

# Case reports IEBT

AV GenCom 7 september 2019 Schuddebeurs

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**[www.azstlucas.be/duikgeneeskunde](http://www.azstlucas.be/duikgeneeskunde)**

A blue-tinted photograph of a vast ocean under a cloudy sky. The text "De zoveelste !!!!!!!!!!!!!!!" is centered in white.

**De zoveelste !!!!!!!!!!!!!!!**



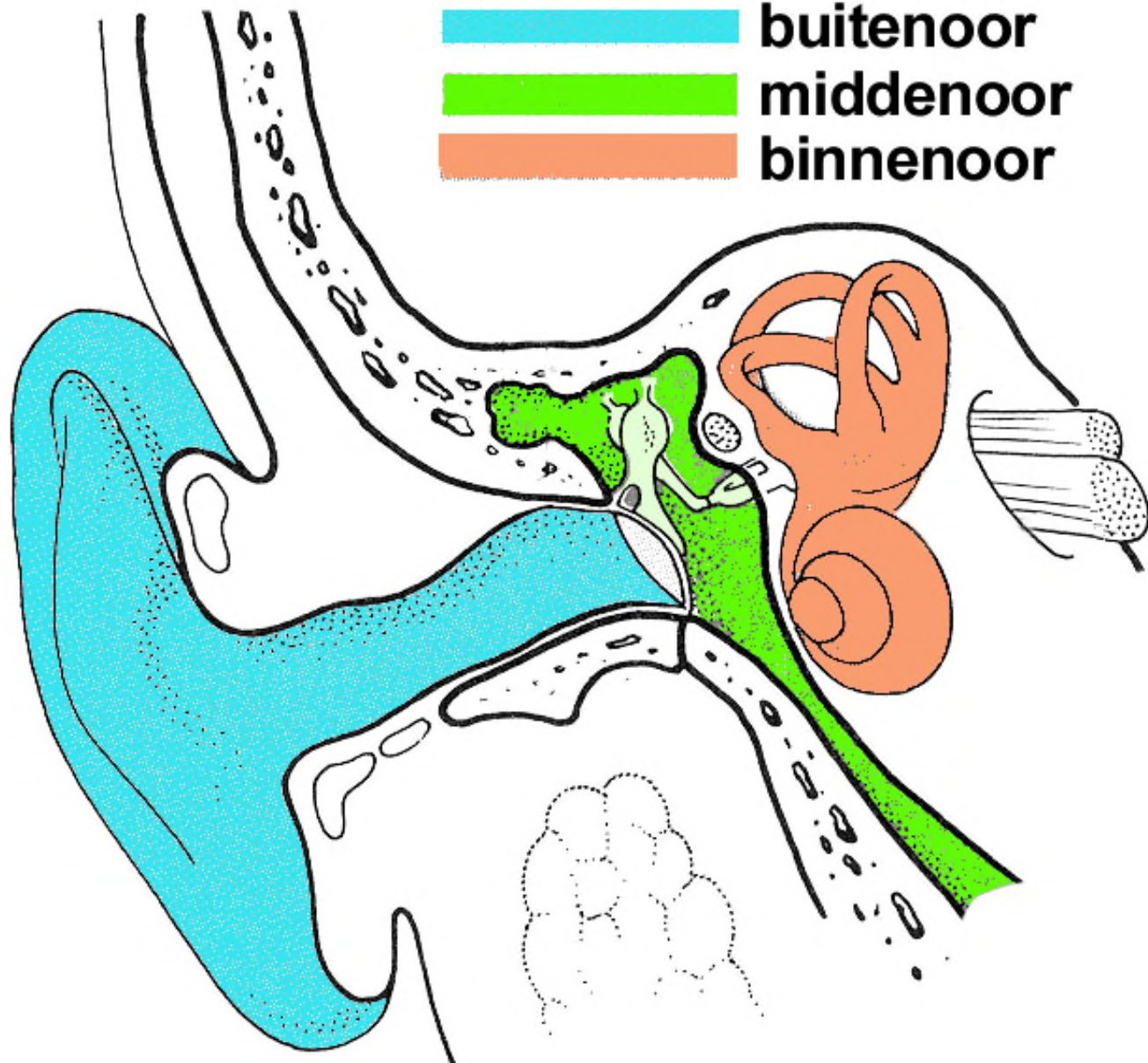
**buitenoor**

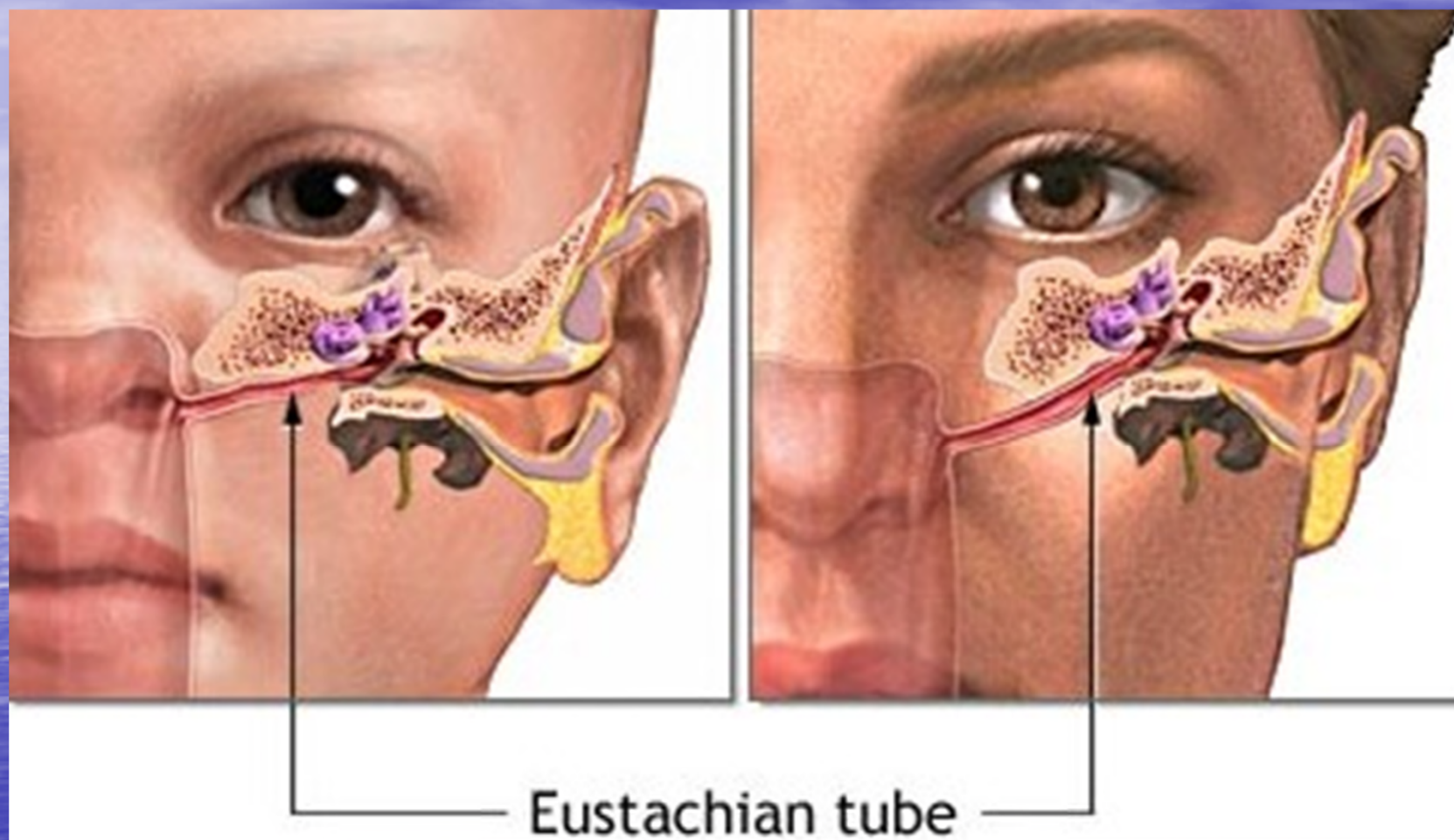


**middenoor**



**binnenoor**





Eustachian tube

# Casus 1:

Vrouw, 32 jaar, raadpleging 28 augustus 2019

P/D30, otitiden

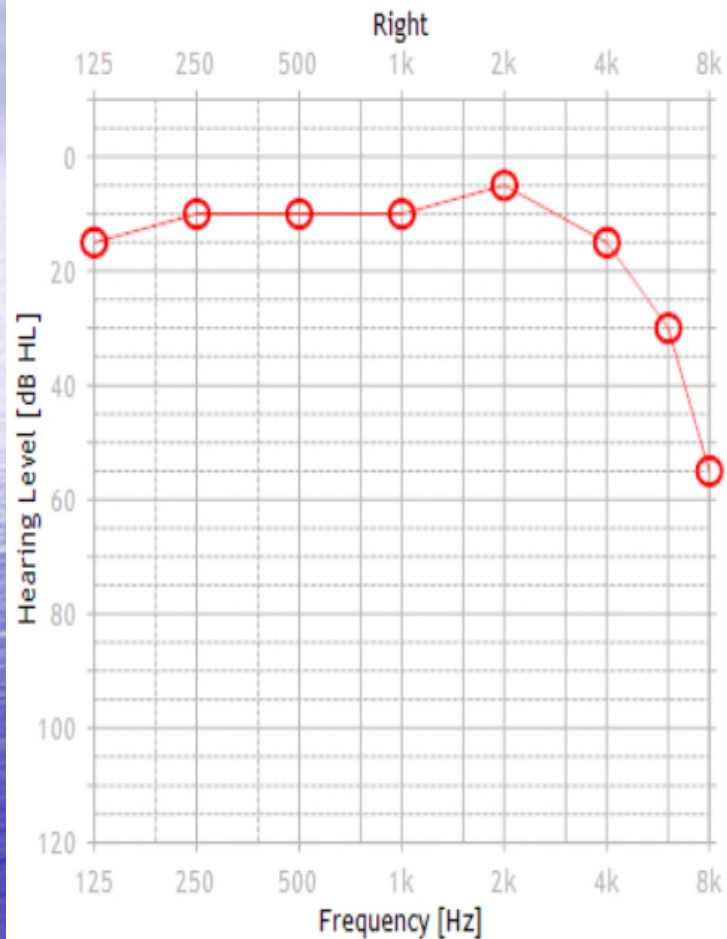
Vakantie Rosas 4 juli 2019 moeilijk klaren rechts.  
Verstopte neus,  
Bij D krachtige vsv.  
Nadien vol gevoel, vage vertigo, wel tinnitus.

In juli volgens eigen KNO "verliesje" hoge tonen,  
start geen R, wil voor alle zekerheid een NMR  
ter uitsluiten Acousticus Neurinoom.  
Klachten nog steeds aanwezig.

# Onderzoek :

- O/licht cicatric tv
- TinnitusRe/ 8000 Hz, 2 dBSL, niet continu aanwezig, vnl bij stress en na blootstelling aan lawaaierige omgeving, interfereert niet met slaap, niet aanwezig op testmoment

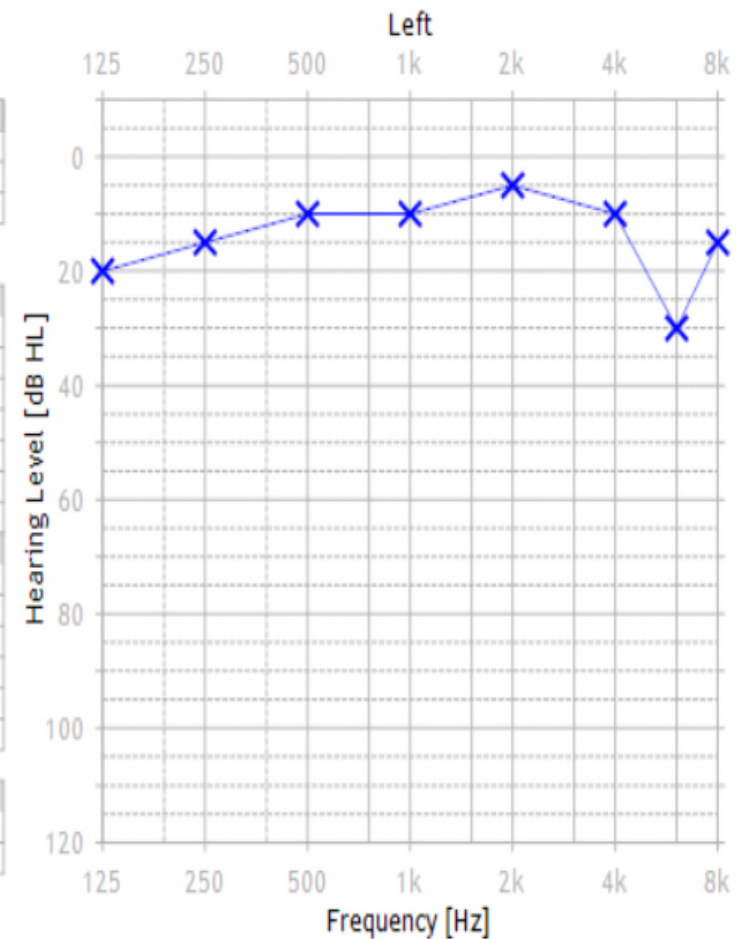
# Klassieke Audiometrie :



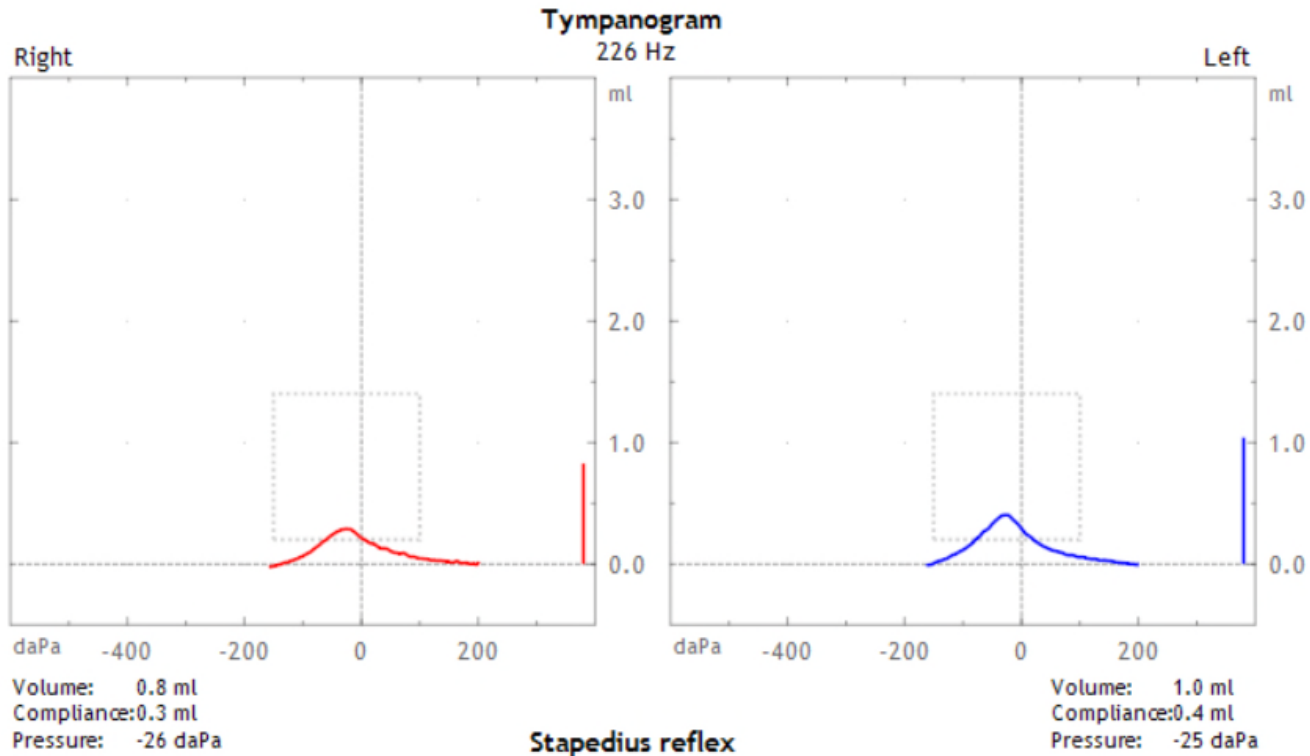
	R	B	L
Rinne			
CPT-AMA [%]	0.8		0.6
PTA4k [dB]	10.0	9.4	8.8

