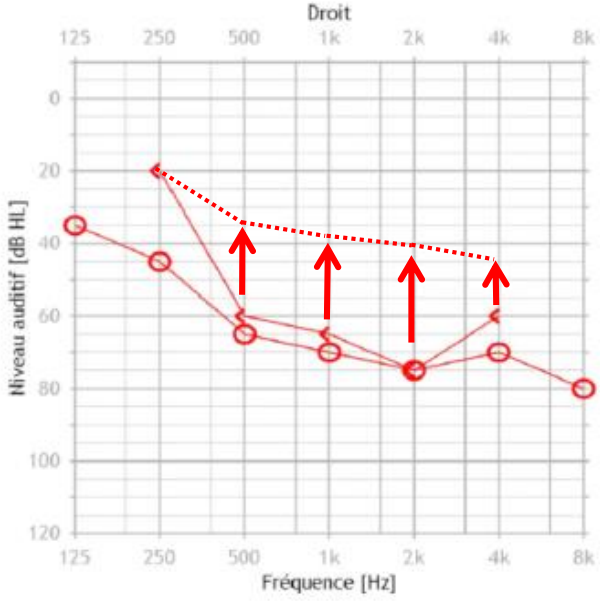
Sans masquage			
CA			
CO			
CL			
CL proth.			
Seuil incon.			
A. masqué			
Pas entendu			
Masqué			
CA			
CO			
CL			
CL proth.			

Weber				
250	500	1k	2k	4k



RESULTS

Stapedotomy + HA



	D	B	G
Rinne			
CPT-AMA [%]	96.1		100.0
PTA [dB]	85.0	---	---
dB PA	83.5		---

Sans masquage			
CA	○		×
CO	<		>
CL	◁	△	▷
CL proth.	◀	▲	▶
Seuil incon.	m		m
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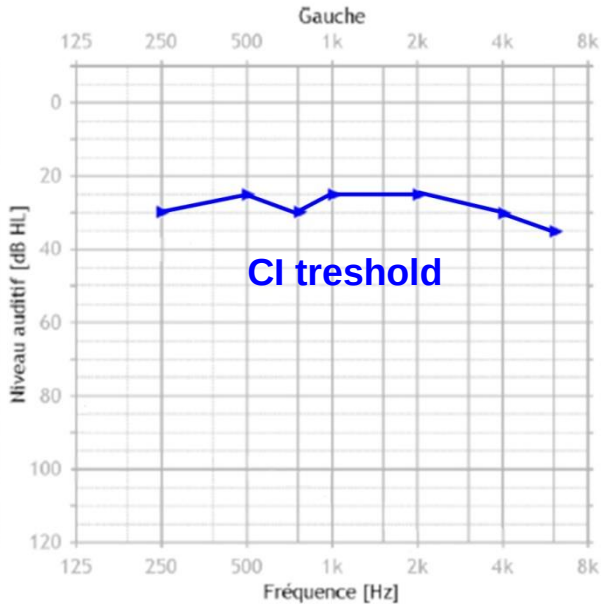
Pas entendu	ı	ı	ı
Masqué			
CA	△		□
CO	[		]
CL	◁	△	▷
CL proth.	◀	▲	▶