	Unmasked		
AC	○		×
BC	<		>
FF	◇	⊗	◇
FF aided	▲	■	●
ULL	m	m	m
Tinnitus	T	T	T
Not heard	↓	↓	↓
	Masked		
AC	△		□
BC	[		]
FF	◇	⊗	◇
FF aided	▲	■	●
ULL	m	m	m
Tinnitus	T	T	T

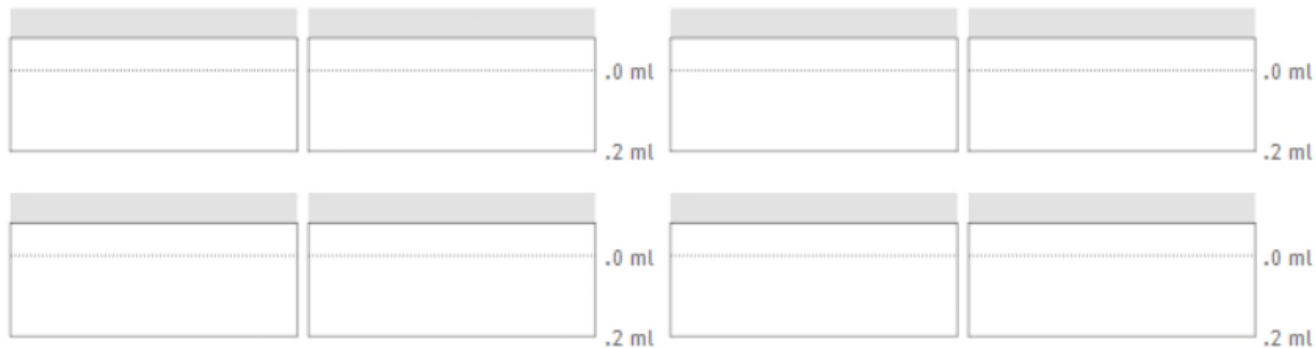
	Weber				
	250	500	1k	2k	4k



# Tympanometrie



## Stapedius reflex



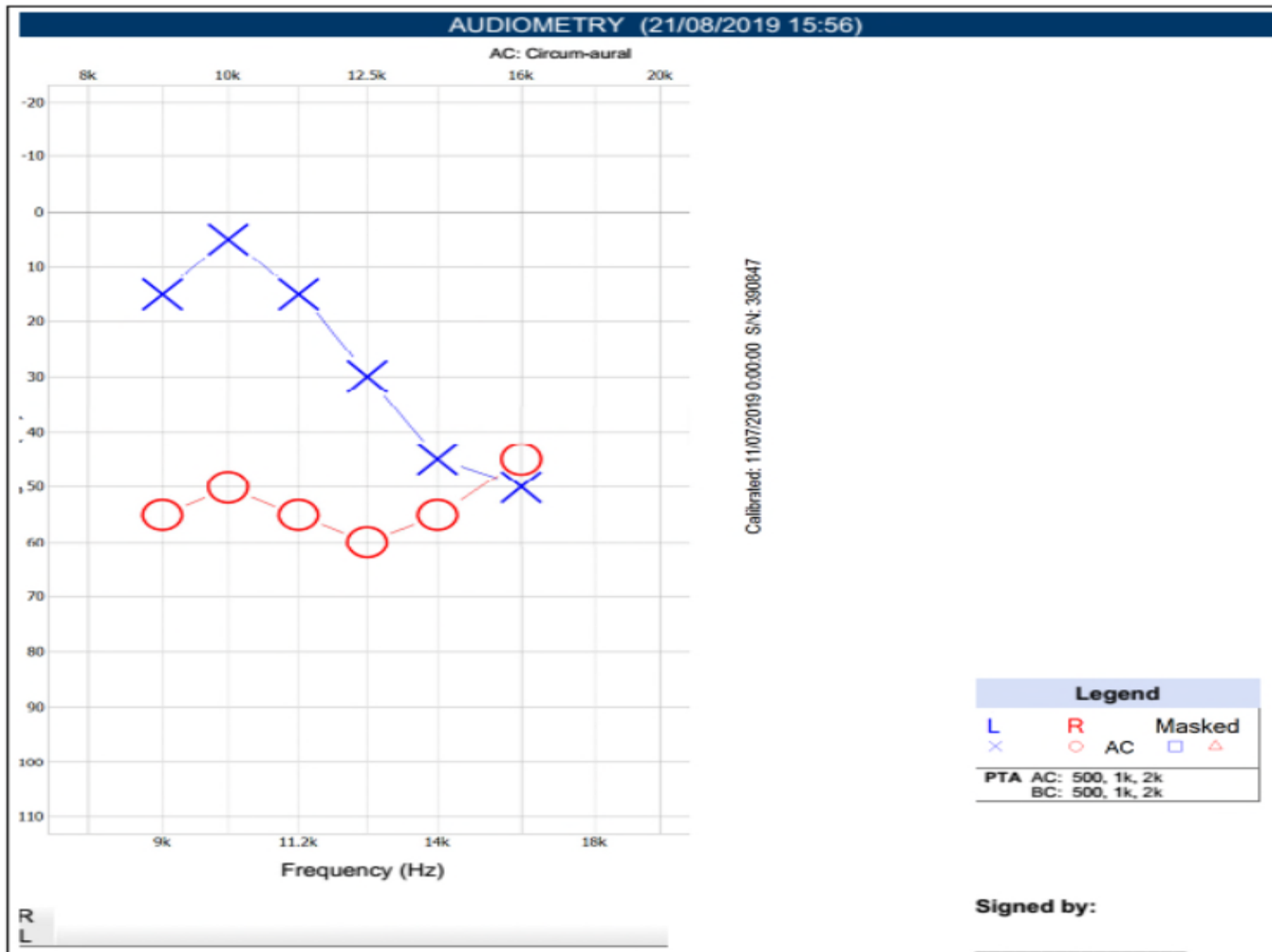


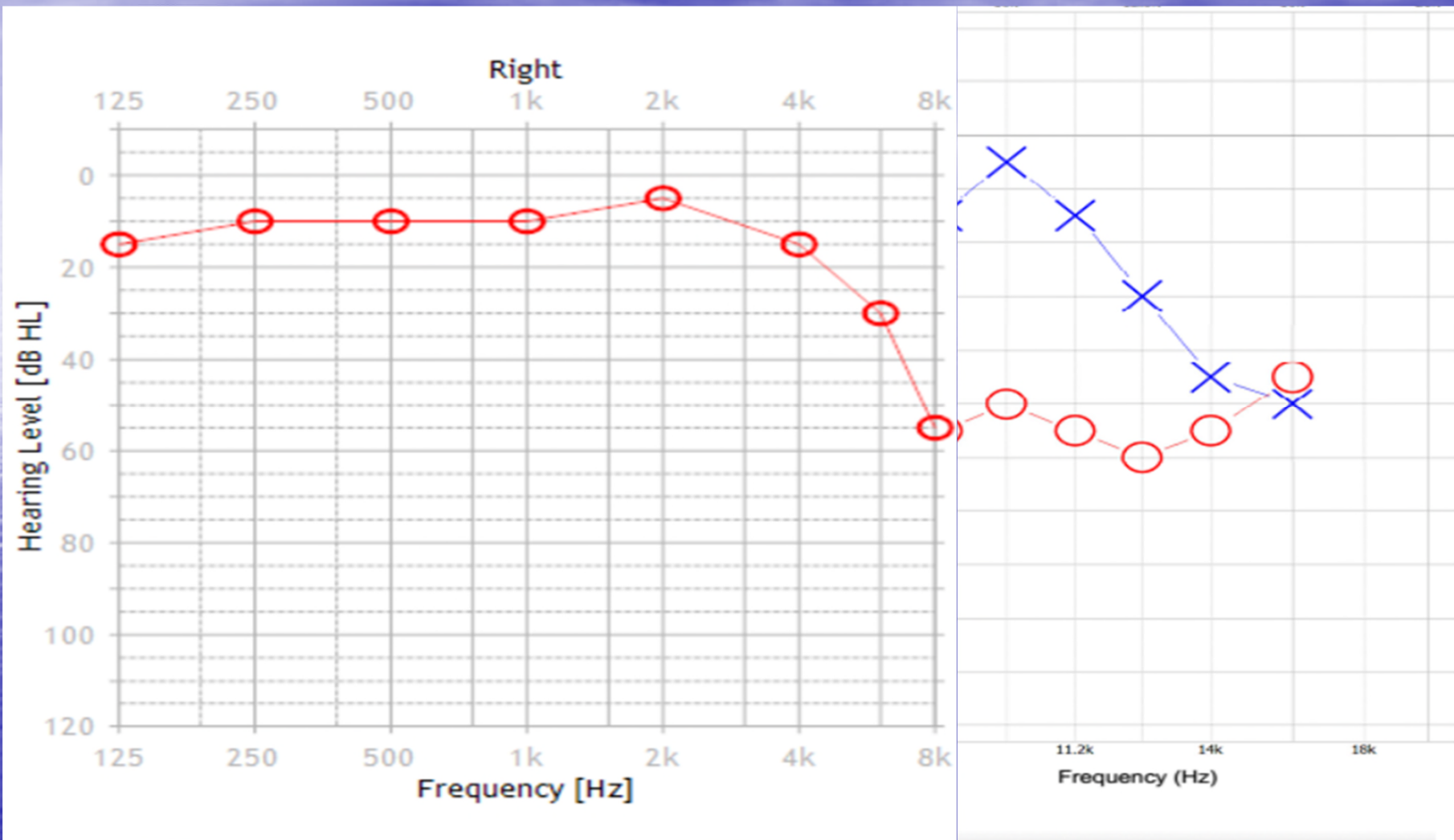
Waar/Wie is het probleem ?

DD/

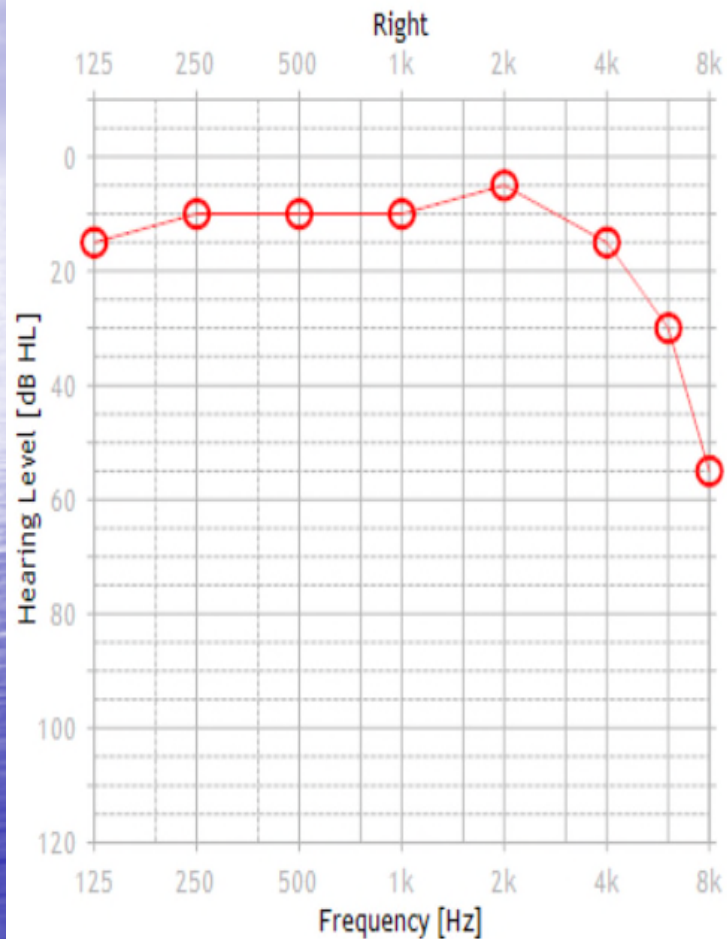
IEBT links door te krachtig klaren

# High Frequency Audiometry :





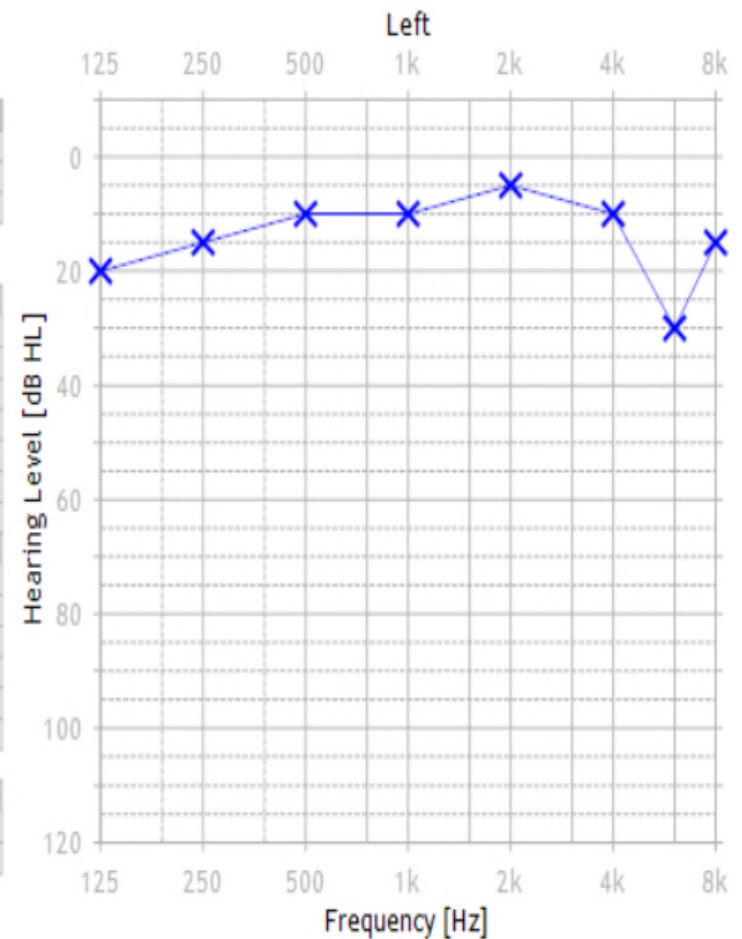
# Klassieke Audiometrie :

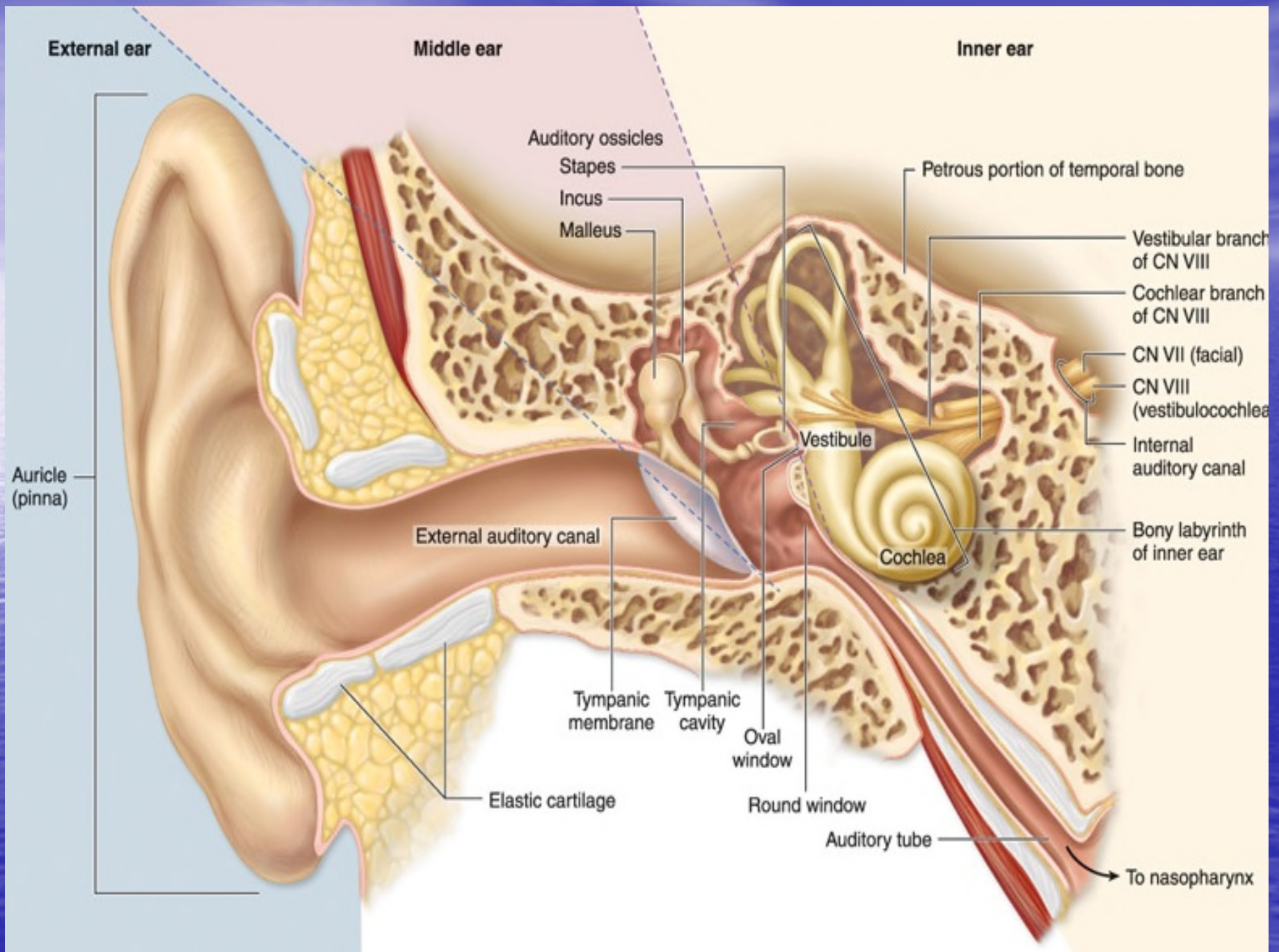


	R	B	L
Rinne			
CPT-AMA [%]	0.8		0.6
PTA4k [dB]	10.0	9.4	8.8

	Unmasked		
AC	○		×
BC	<		>
FF	◇	⊗	◇
FF aided	▲	■	●
ULL	m	m	m
Tinnitus	T	T	T
Not heard	↓	↓	↓
	Masked		
AC	△		□
BC	[		]
FF	◇	⊗	◇
FF aided	▲	■	●
ULL	m	m	m
Tinnitus	T	T	T

	Weber				
	250	500	1k	2k	4k





R/  
toch starten Medrol16-  
Piracetam, co 3w.

# Casus 2:

Man, 36 jaar, brandweerderduiker,  
raadpleging 4 september

P/D1500, werk in lawaai,  
in 2016 te snelle stijging met oorpijn  
rechts (hecht er geen belang aan).

Sinds enkele maanden spontaan optreden  
tinnitus bilateral (?).

Geen vertigo. Vlot klaren.

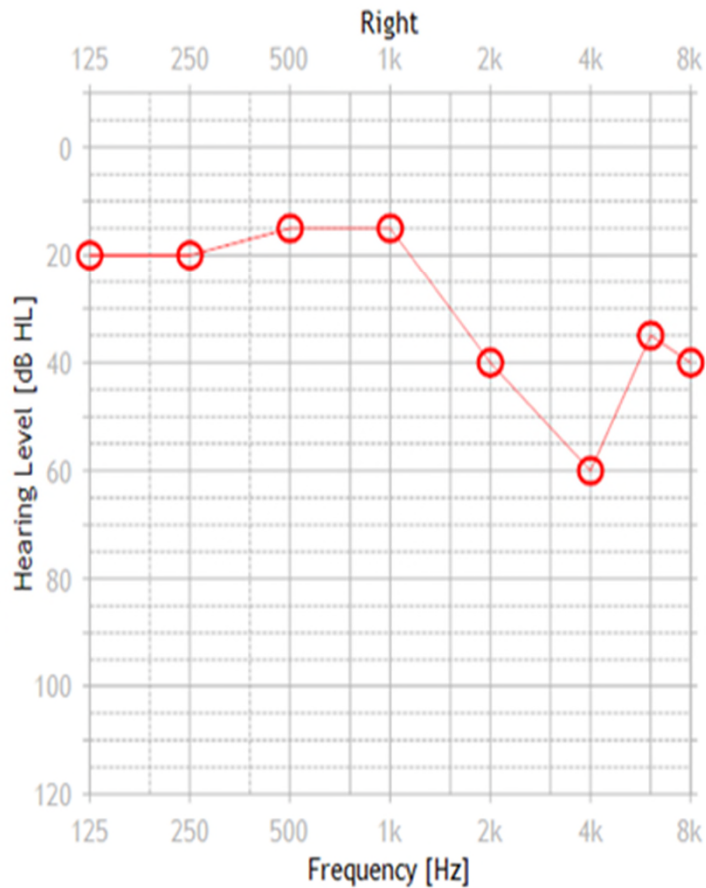
# Onderzoek :

O/gb

TinnitusBIL/  
niet-pulsatieel, NBN, Continu,  
8000 Hz,  
10 dBSL (echter fluctuerende luidheid).  
Niet maskeerbaar.



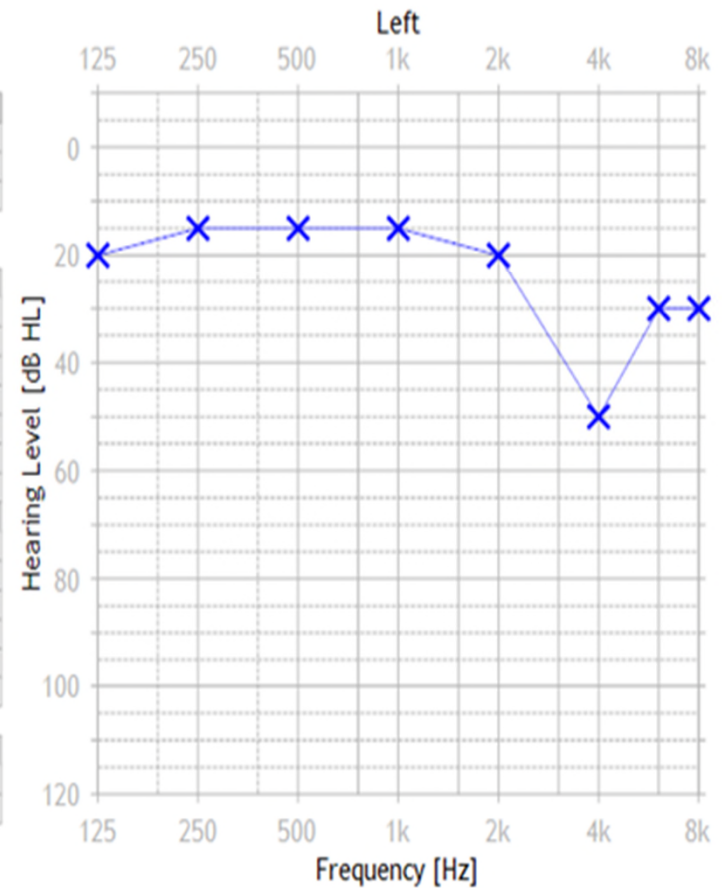
# Klassieke Audiometrie :



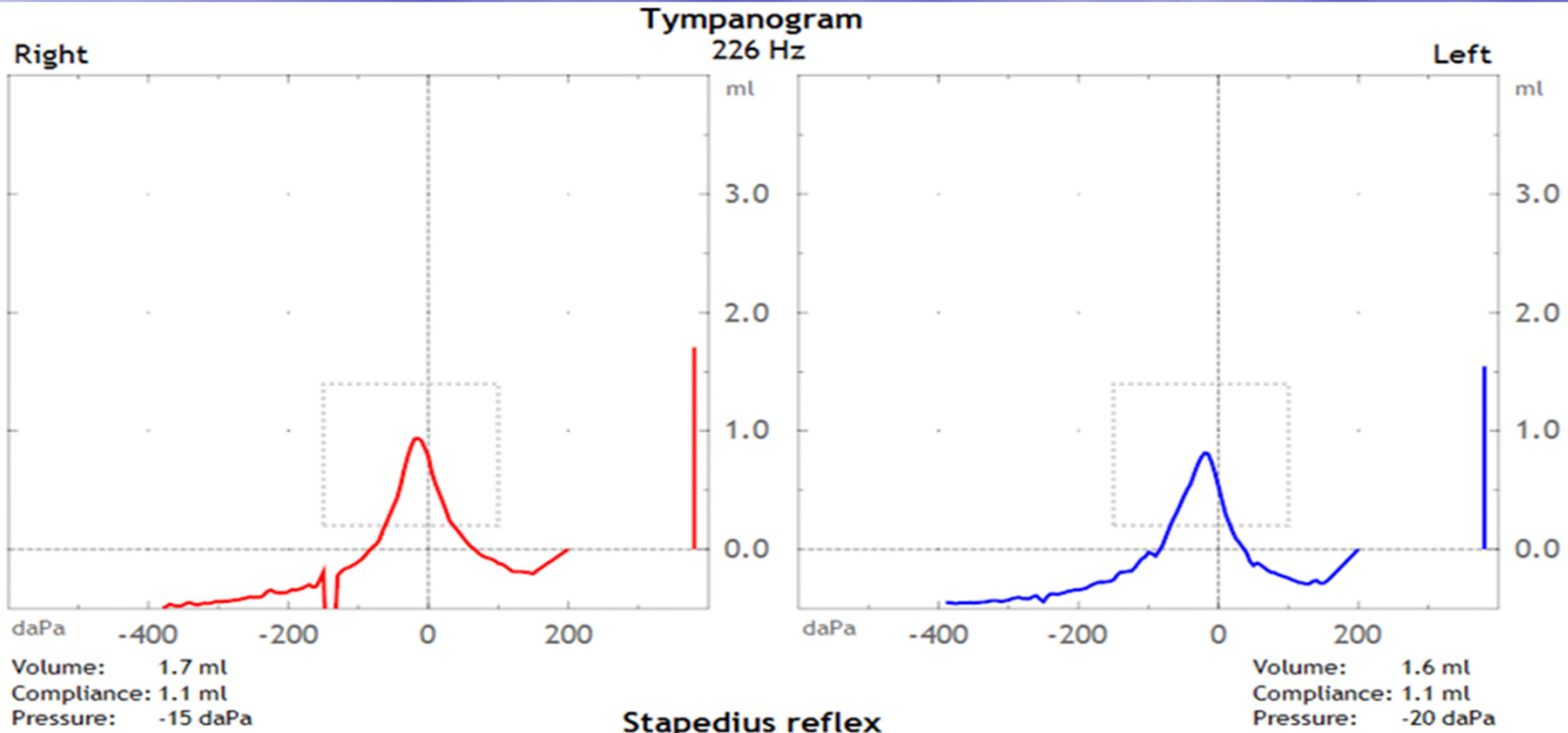
	R	B	L
Rinne			
CPT-AMA [%]	25.5		12.3
PTA4k [dB]	32.5	28.8	25.0

	Unmasked		Masked	
AC	○		△	□
BC	<		∩	∪
FF	◇	⊗	◇	◇
FF aided	▲	■	▲	●
ULL	m	m	m	m
Tinnitus	T	T	T	T
Not heard	↓	↓	↓	↓