Weber				
250	500	1k	2k	4k

Cochlear Implant



Word discrimination 80%

In quiet

98%

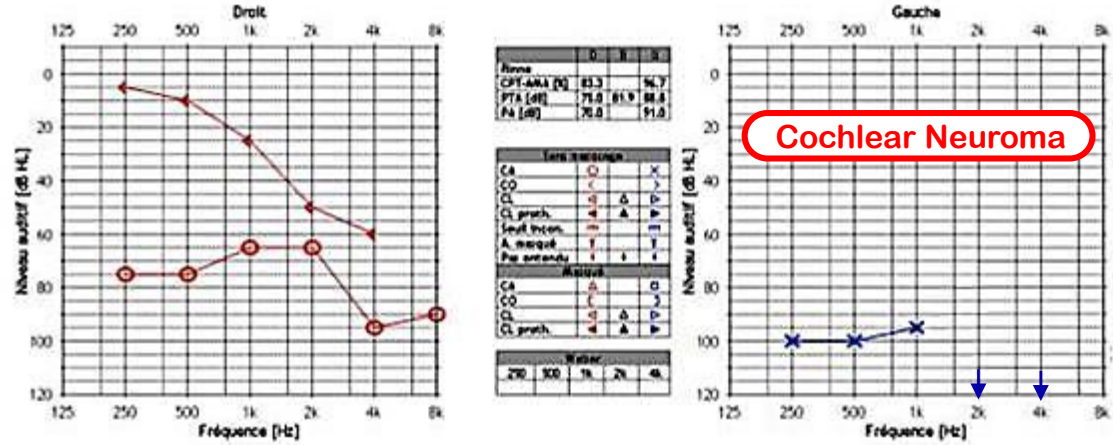
Word discrimination 85 %

- Quality of sound, music perception is better in the right ear

ONLY HEARING EAR IN THE ERA OF CI

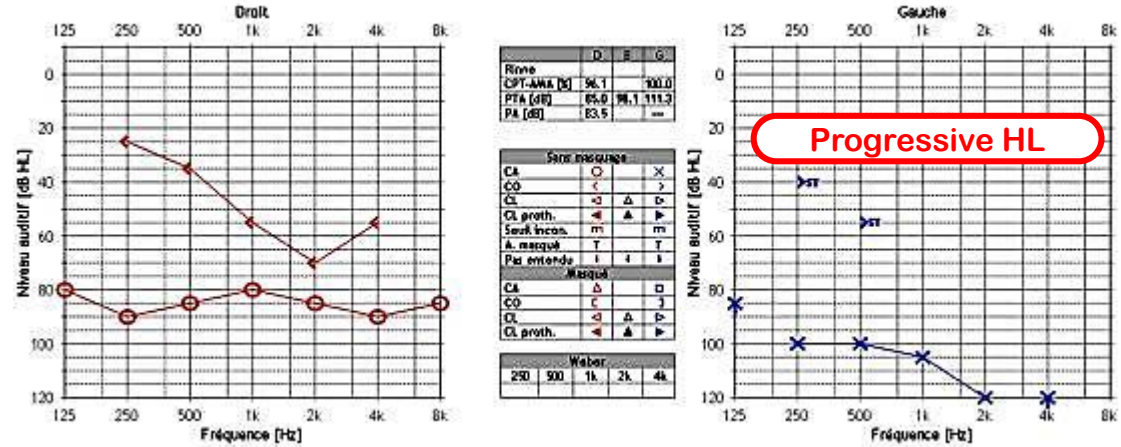
Case 1

- M – 49 years old



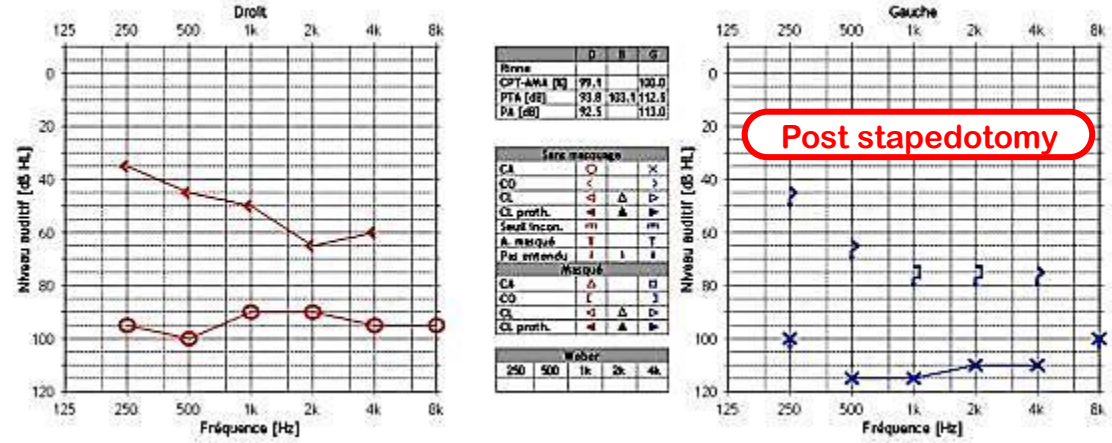
Case 2

- W – 55 years old



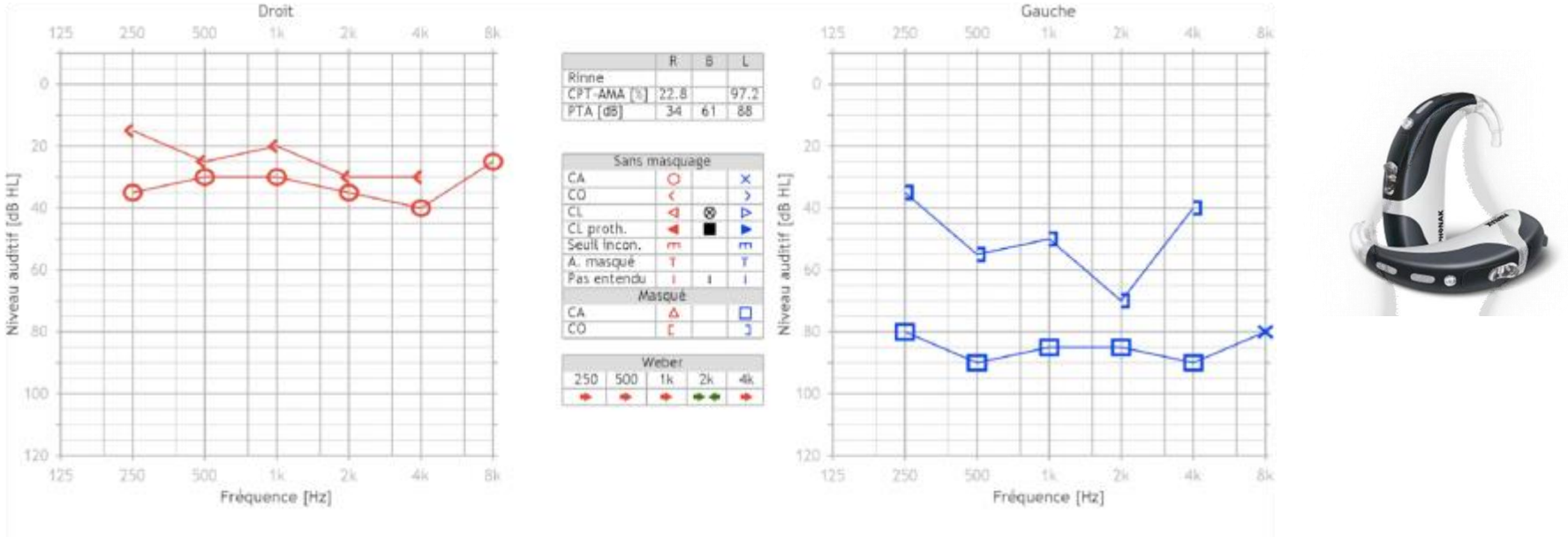
Case 3

- W – 65 years old

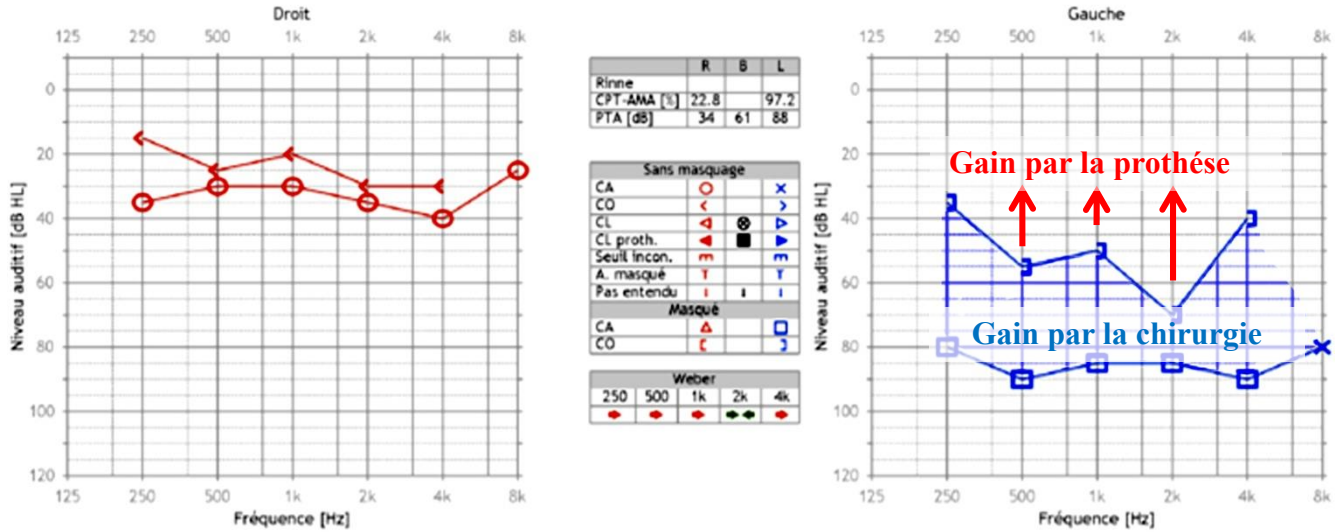


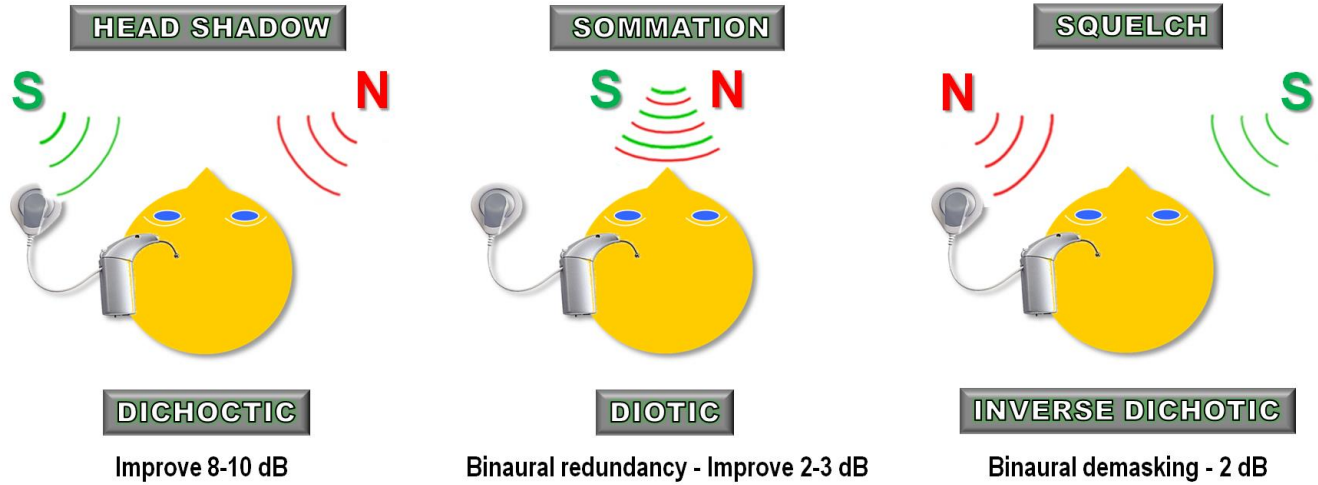
CASE 2

- 59 years old woman
  - The optimal gain provide undesirable audiometric effects
  - It is not possible to provide enough gain to compensate