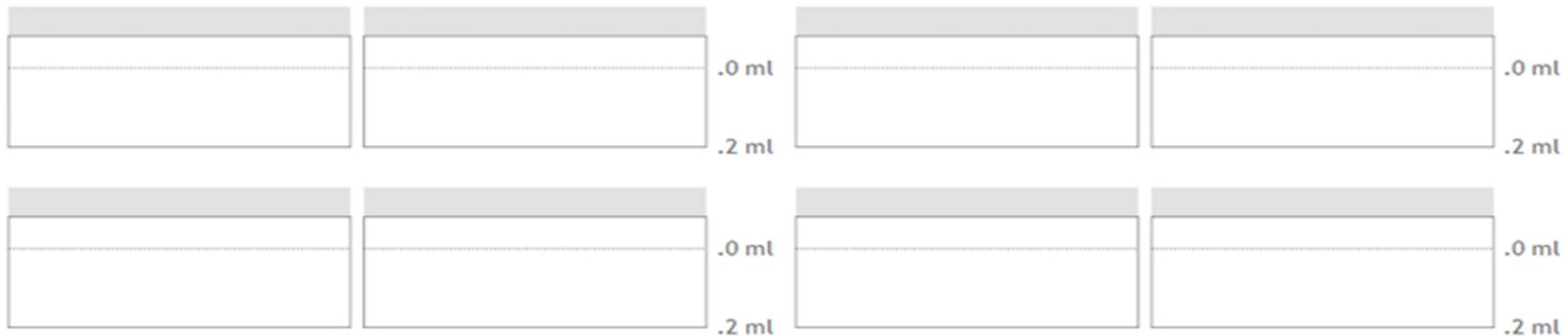
	Weber				
	250	500	1k	2k	4k



# Tympanometrie



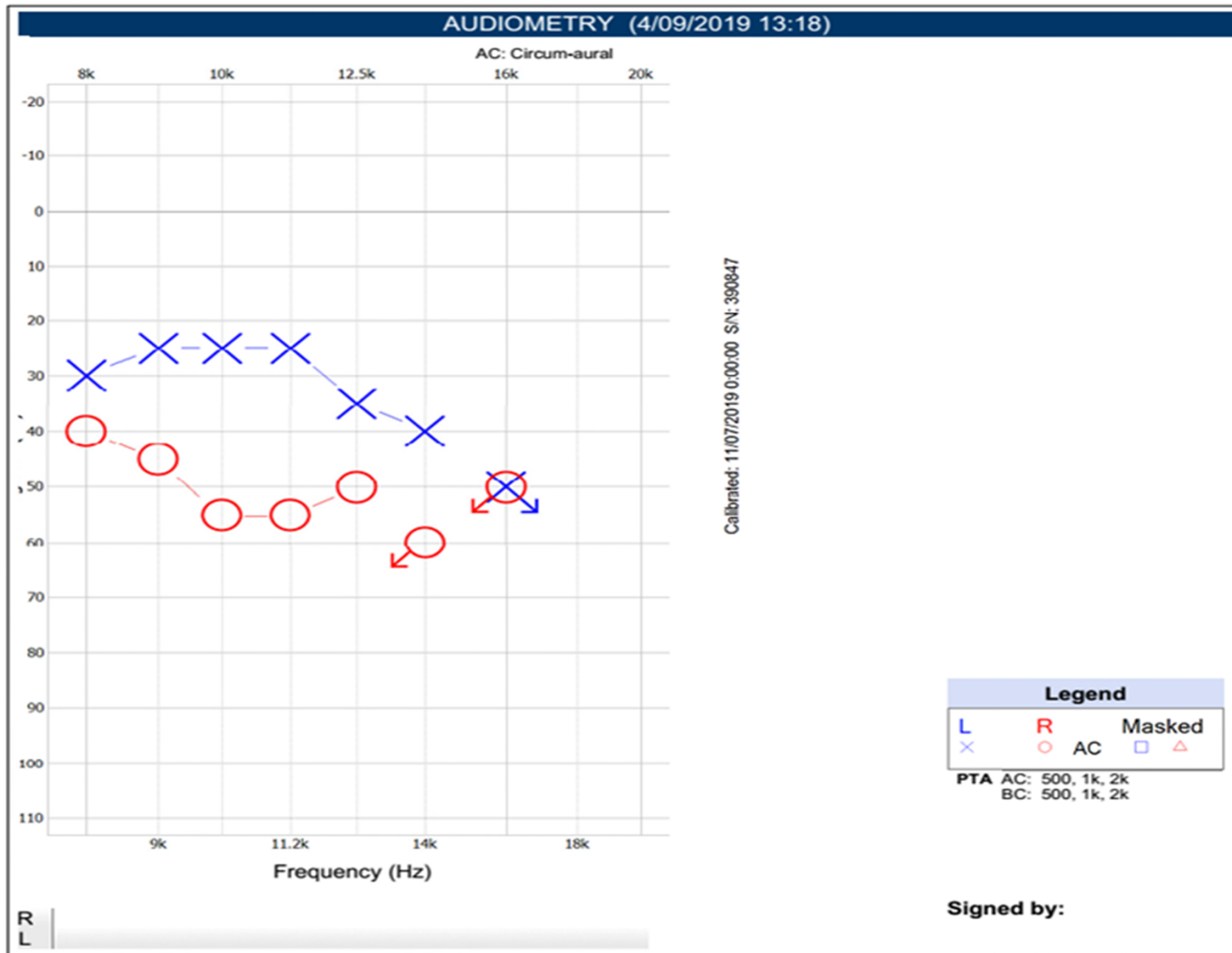
## Stapedius reflex

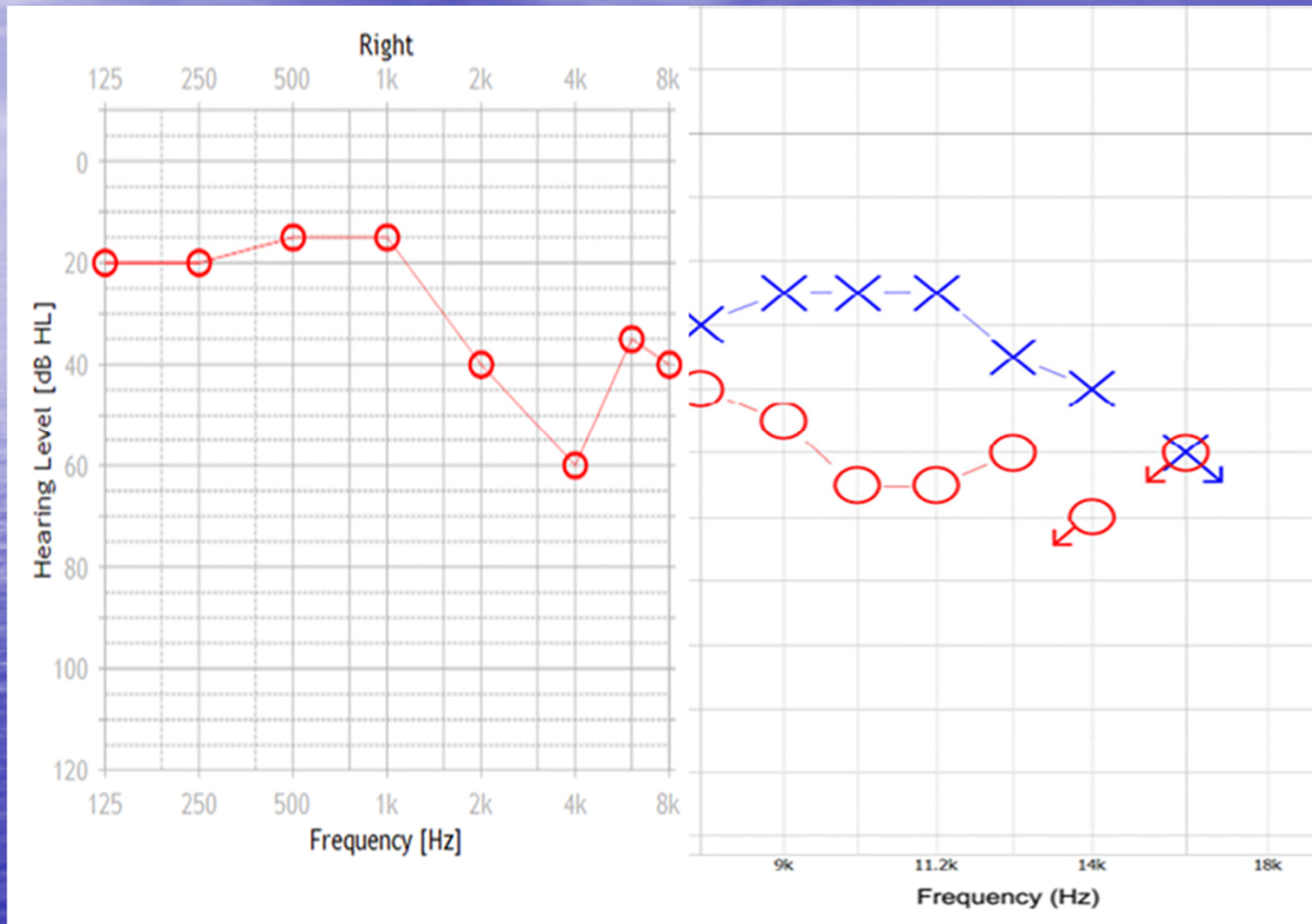


Waar/Wie is het probleem ?

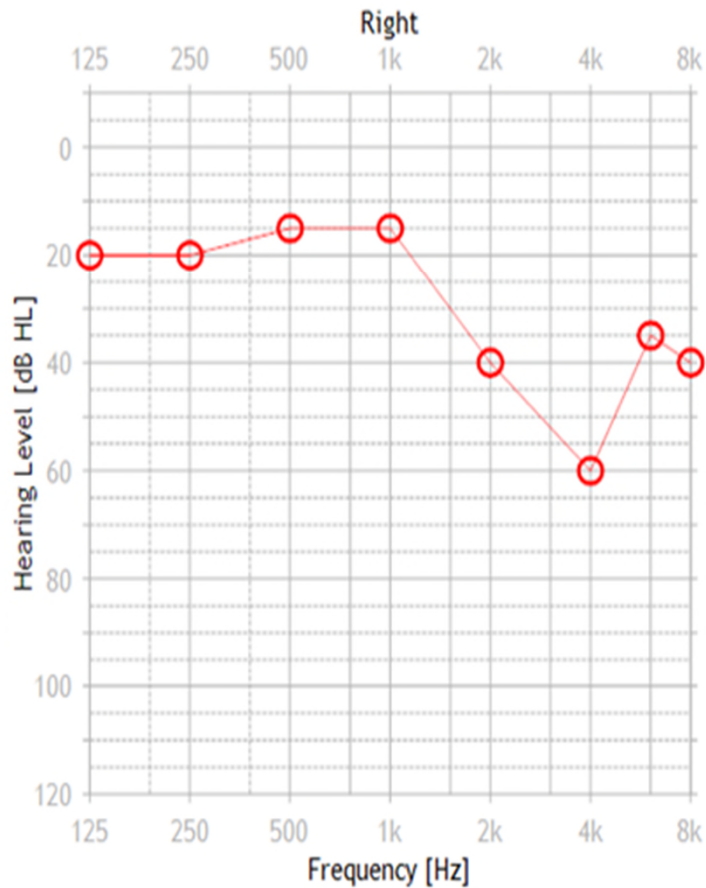
DD/IEBT rechts 2016

# High Frequency Audiometry :





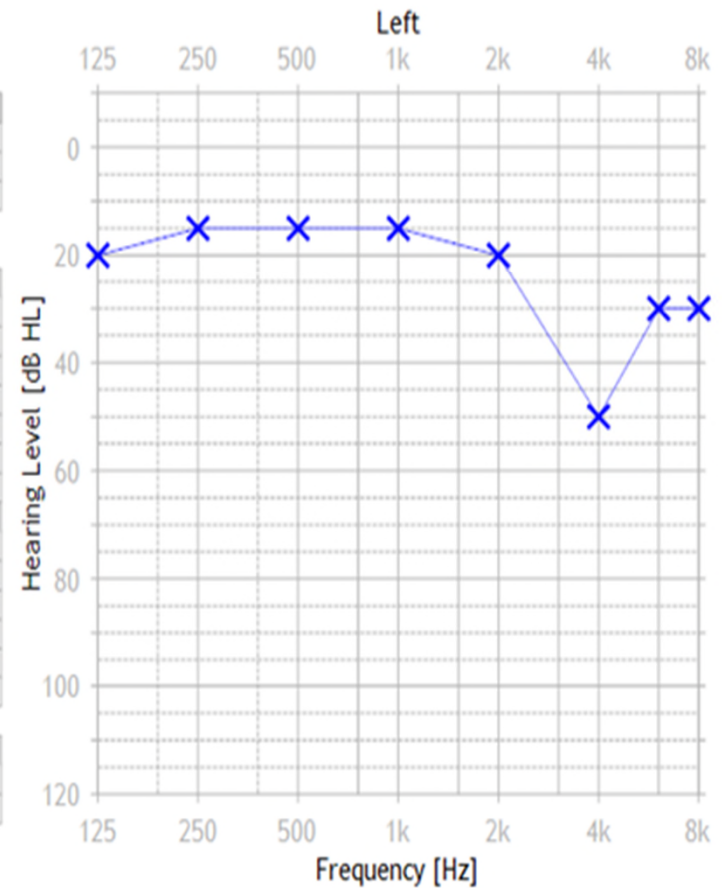
# Klassieke Audiometrie :

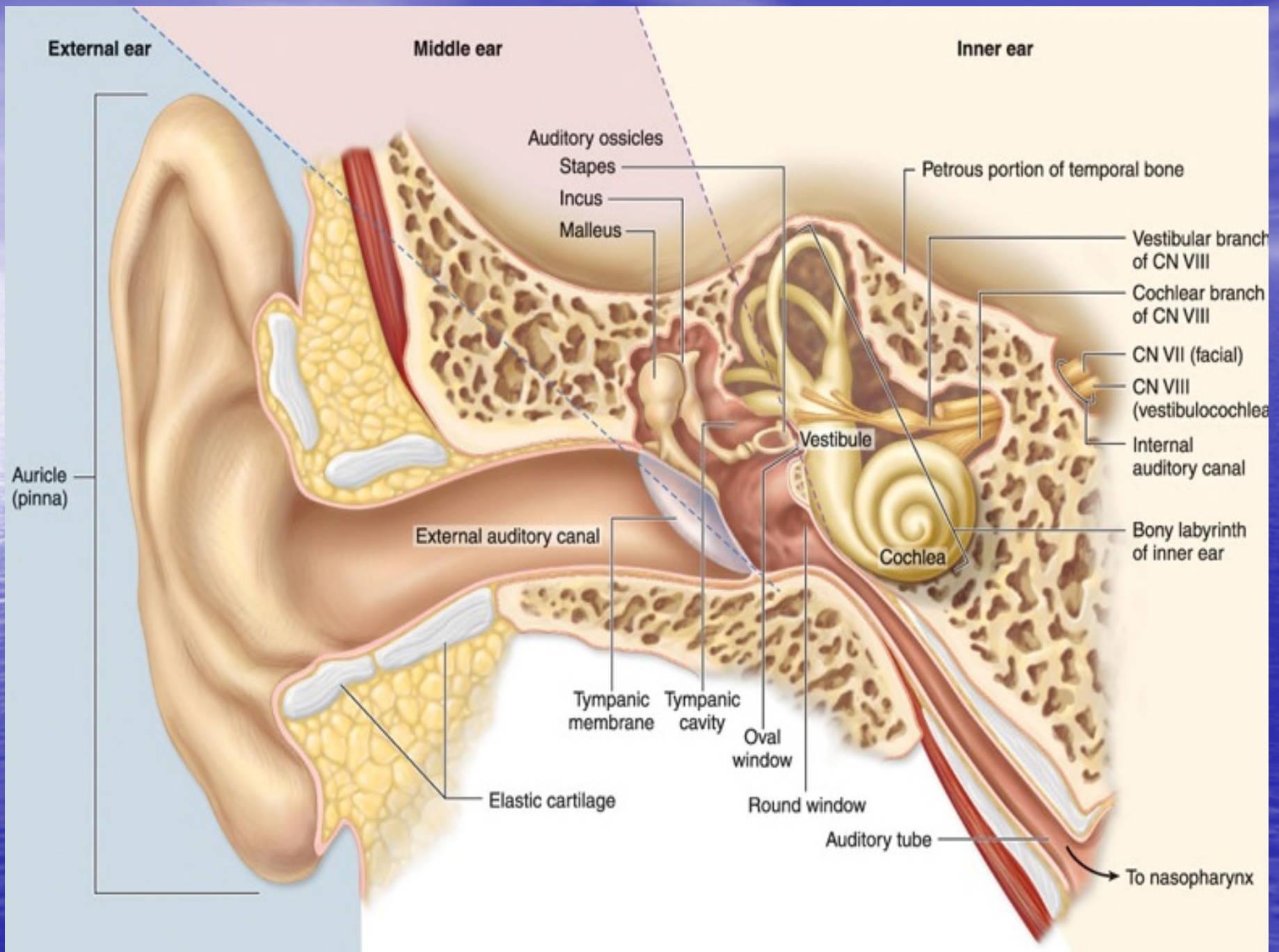


	R	B	L
Rinne			
CPT-AMA [%]	25.5		12.3
PTA4k [dB]	32.5	28.8	25.0

	Unmasked		Masked	
AC	○		△	□
BC	<		∩	∪
FF	◇	⊗	◇	◇
FF aided	▲	■	▲	●
ULL	m	m	m	m
Tinnitus	T	T	T	T
Not heard	↓	↓	↓	↓

	Weber				
	250	500	1k	2k	4k





A blue-tinted photograph of a vast ocean under a cloudy sky. The water is a deep, textured blue, and the sky is a lighter blue with wispy white clouds. The horizon line is visible in the distance.

R/  
R/uitleg



# Casus 3 :

Man, 42 jaar, raadpleging 4 september

P/D800,

MS rechterbeen stabiel laatste aanval in 2004,

Pasen 2019 moeilijk klaren links en "geforceerd".  
Sindsdien gehoorsdaling.

Vlot D2 dit WE.

Wil advies voor vertrek Red Sea eind september.

## Klinisch onderzoek :

- Naso/gb
- O/gb, wel groot osteoom links

# Technisch onderzoek :

BERA /

- Latentie bij MS : Links verlengd tov rechts, en minder mooie curves,
- Drempelbepaling links : geen reproduceerbare curves (snelle stimulatie)

PT /negatief

VNG/ Oculomotorische testen : normal (volgbeweging niet vloeiend), Geen spontane nystagmus, Pendel symmetrisch, Calorisch onderzoek : symmetrisch (NV 7% re, hypo 16% re) => normaal VNG

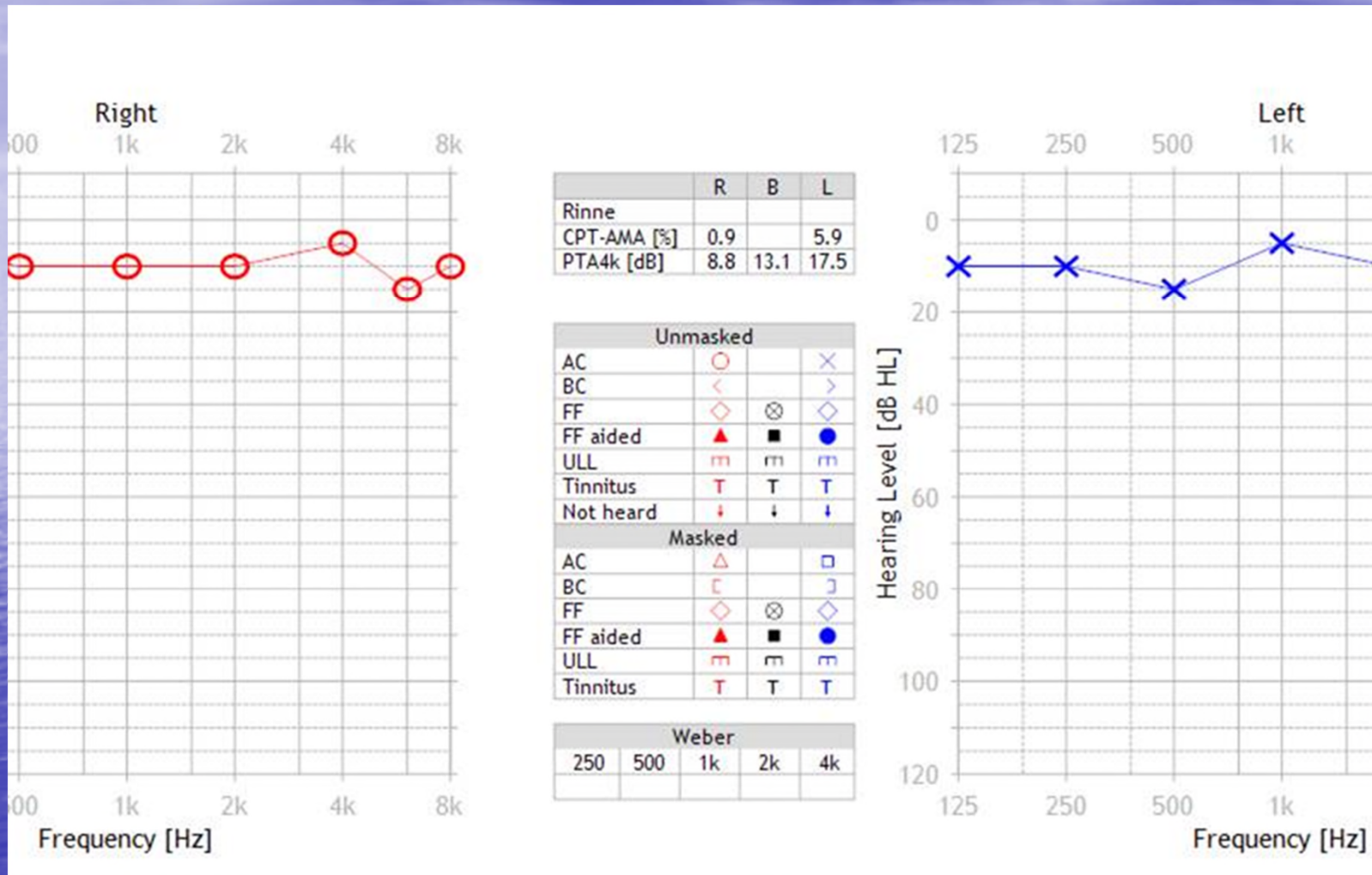
## Recorded Tests

		D	
■ Ijking			
■ Ijking			
■ Visuele stimulatie			
■ Aselecte saccaden	Snelheid (* / s)	433 ms	
	Latentie (ms)	343 ms	
■ Volgbeweging	0,2 Hz Gain	68 %	
	0,2 Hz Nb Sac	4	
	0,3 Hz Gain	100 %	
	0,3 Hz Nb Sac	7	
	0,4 Hz Gain	109 %	
	0,4 Hz Nb Sac	11	
■ Optokinetischetest	20 d/s	10 d/s Links	
	20 d/s	13 d/s Rechts	
	40 d/s	15 d/s Links	
	40 d/s	15 d/s Rechts	
	60 d/s	15 d/s Links	
	60 d/s	18 d/s Rechts	
■ Spontaanen			
■ Spontaan Midden met fixatie	Met Fixatie	0,0 d/s	
■ Spontaan Rechts met fixatie	Met Fixatie	0,0 d/s	
■ Spontaan Links met fixatie	Met Fixatie	0,0 d/s	
■ Spontaan Midden	Zonder Fixatie	0,0 d/s	
■ Spontaan Rechts	Zonder Fixatie	0,0 d/s	
■ Spontaan Links	Zonder Fixatie	0,0 d/s	
■ Pendelproeven			
■ Gedempte	0- 0 sec #SEGDIR[-1]	13 d/s	
	Gain	46 %	
	0- 0 sec #SEGDIR[+1]	14 d/s	
	Nystagmus Voorkeur	4 % Rechts	
■ Caloriken			
■ Koude Kalorische Links		10,0 d/s Rechts	
■ Warme Kalorische Links		15,2 d/s Links	
■ Warme Kalorische Rechts		13,2 d/s Rechts	
■ Koude Kalorische Rechts		5,0 d/s Links	
■ Nystagmus Voorkeur		7 % Rechts	
■ Hypofunctie		16 % Rechts	
■ Thermisch Overwicht		31 % Warm	