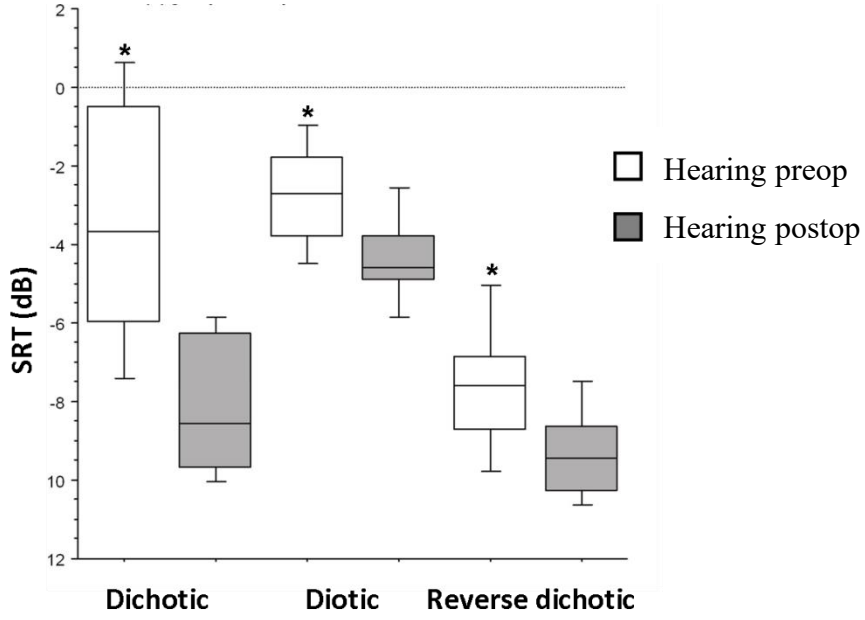
SURGERY + HEARING AID

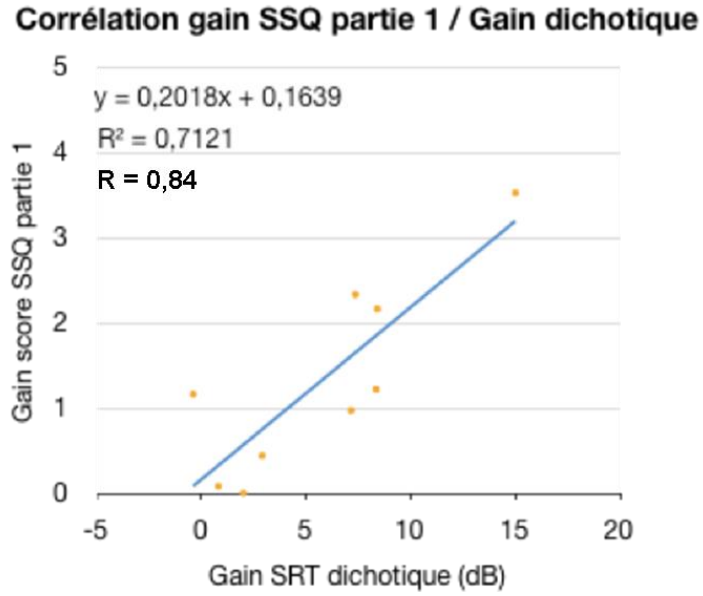




BINAURAL HEARING IN OTOSCLEROSIS

B. LESCURE : 39 unilateral otosclerosis





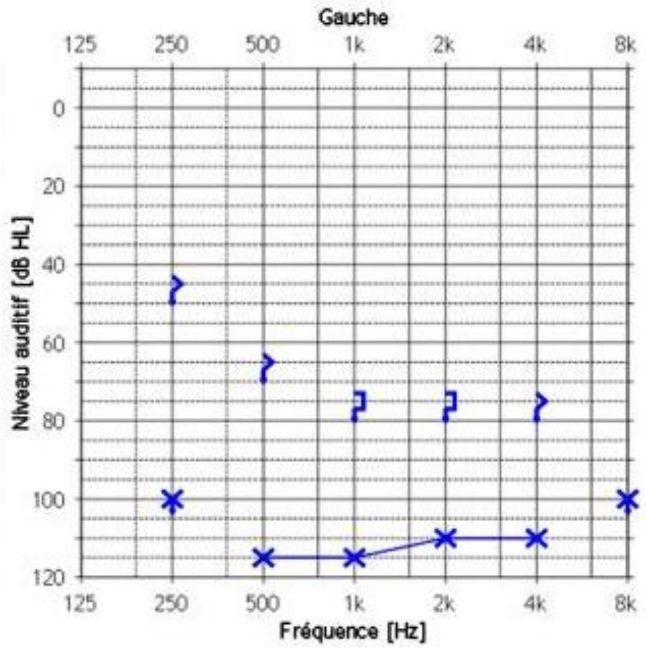
- Improvement of binaural effect in all cases event whithout a complete symetrical hearing
- Strong correlation between gain and quality of live (SSQ)

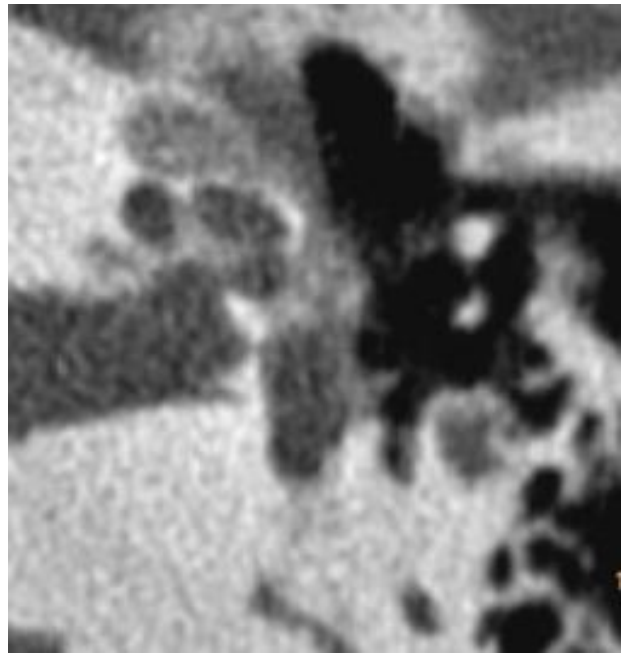
CASE 3

Far advance otosclerosis

Imaging criteria

- CT Scan evidence of otosclerosis focus

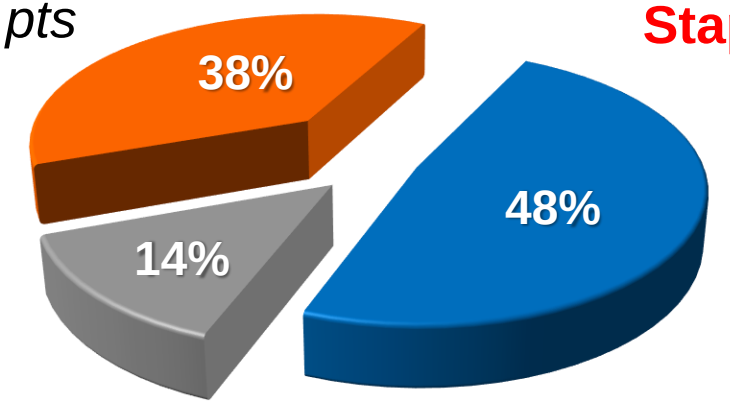




POPULATION

N : 66

Stapedotomy + CI
25 *pts*



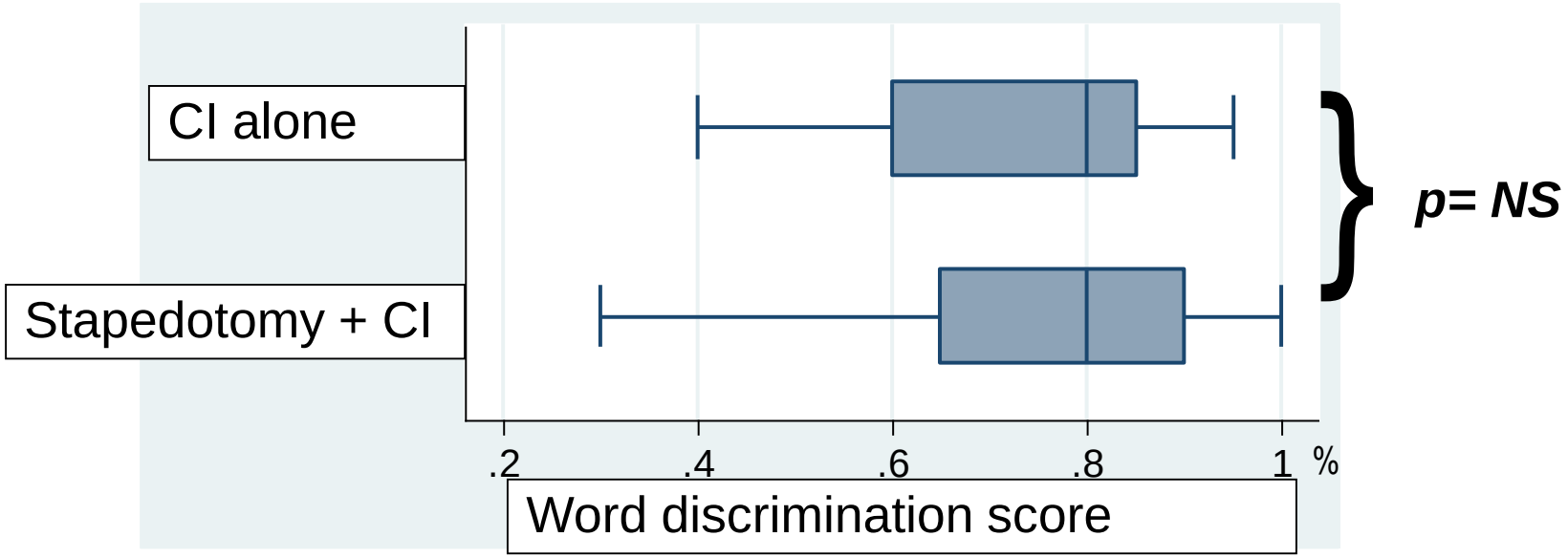
Stapedotomy alone
32 pts

CI alone
9 *pts*

Preop data

	Air Conduction	Word Discrimination Score	Bone Conduction
Group A : Stapedotomy	104,5 dB	12%	64 dB
Group B + C CI alone / CI + Stapedotomy	109 dB	12%	69,5 dB
	NS	*NS*	*p <0.001*

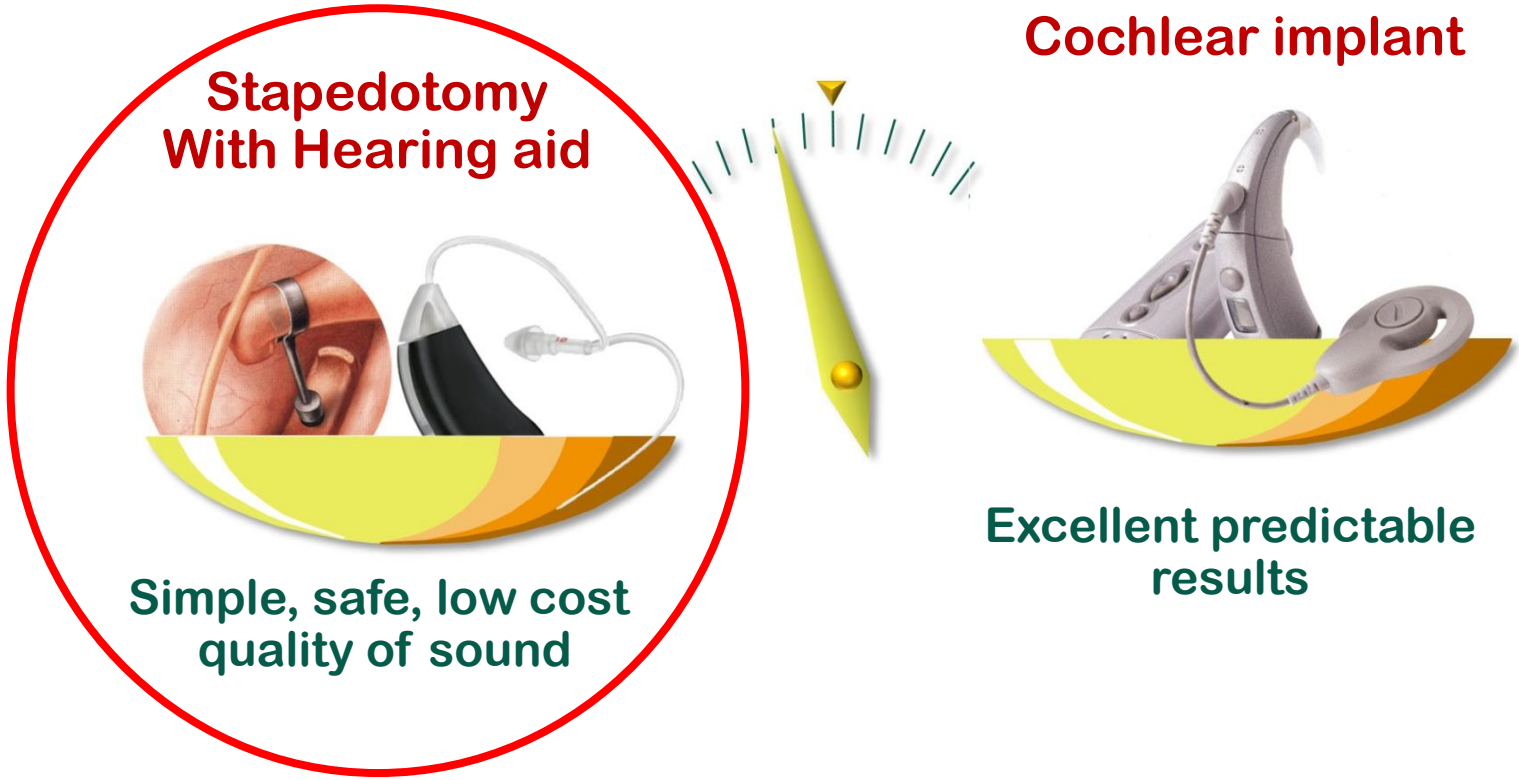
PREDICTIVE FACTORS OF COCHLEAR IMPLANT OUTCOMES



➔ **Previous stapedotomy has No impact on Cochlear implant outcome**

ALGORITHM FOR MANAGEMENT

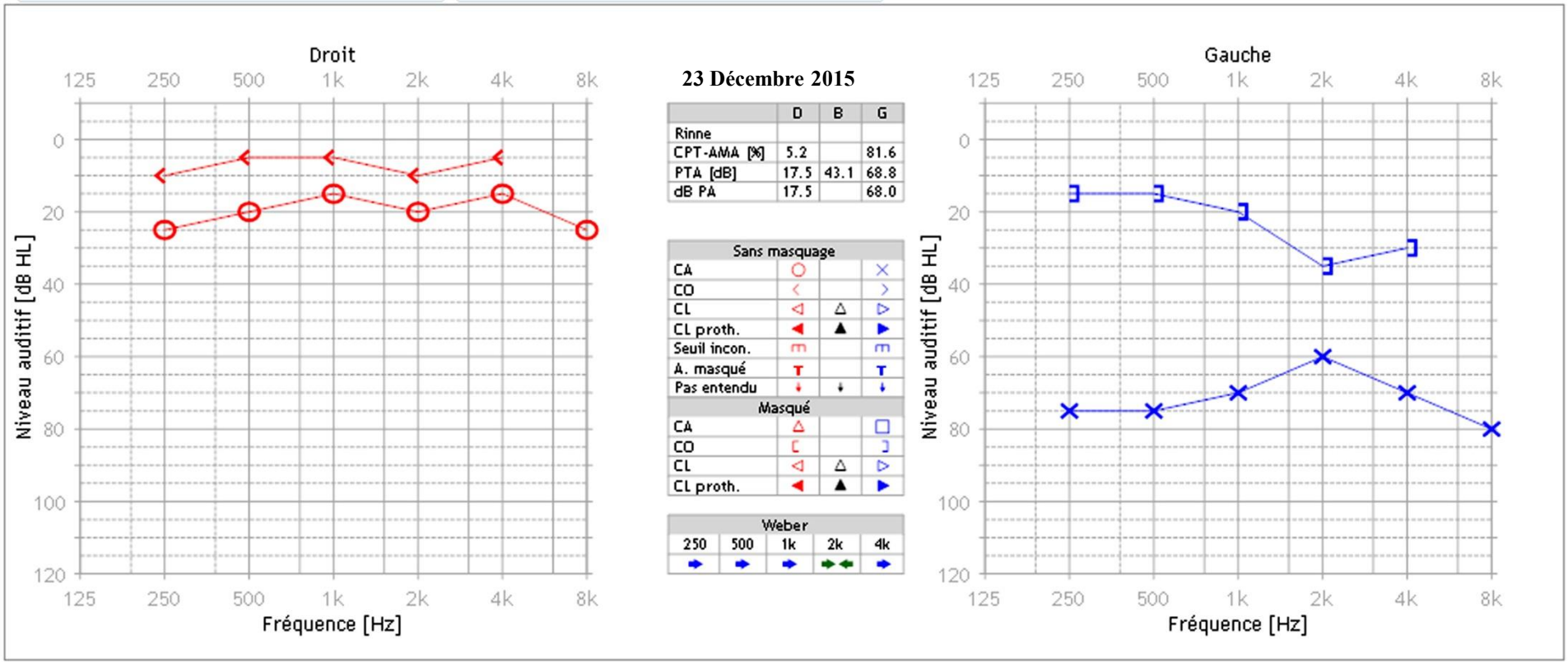
- Success of stapedotomy cannot be predicted pre-operatively
- Previous stapedotomy has no impact on cochlear implant results



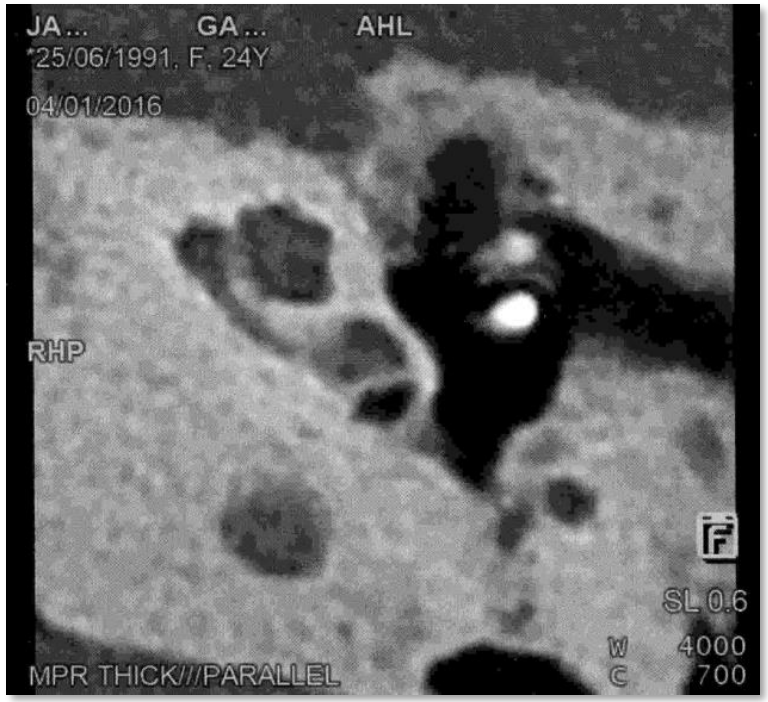
CASE 4

- JA…, 25 yo, stapedotomy + hearing aid failure
  - No gain

Why ?