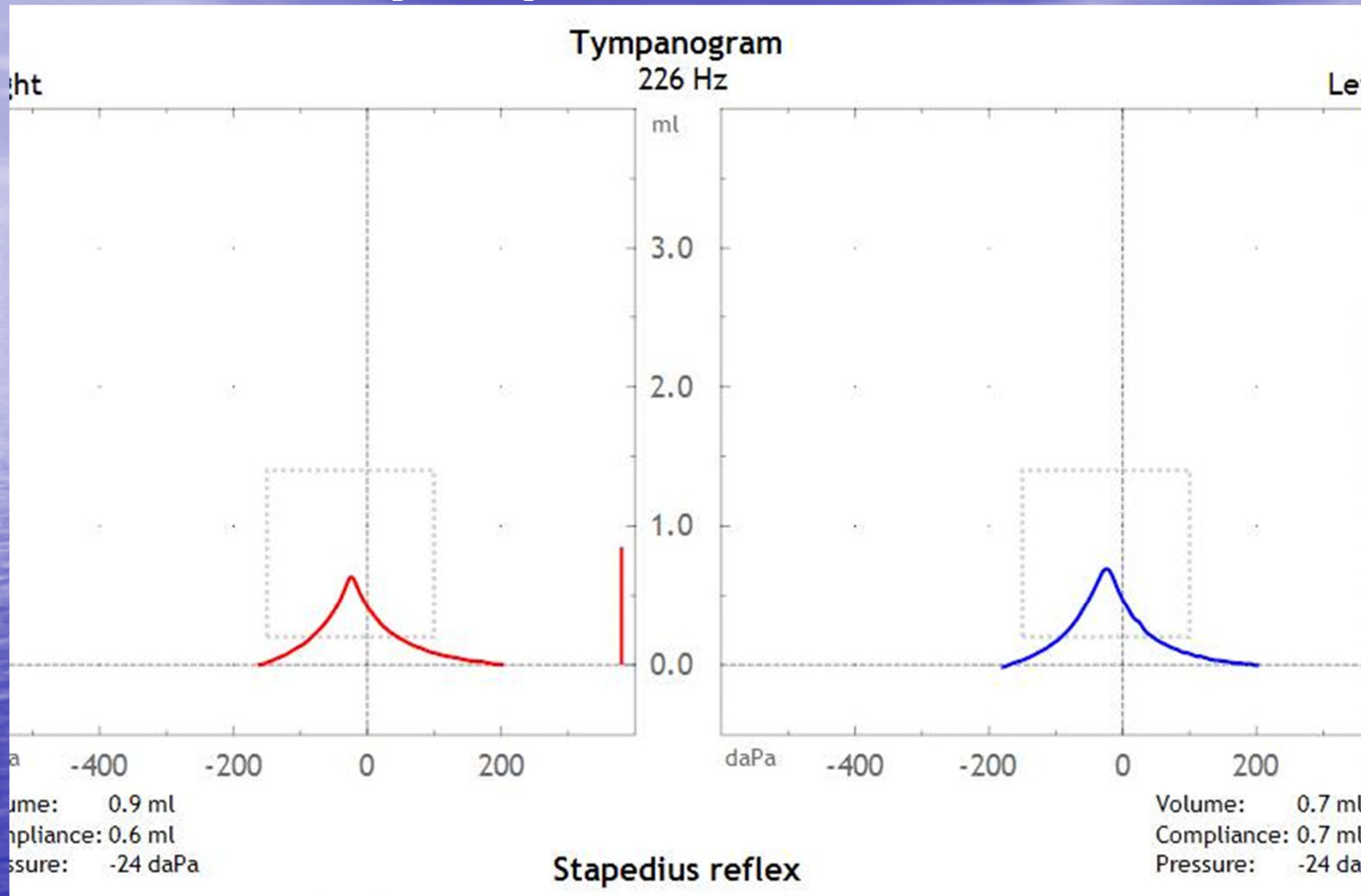
## Interpretatie

Oculomotorische testen : +- normaal, (volgbeweging niet vloeiend)  
 Geen spontane nystagmus  
 Pendel : symmetrisch  
 Calorisch onderzoek : symmetrisch (NV 7% re, hypo 16% re)=>normaal VNG

# Klassieke Audiometrie :



# Tympanometrie



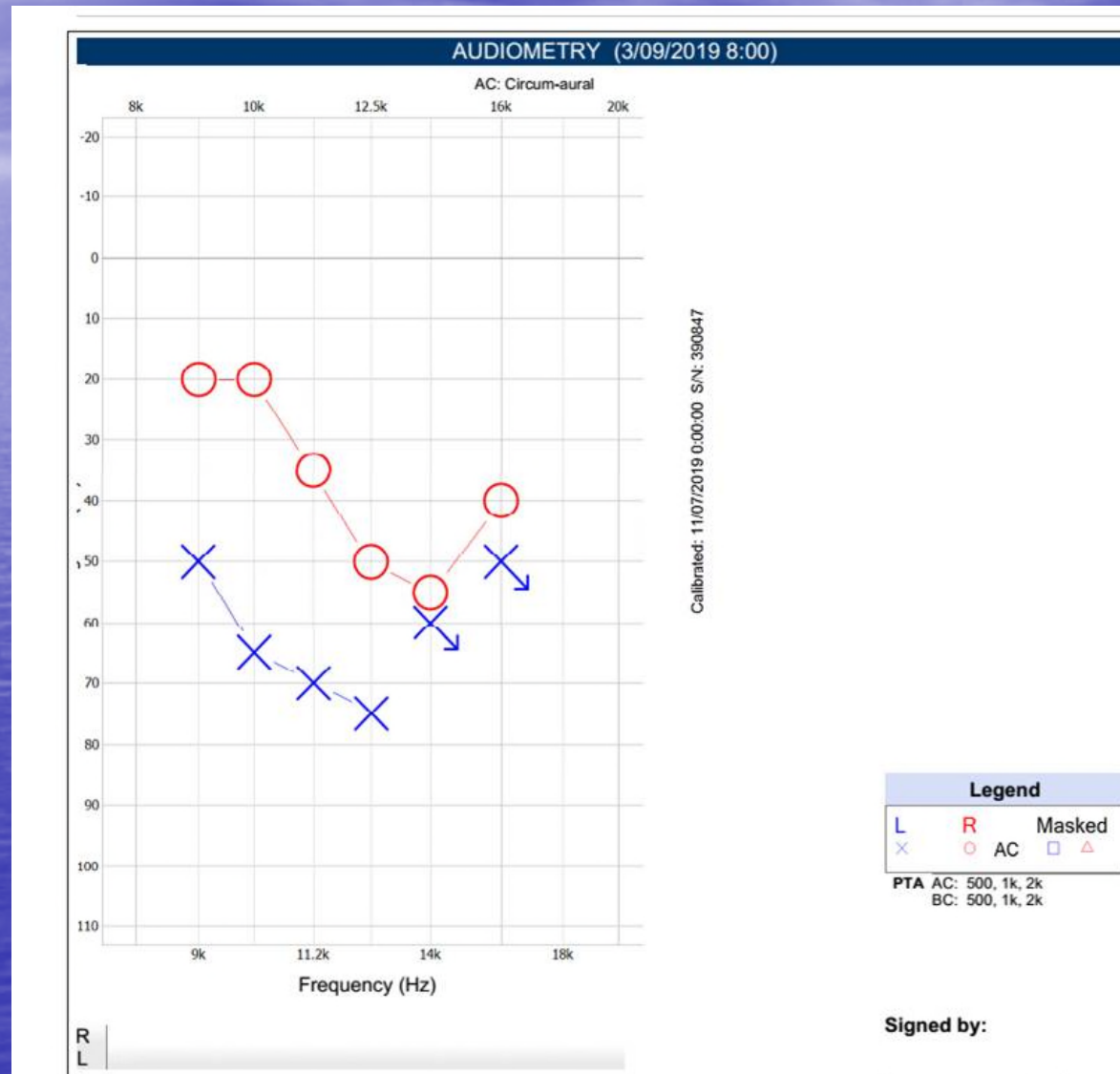
# Waar/Wie is het probleem ?

DD/  
IEBT, MS ?

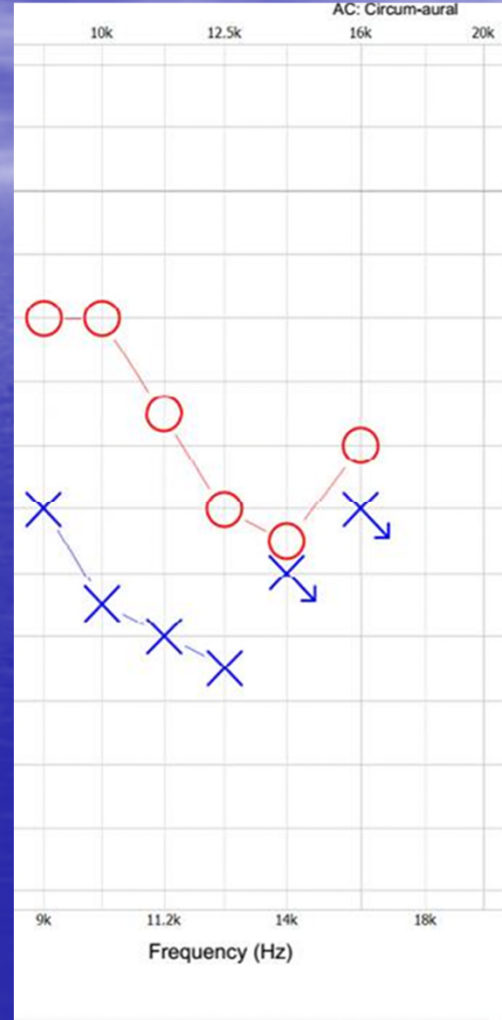
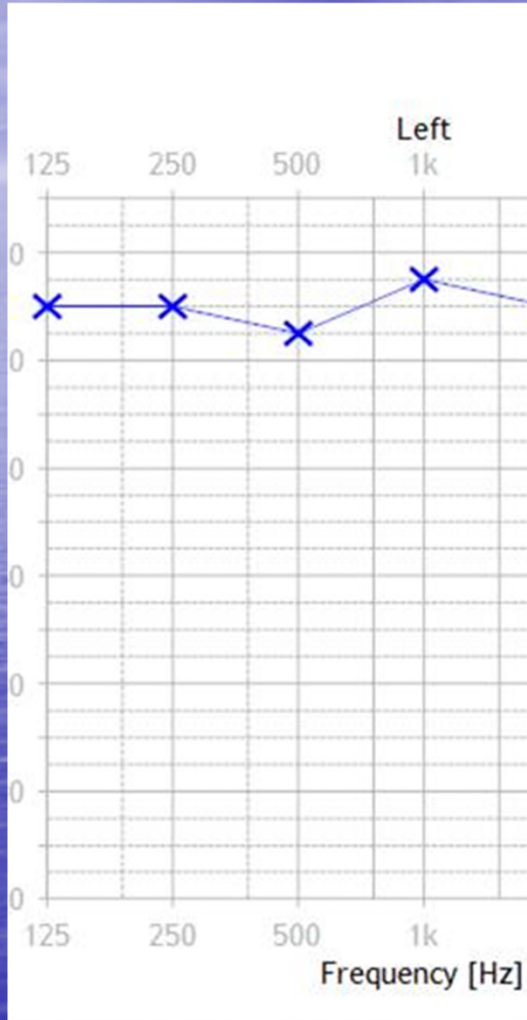
Nmr/  
Bekende MS, zonder aanwezigheid van  
actieve aankleuringen.

Normale bevindingen in de  
brughoekregio en het binnenoor  
beiderzijds.

# High Frequency Audiometry :







Calibrated: 11/07/2019 0:00:00 S/N: 390847

**Legend**

L	R	Masked
x	o	□ △

PTA AC: 500, 1k, 2k  
BC: 500, 1k, 2k

Signed by:

A blue-tinted photograph of a vast ocean under a cloudy sky. The text 'R/uitleg' is overlaid on the left side of the image.

R/uitleg

**Besluit :**

HIGH FREQUENCY AUDIOMETRY !!!!!

# Tympanometrie

AV 7 september 2019 Schuddebeurs

1. Mikro-otoscopie :

2. Tympanometrie (drukmeting) :

= objectief onderzoek met informatie over :

- de beweeglijkheid van het TV,
- de anatomie van het trommelvlies,
- de verluchting/aeratie van het middenoor.