POST OPERATIVE CT-SCAN



- Prothesis in place
- Obliteration of RW

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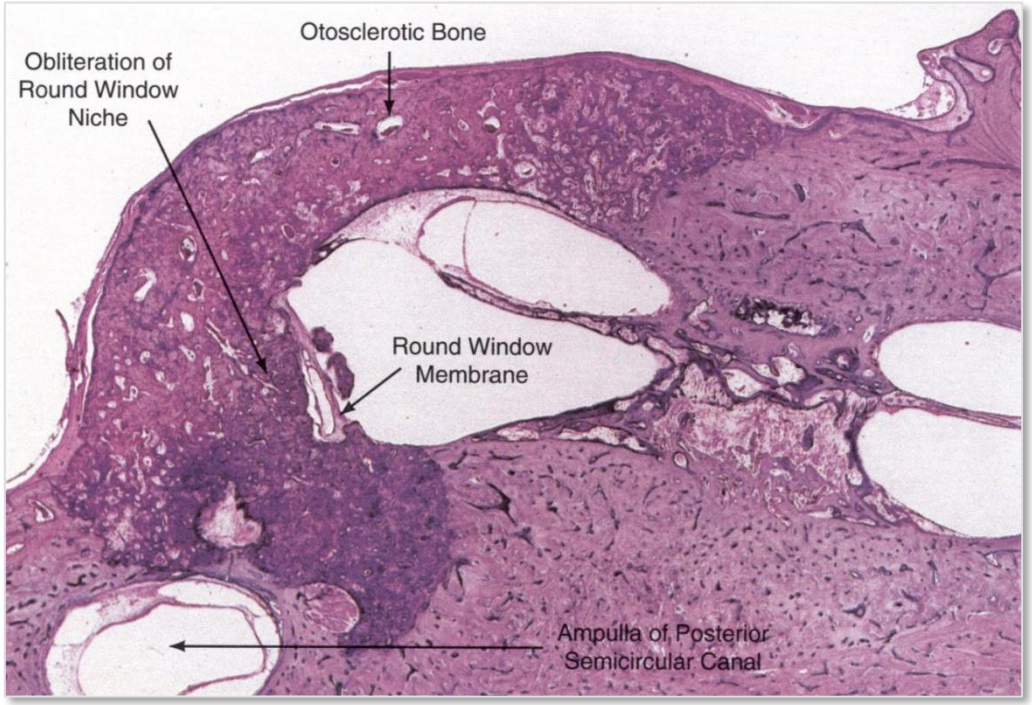
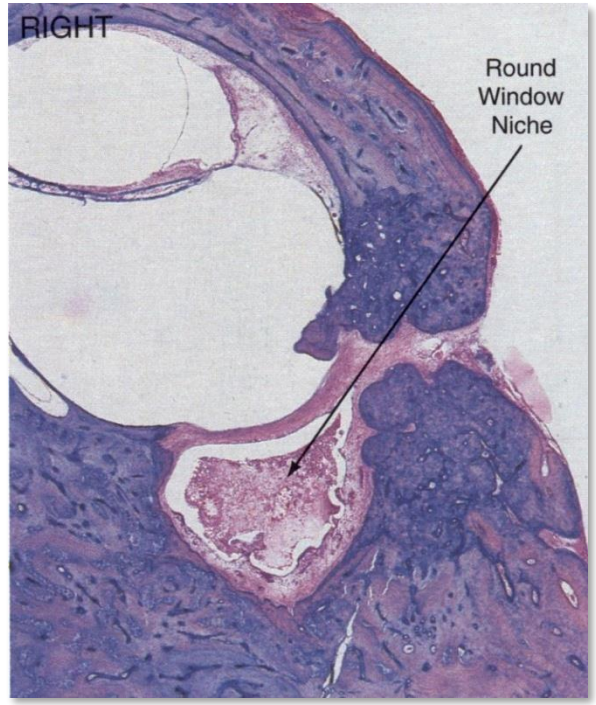
Round Window Otosclerosis: Radiologic Classification and Clinical Correlations

*Salah Mansour, †Karen Nicolas, and *Hassan Haidar Ahmad

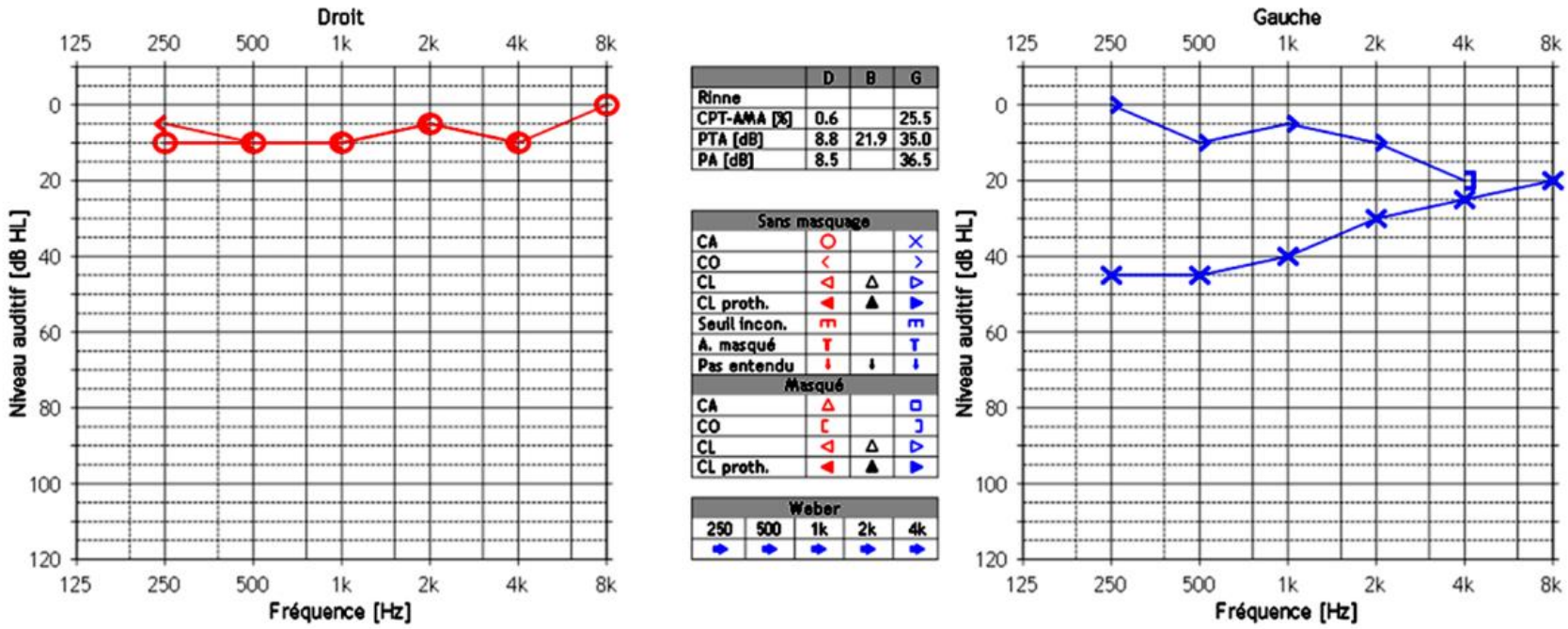
**Division of Otolaryngology HNS and †Radiology Department, Faculty of Medical Sciences, Lebanese University, Beirut, Lebanon*





CASE 5

The two options are **possible**



DO THE AUDIOLOGICAL RESULTS ARE COMPARABLE ?

Inclusion criteria

- Patient candidat for surgery with a conductive hearing loss > 30 dB and normal contralateral ear. First two months HA and then surgery

Study design

- Prospective longitudinale study comparing audiological outcomes with hearing aid then stapedotomy at 2 months on 30 patients

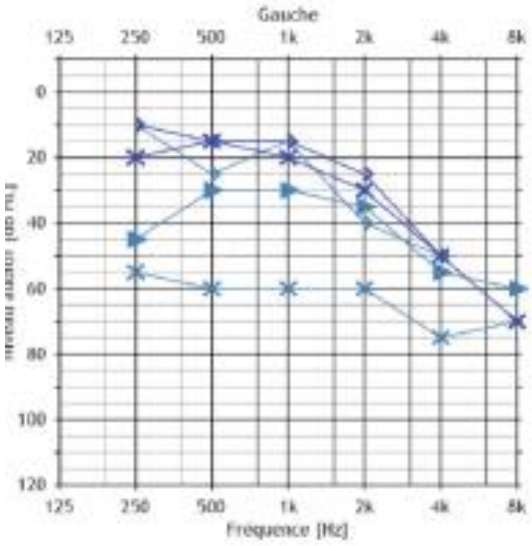
Evaluation

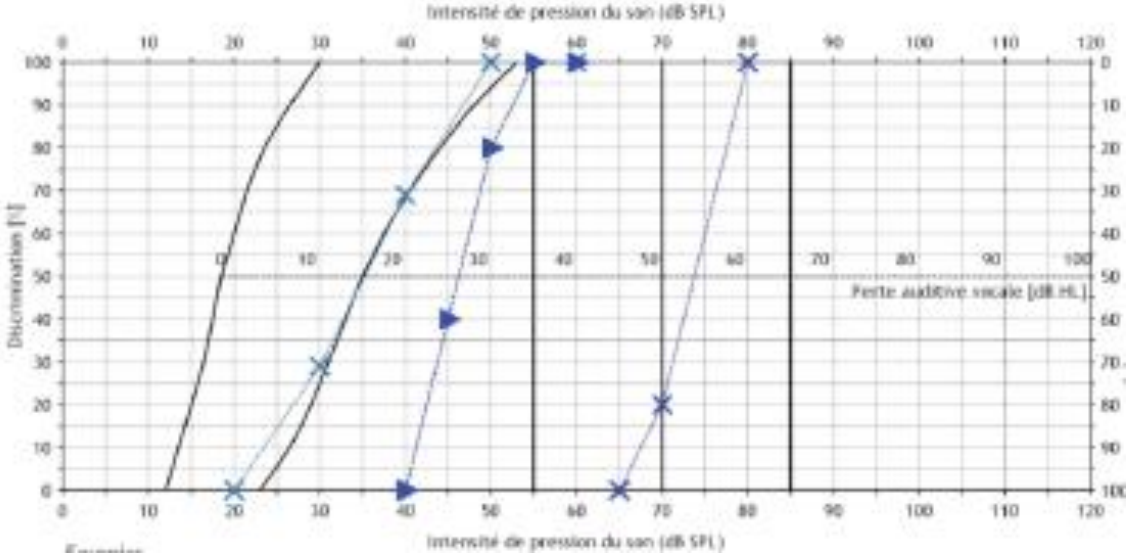
Preliminary results

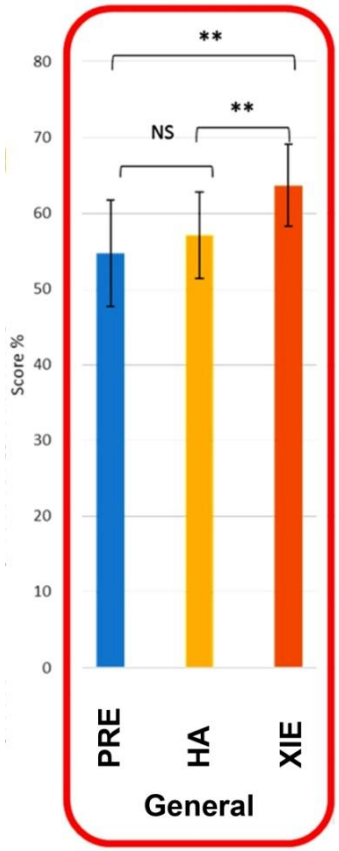
- Main criteria : → Improvement from 0 → 100 (GHSI) S
- Secondary criteria : → Hearing threshold S
  → Sound localisation S

PRELIMINARY RESULTS

N = 22





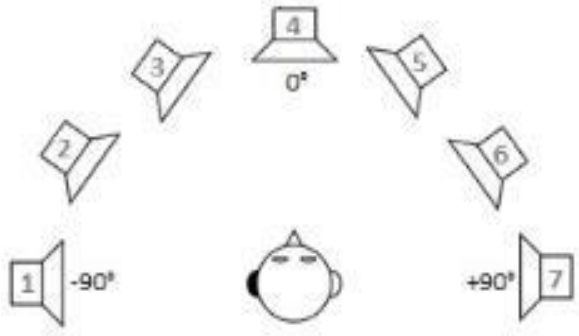


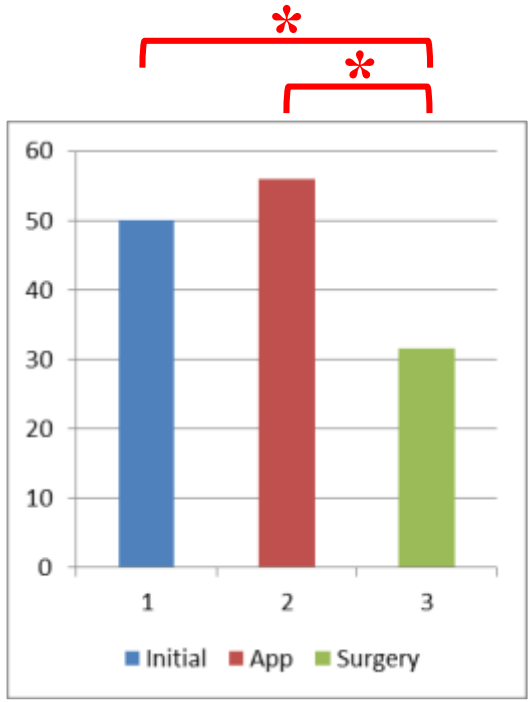
- PTA
- Discrimination
- GHSI

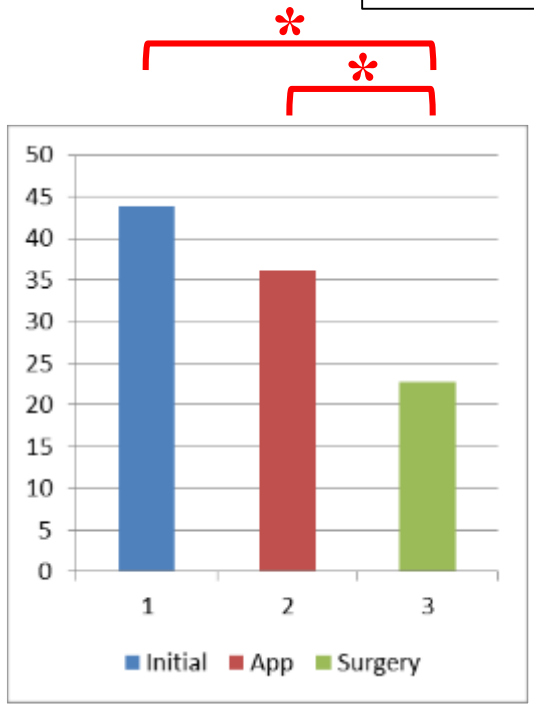
Significant improvement of quality of live after surgery