# Voordelen :

1. Eenvoudig,
2. Objectief,
3. Evident voor alle artsen,
4. Weinig kosten,
5. Info over TV en duiker !!!!!!!

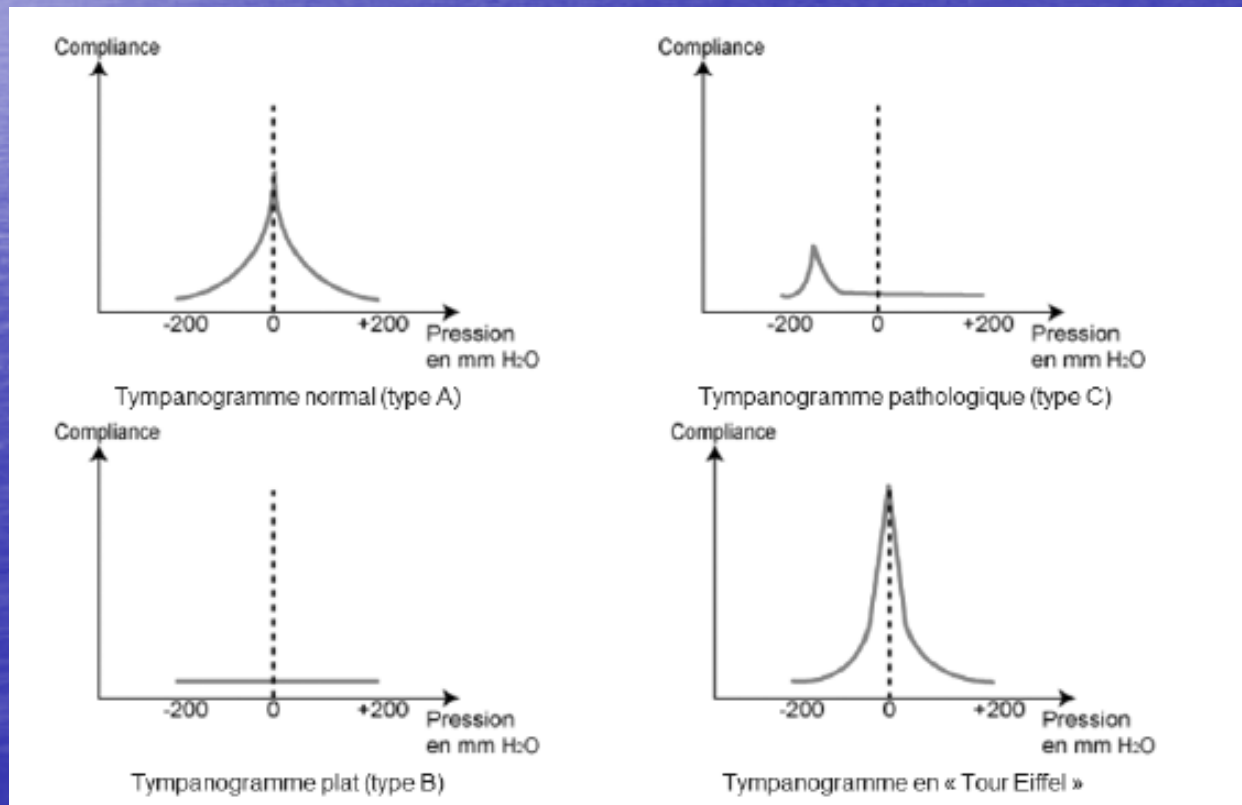
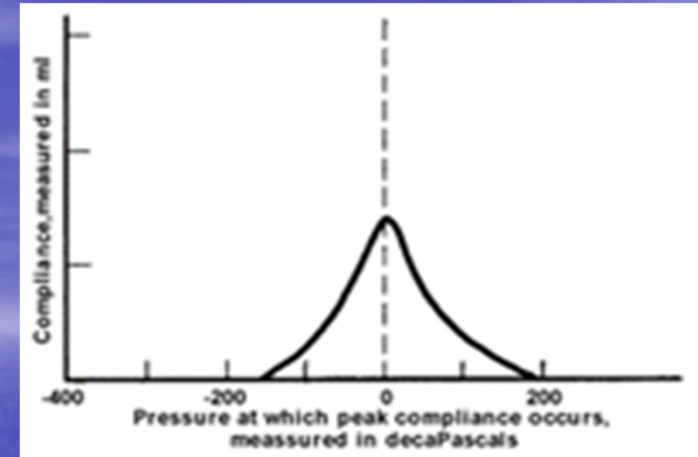
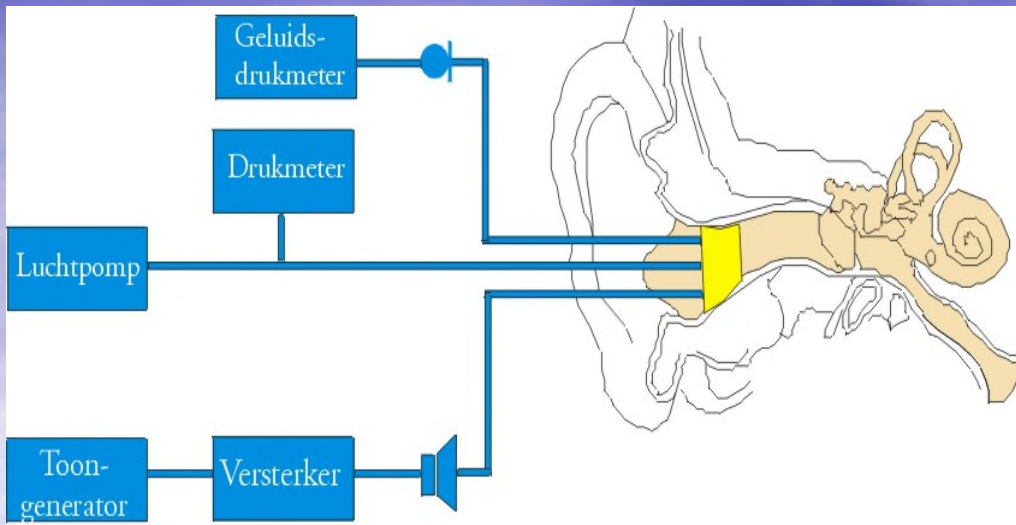
# Het Trommelvlies:

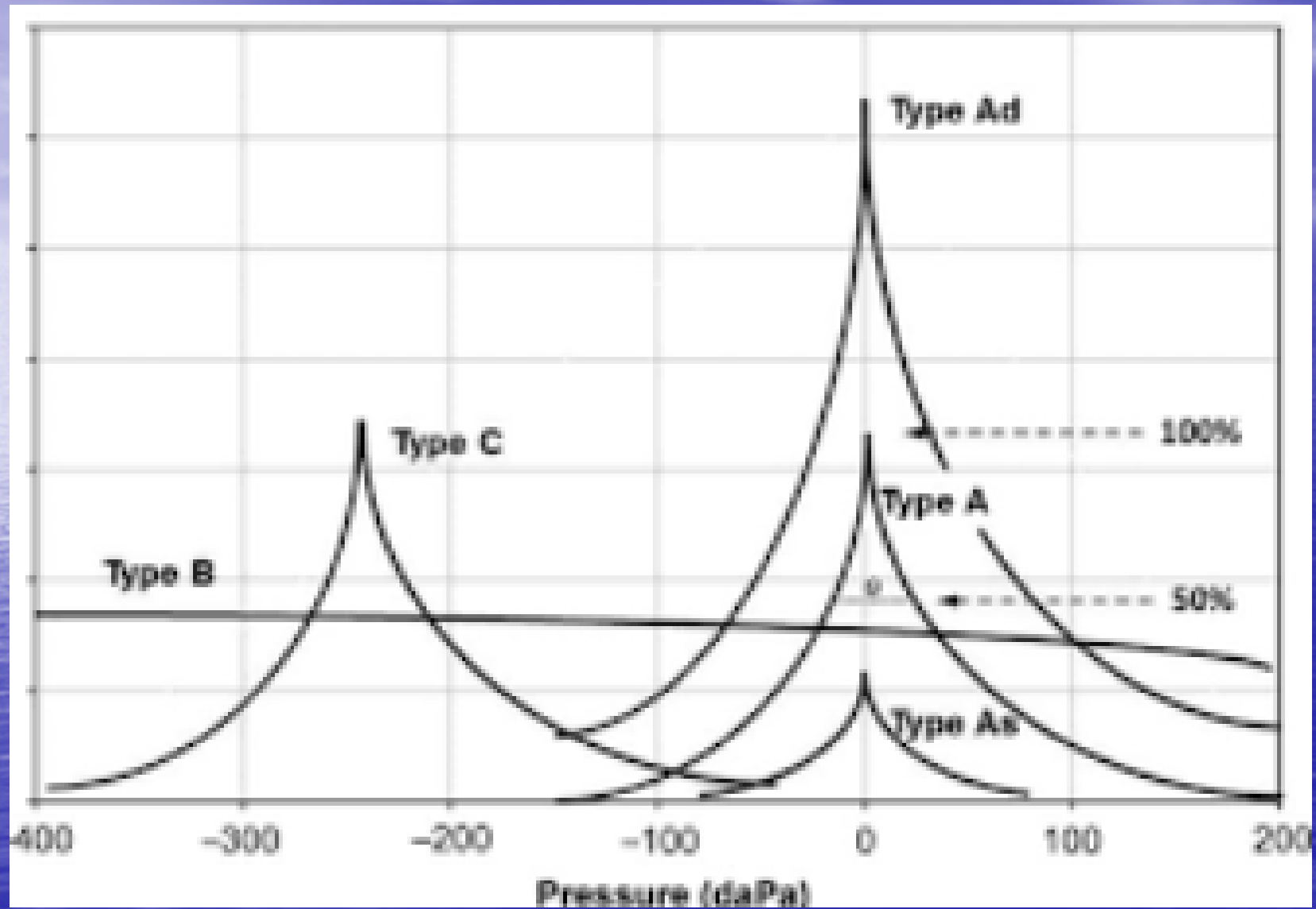
## ANATOMIE

Drie lagen:

1. Epitheel (huid),
2. Bindweefsel ("binden"),
3. Mucosa (slijmvlies),







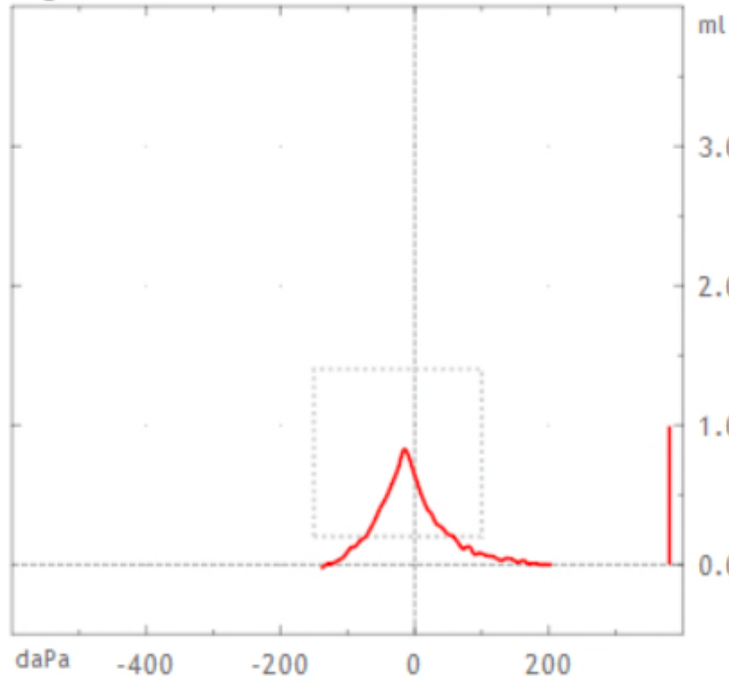




# Tympanogram

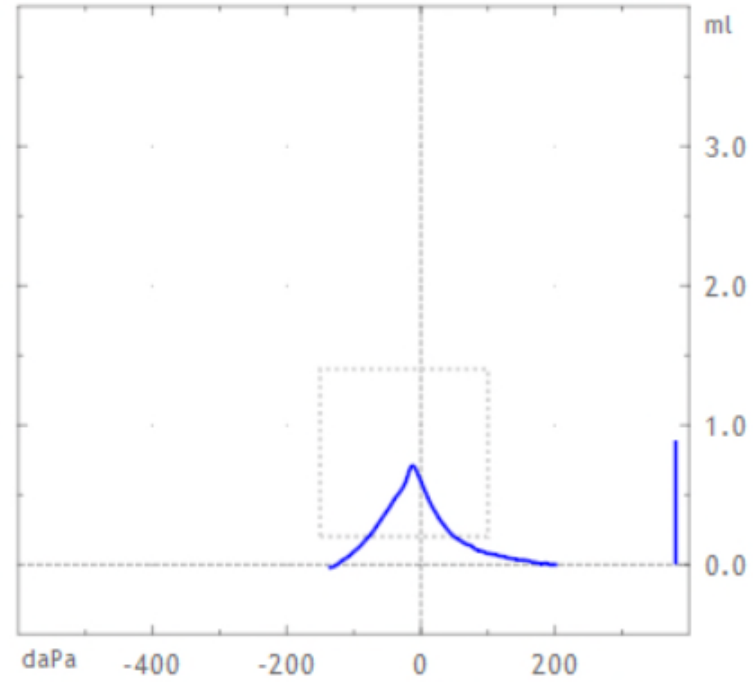
226 Hz

Right



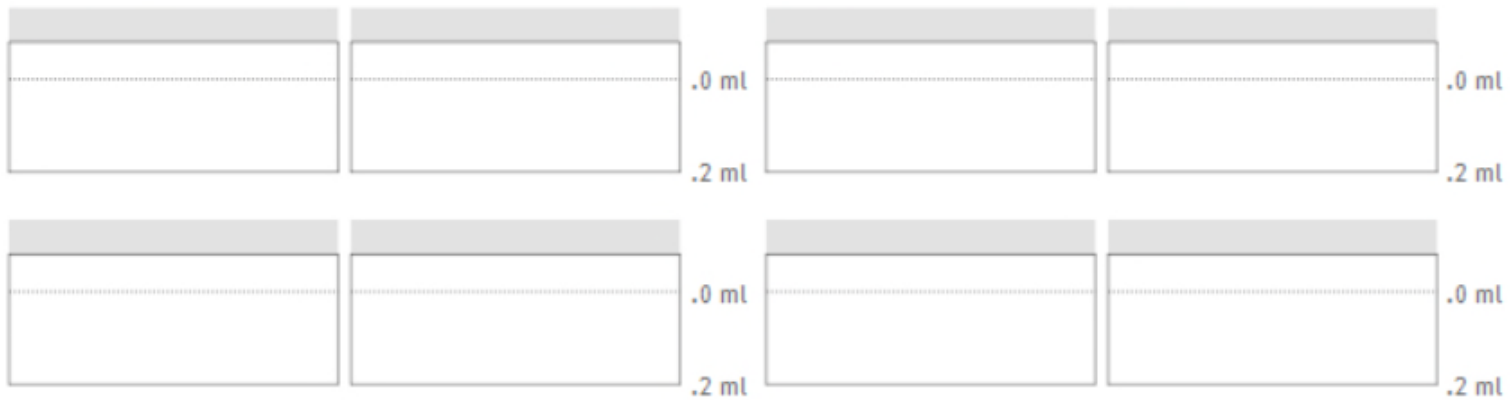
Volume: 1.0 ml  
Compliance: 0.8 ml  
Pressure: -15 daPa

Left

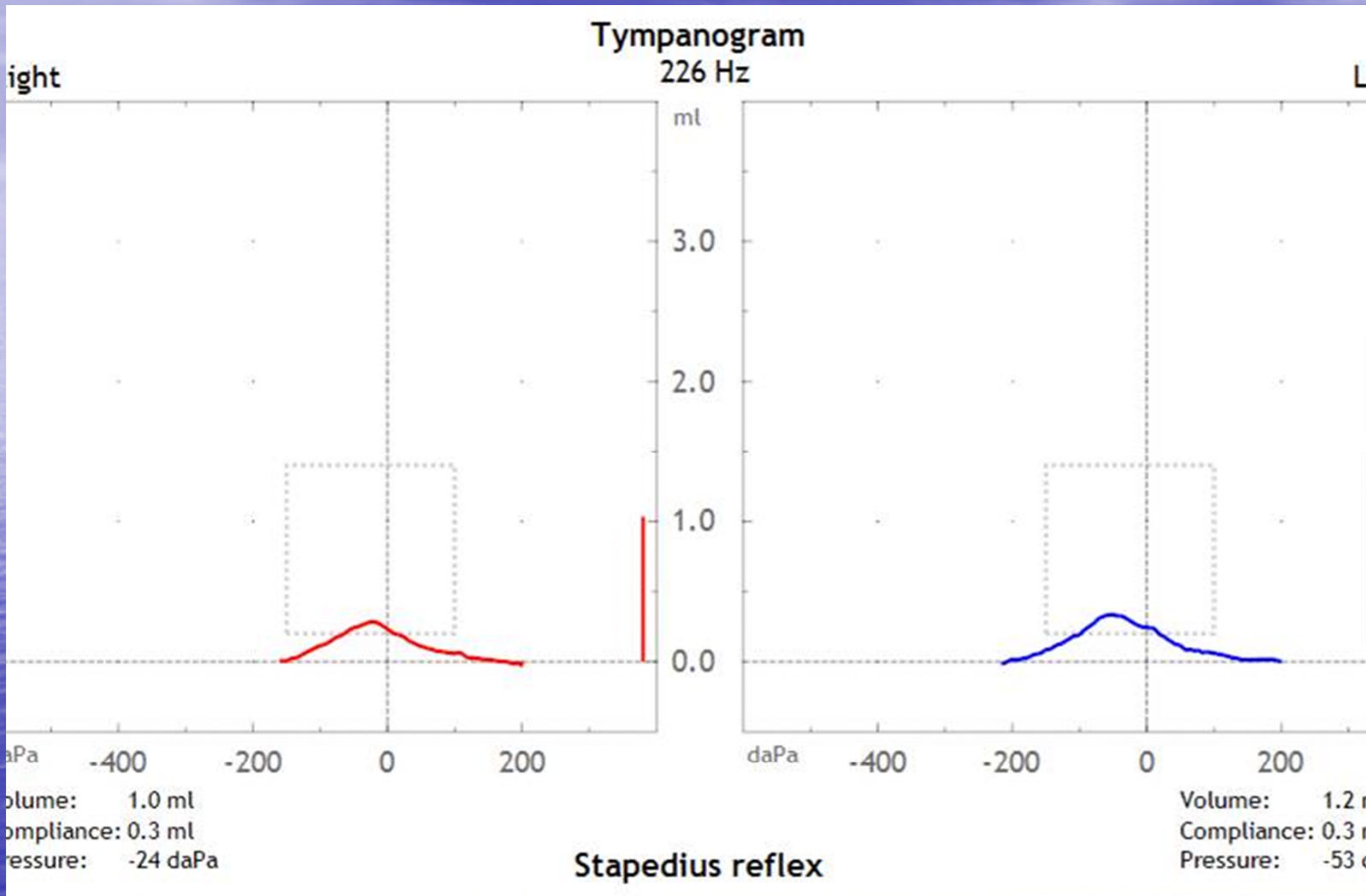


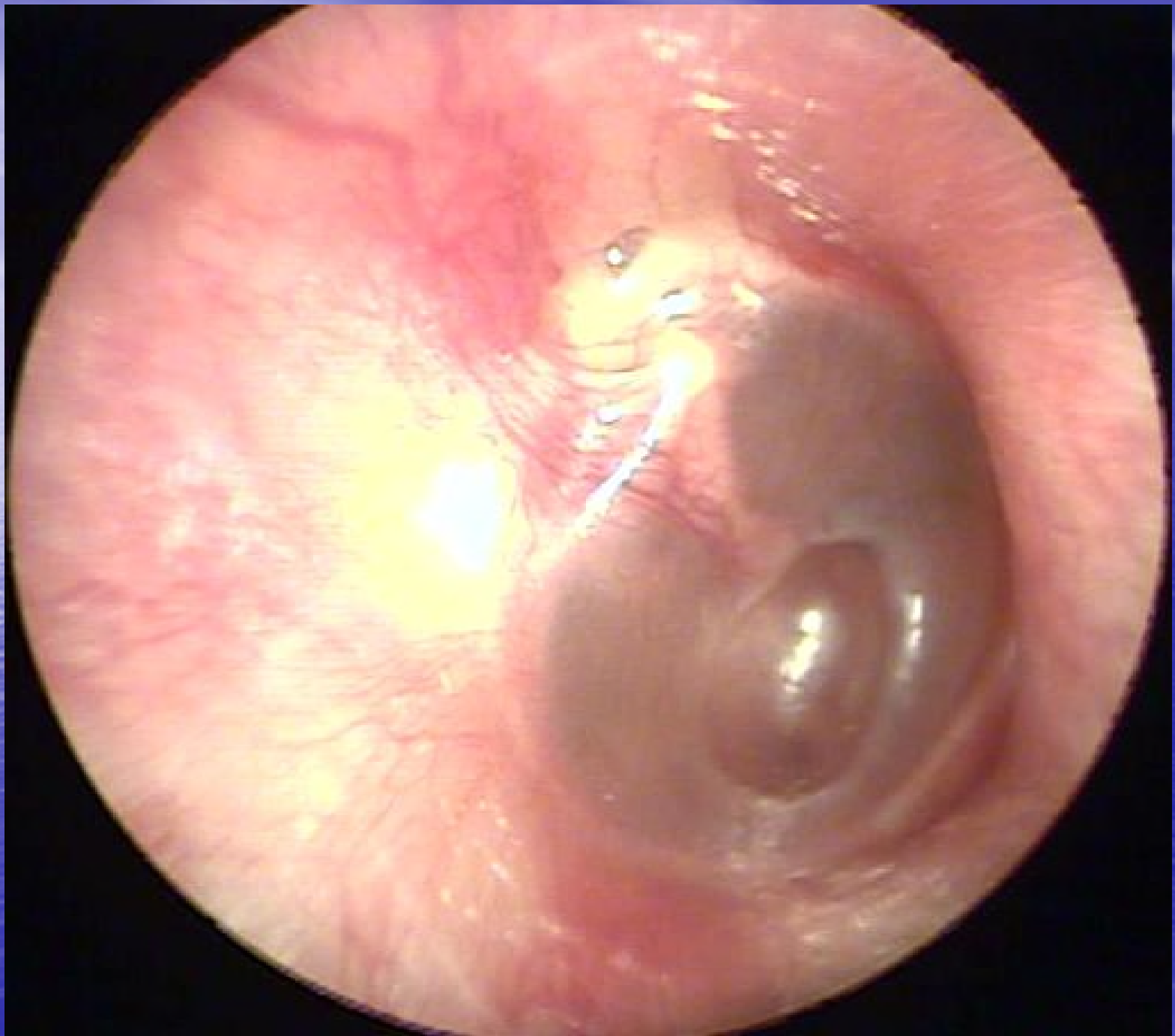
Volume: 0.9 ml  
Compliance: 0.7 ml  
Pressure: -12 daPa

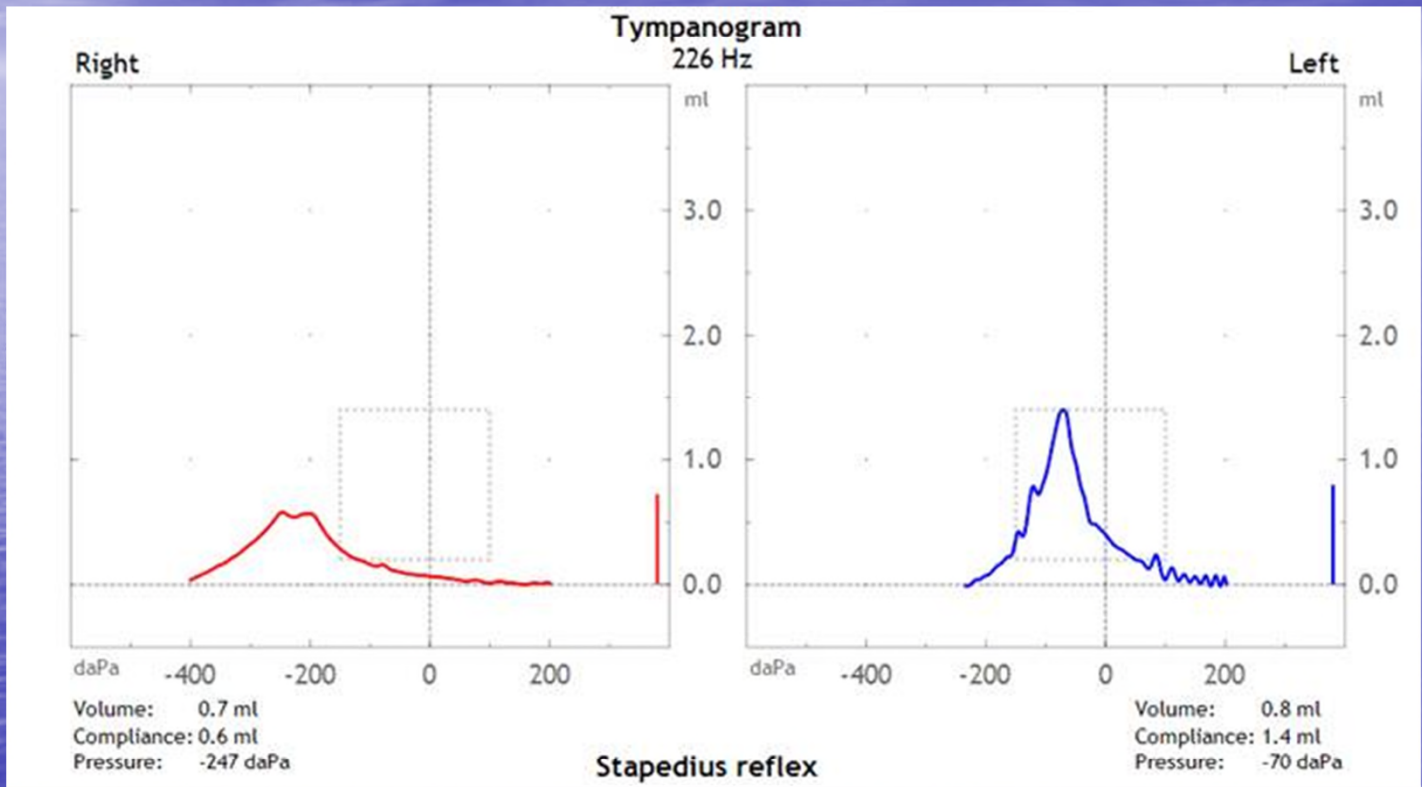
## Stapedius reflex

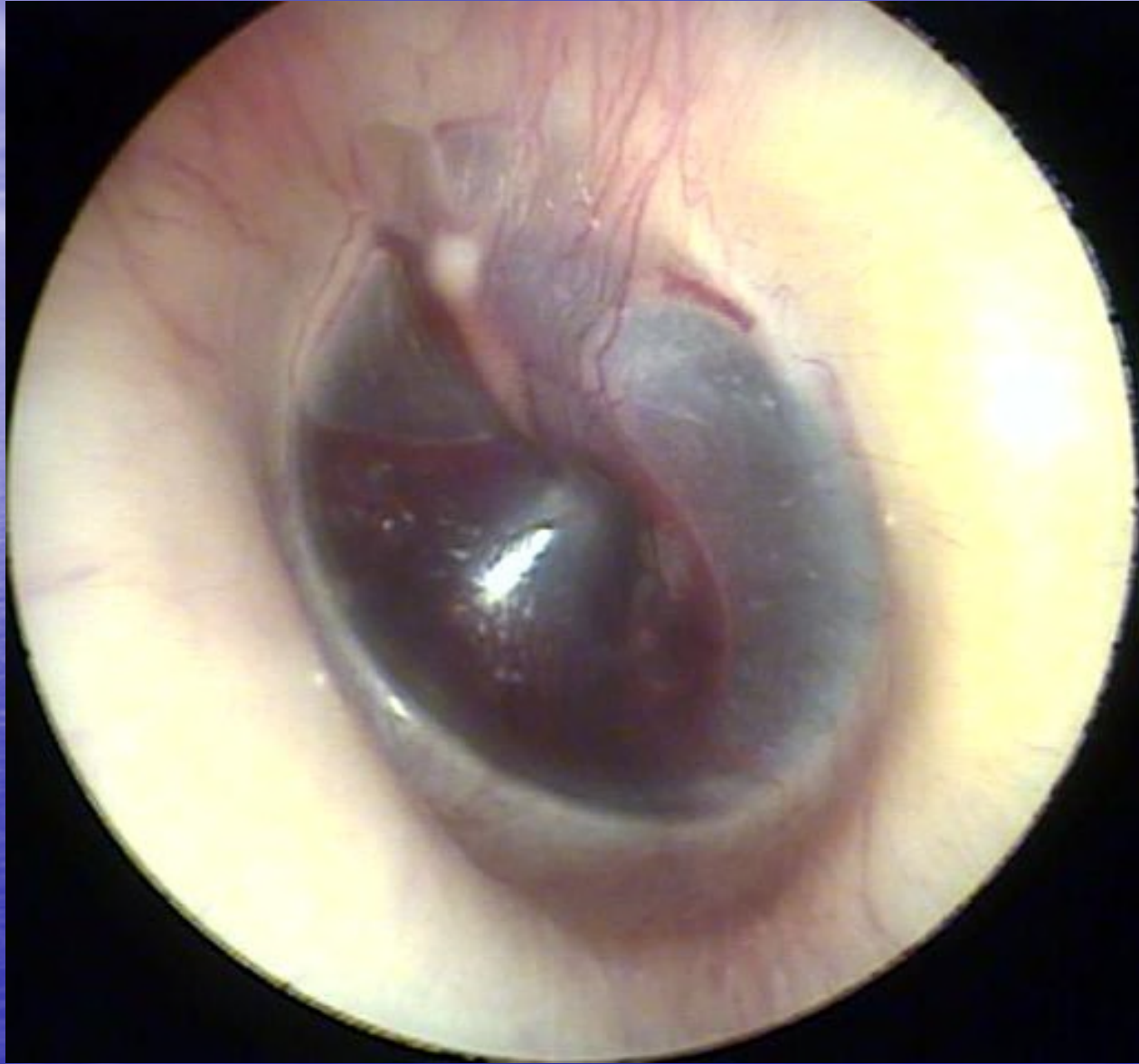








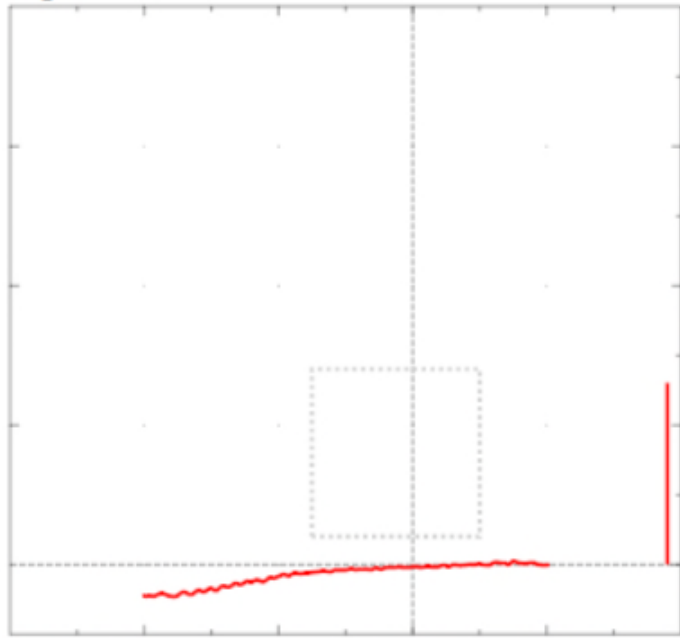




# Tympanogram

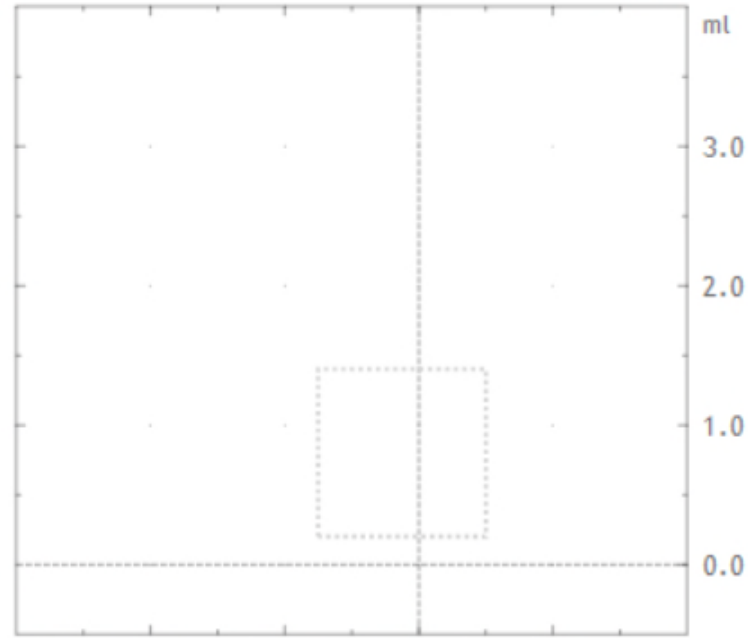
226 Hz

Right



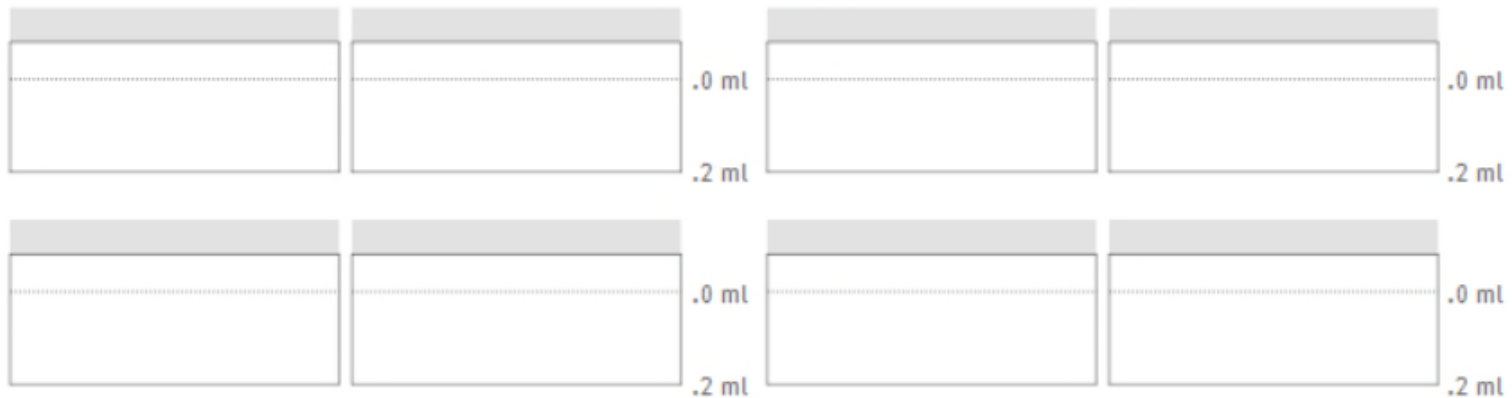
Volume: 1.3 ml  
Compliance: 1.3 ml  
Pressure: 0 daPa