SOUND LOCALISATION

N = 22





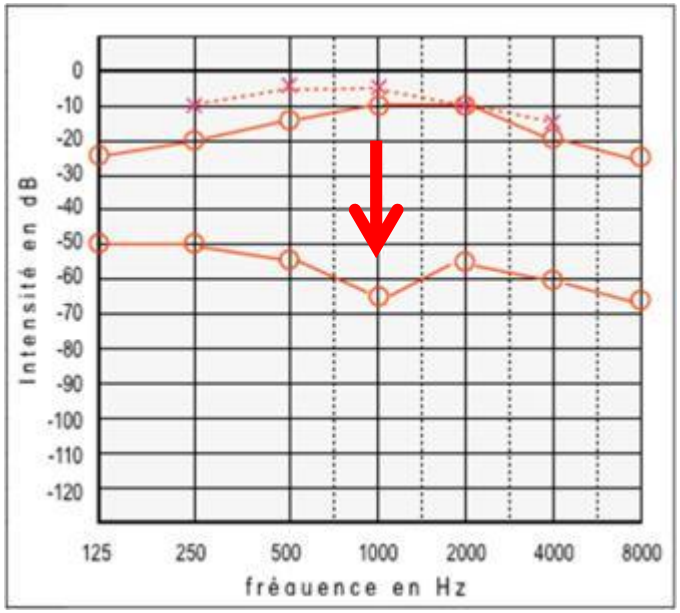


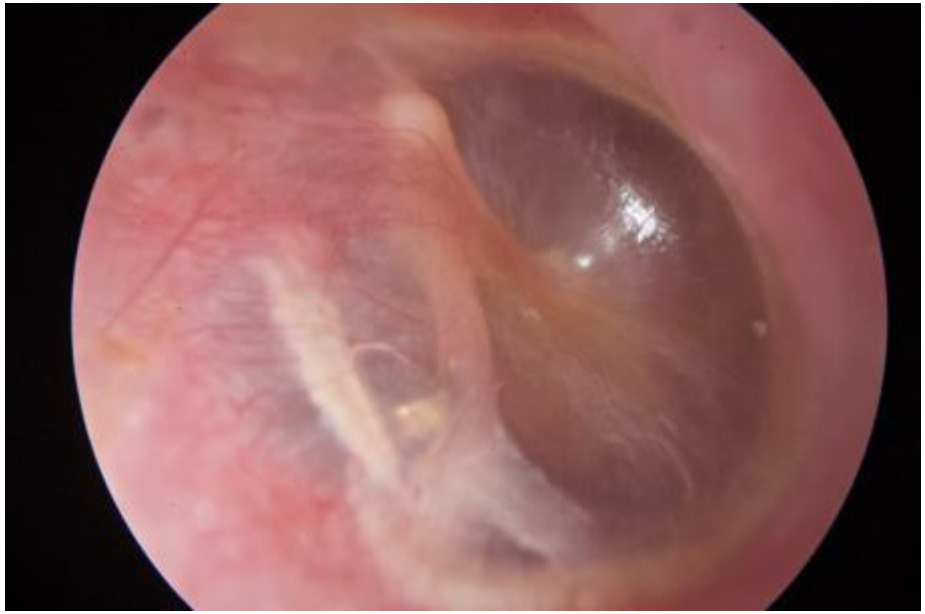
- **Localisation**
- **Total score**
- **Root main square**

Significant improvement of quality of sound localization

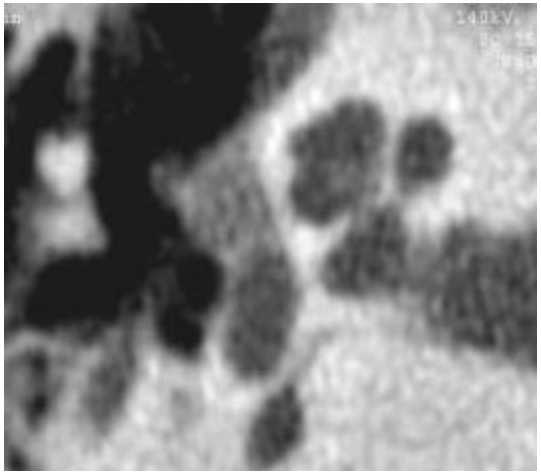
CASE 6

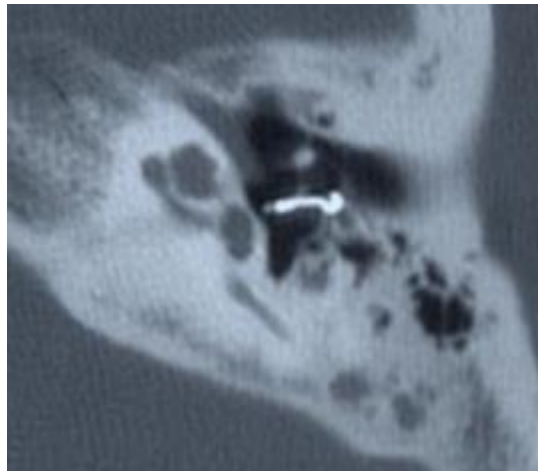
- Delayed post operative conductive hearing loss
- Hearing fluctuation improved after Valsalva
- Otoscopy : prosthesis loop against the tympanic membrane

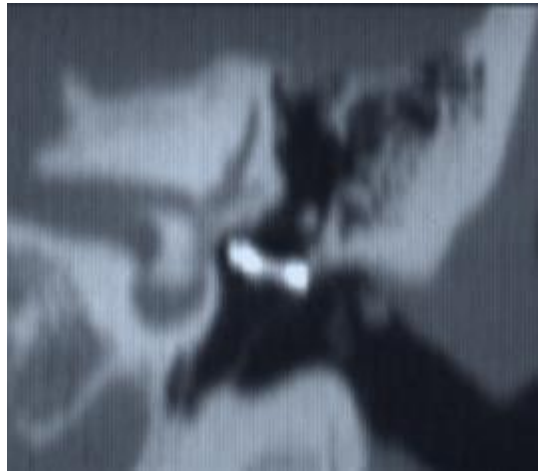




RADIOLOGICAL FINDINGS

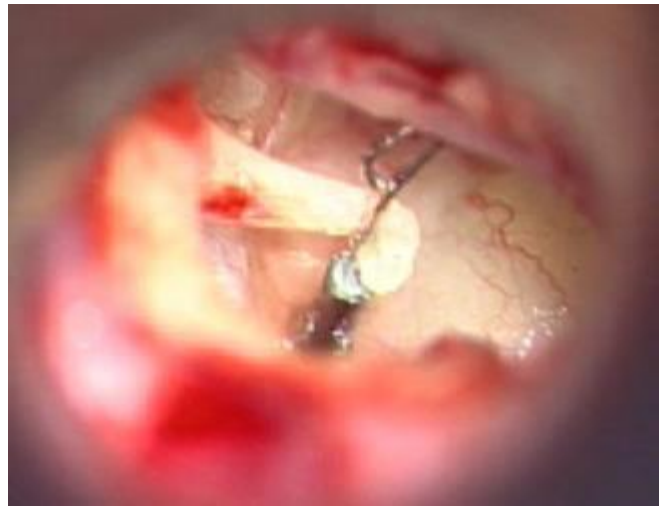






SURGICAL FINDINGS

- Lateral displacement of the piston in the axis of the stapes. No or partial erosion of the incus

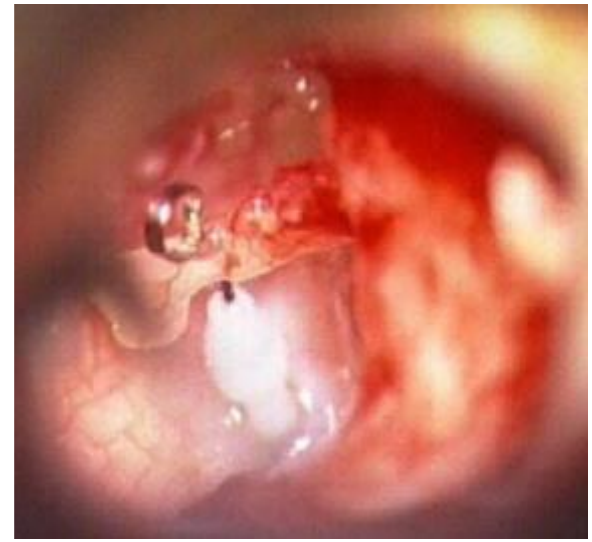


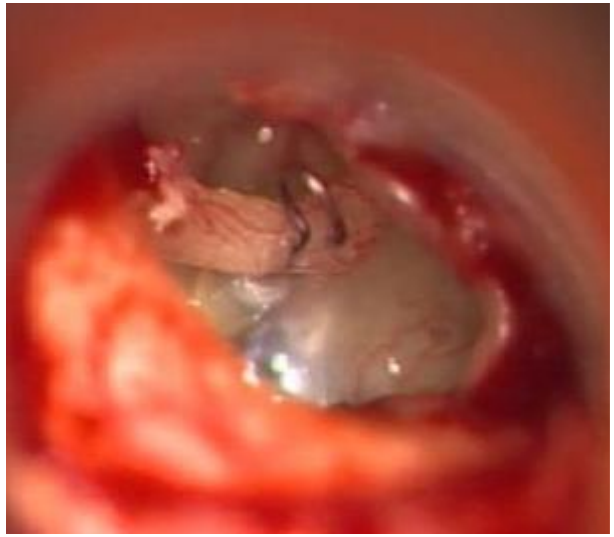
- Closing of the stapedotomy hole

- Richards

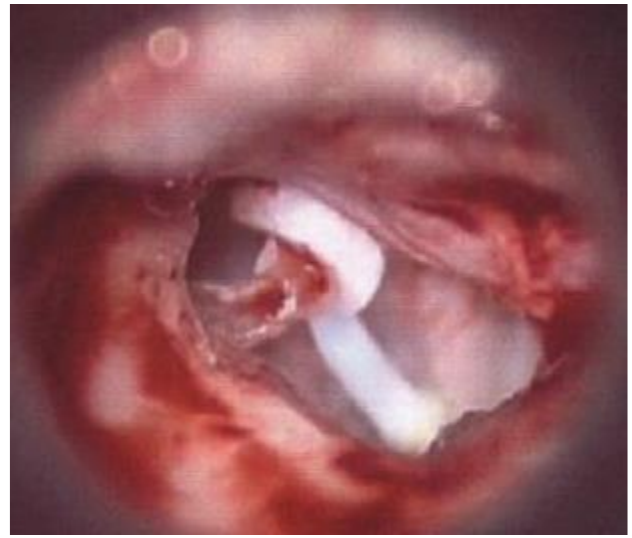
- Mac Gee

- Fisch





- Schuknecht



- Causse

- Big Easy

RESULTS – TYPE OF PISTON

	Conventional piston	Curved piston	TORP
N	31	9	6
Rinne ≤ 10 dB	48%	55%	0
Rinne ≤ 20 dB	93%	85%	50%

NS

Significant $p < 0.05$

PHYSIOPATHOLOGY

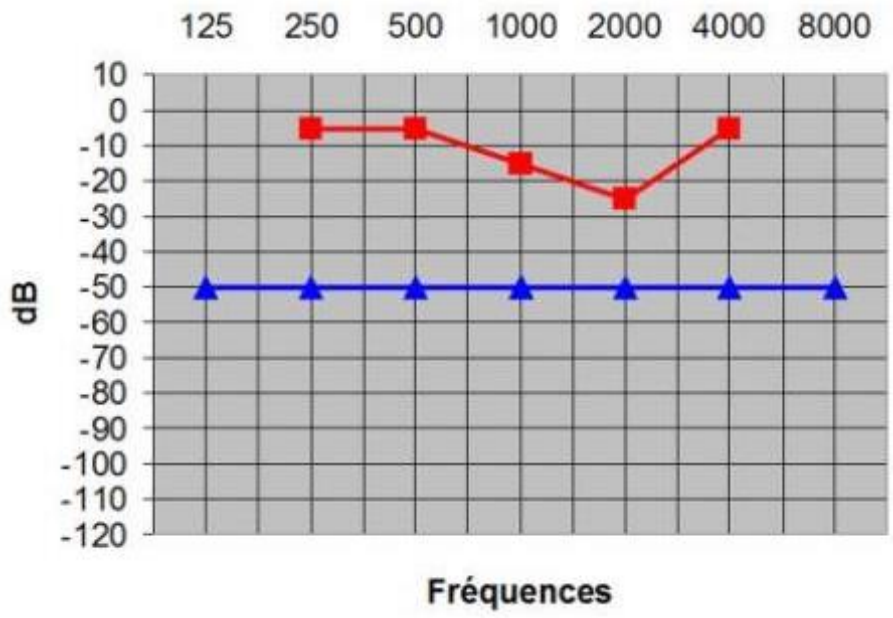
- Too short piston and excessive air pressure changes in the middle ear
  (Farrior.B;AnnOtolRhinolLaryngol 1981: 90;636-9)

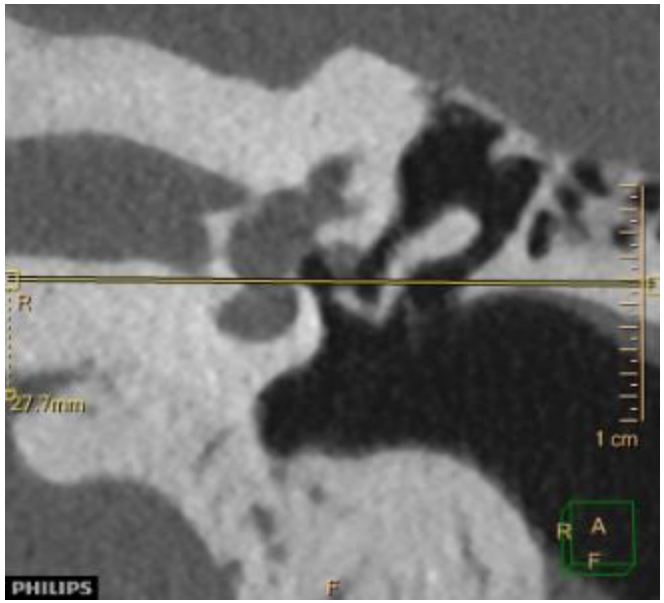
❷ Excessive inner ear pressure changes
(Farrior.B;AnnOtolRhinolLaryngol 1981: 90;636-9)

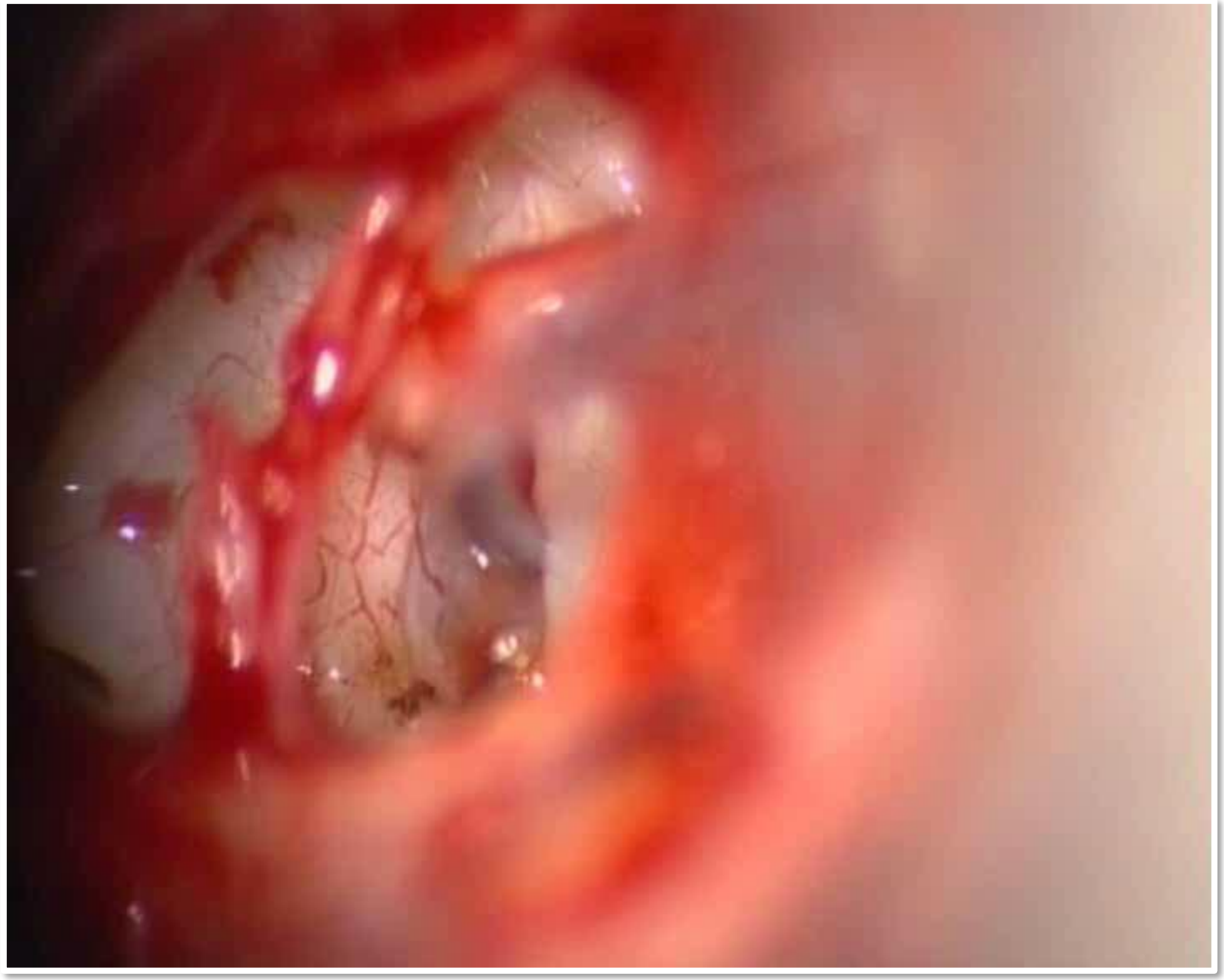
None radiological abnormalies of the inner ear

❸ Eversion of the lining membrane of the vestibule
(Shea.JJ;Laryngoscope 1974: 84(7);1122-34)

CASE 7


125
250
500
1000
2000
4000
8000
10
0
-10
-20
-30
-40
-50
-60
-70
-80
-90
-100
-110
-120
dB
Fréquences


R
1 cm
R
A
F
PHILIPS



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Thank you for your attention