Left

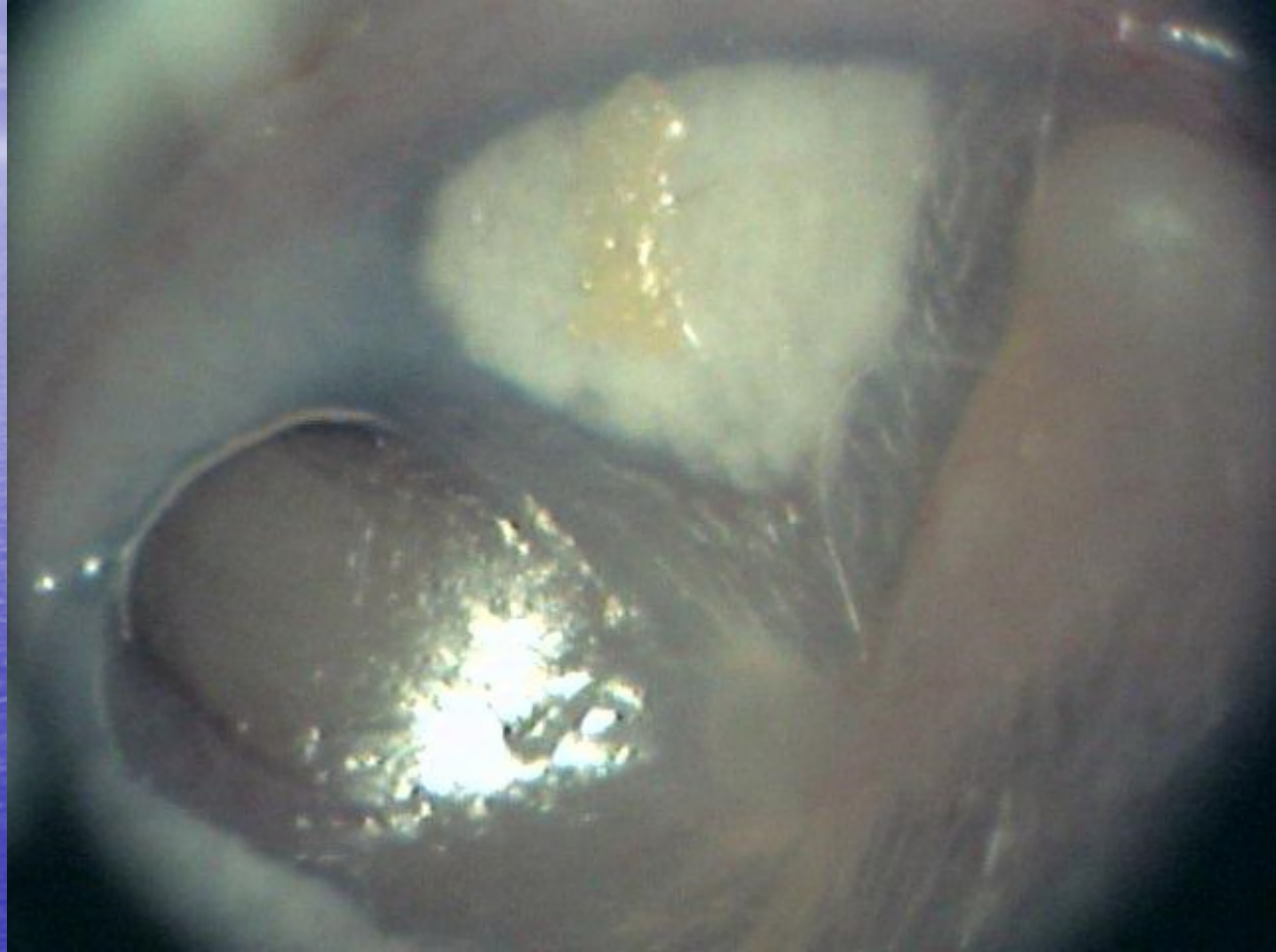


Volume:  
Compliance:  
Pressure:

## Stapedius reflex



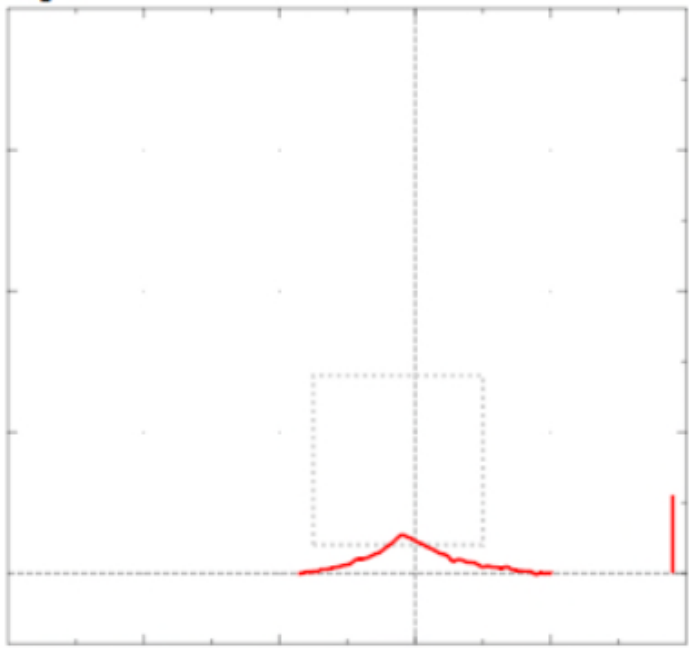




# Tympanogram

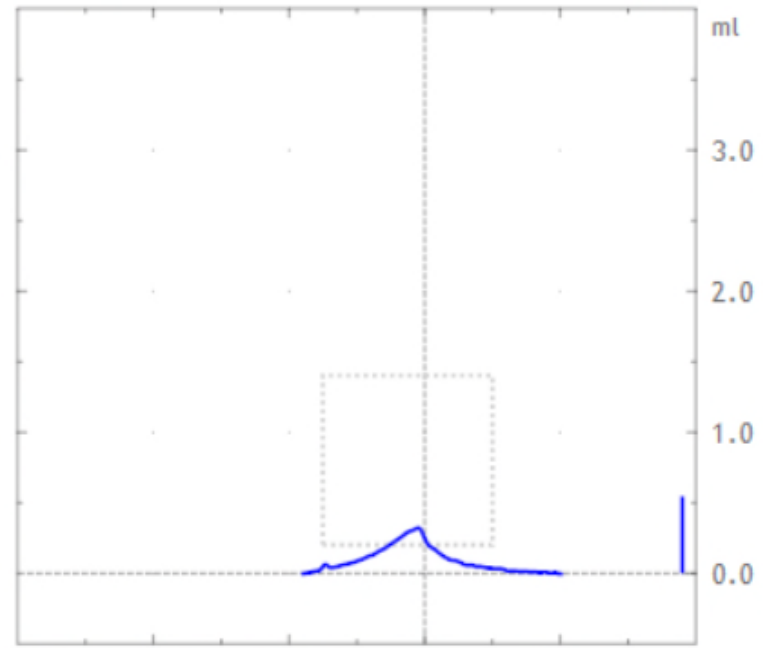
226 Hz

Right



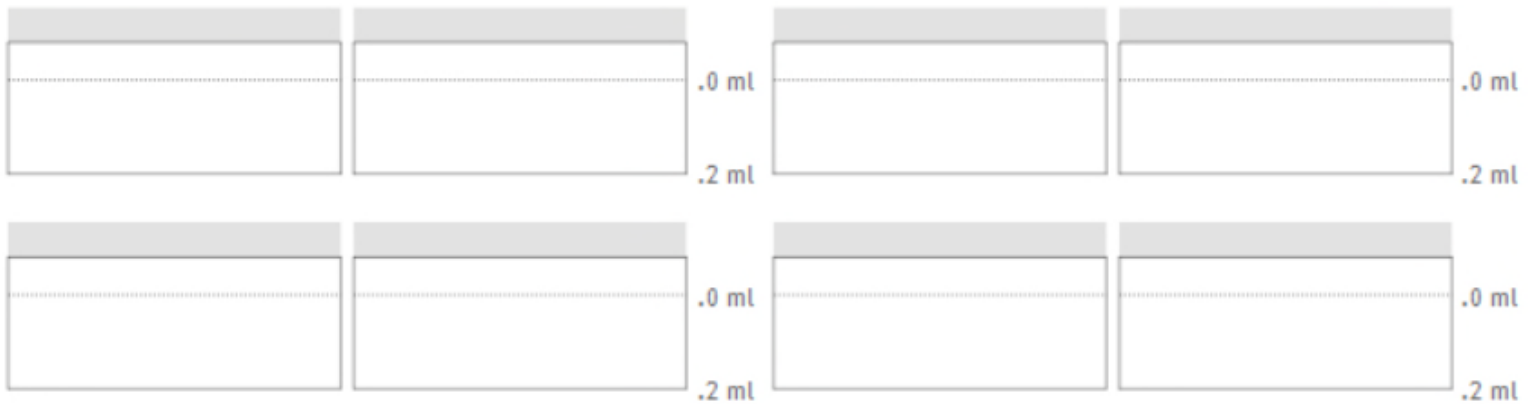
Volume: 0.6 ml  
Compliance: 0.3 ml  
Pressure: -19 daPa

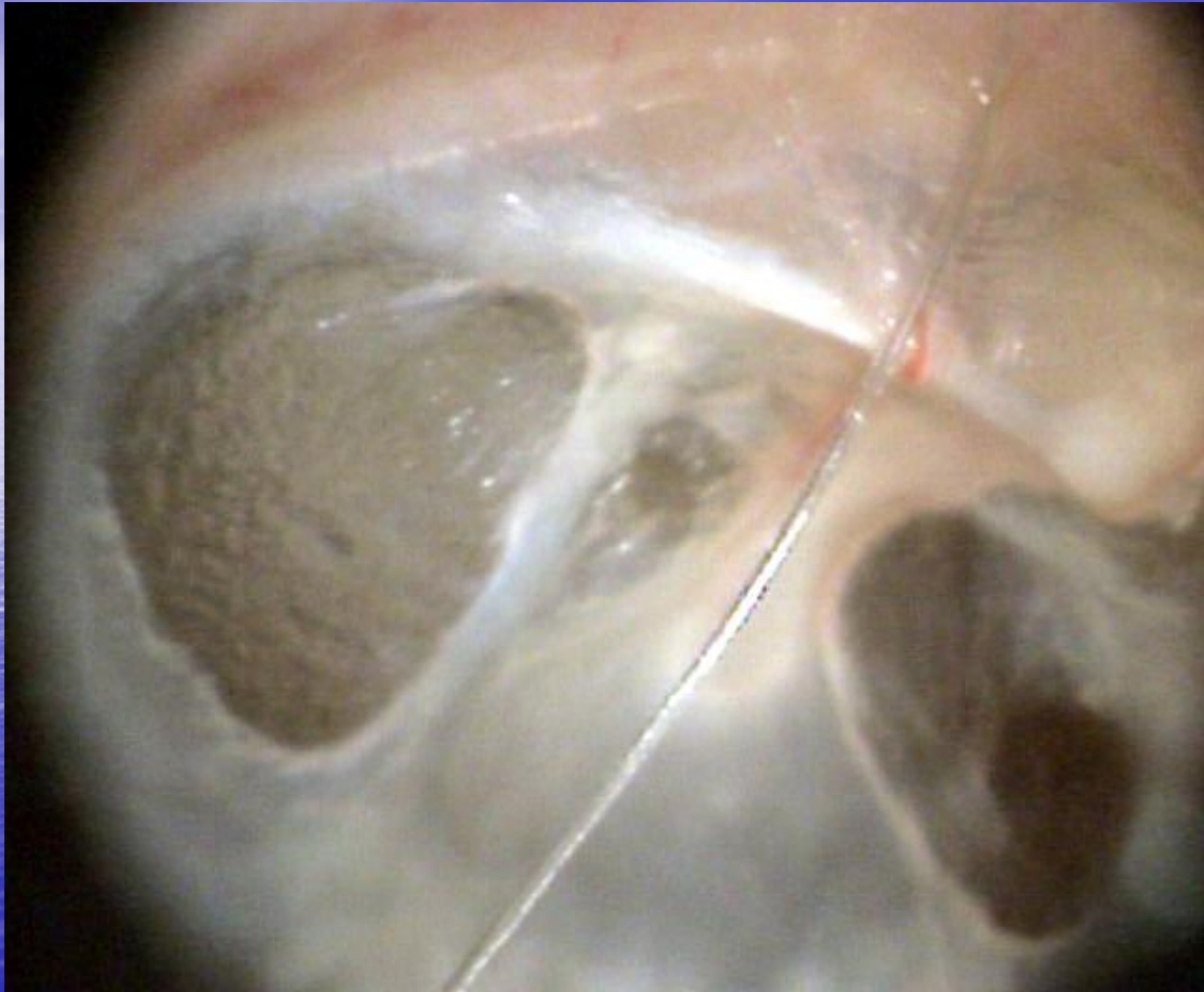
Left



Volume: 0.5 ml  
Compliance: 0.3 ml  
Pressure: -10 daPa

## Stapedius reflex







### De Maggio Franco, 1/08/1955 / m

Paul Van der Eecken

[ Patient ]

#### De Maggio Franco

1/08/1955 / m  
PID: 5508011008



CID: no FID

[ Clinical History ]

Q | 26

- Tymp 3/09/2019 R L
- T. audi 3/09/2019 R L
- T. audi 19/03/2019 R L
- Tymp 19/03/2019 R L**
- T. audi 21/08/2018 R L
- Tymp 6/03/2018 R L
- T. audi 6/03/2018 R L
- T. audi 24/10/2017 R L
- T. audi 9/05/2017 R L
- T. audi 22/11/2016 R L
- T. audi 31/05/2016 R L
- T. audi 10/11/2015 R L
- T. audi 12/05/2015 R L
- T. audi 3/09/2014 R L
- T. audi 20/05/2014 R L
- T. audi 21/01/2014 R L
- T. audi 8/10/2013 R L
- T. audi 4/06/2013 R L
- T. audi 5/02/2013 R L
- T. audi 9/10/2012 R L
- T. audi 26/06/2012 R L
- T. audi 6/03/2012 R L

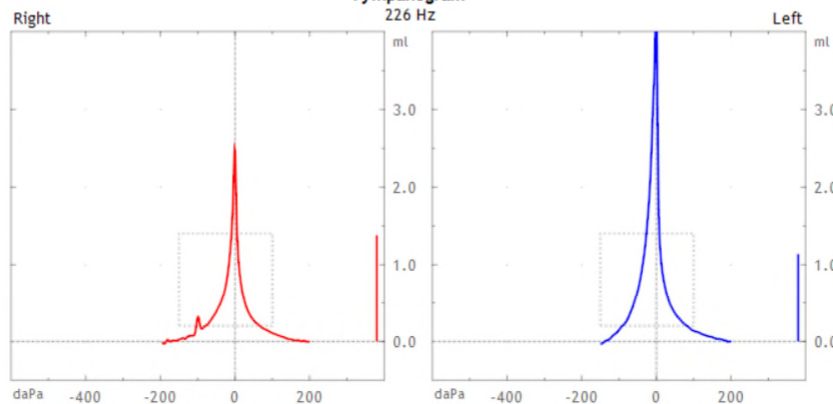
PDF Audiology



[ Tymp ]

Date: 19/03/2019 CID: 31146523 Comment:  
Time: 11:27:52

#### Tympanogram



Right: Volume: 1.4 ml, Compliance: 2.5 ml, Pressure: -1 daPa  
Left: Volume: 1.1 ml, Compliance: 4.5 ml, Pressure: -1 daPa

#### Stapedius reflex



[ Search Patients ]

CID:  
PID:  
Last name:  
First name:  
DOB: \*  
Enter for search \*\* complete

Used lately:

- D'Hooghe Jolien Emiel
- Cauwels Arnout Rita
- Scheertinck Steven
- Dekeghel Emile
- Van Doren Jan Erik

Matching patients [1000]:

- T Hart Martin**
- T JAECKX ELFRIDE
- T Jampens Emilio Patrick
- T Jampens Fernand Ronny
- T Jampens Roger Isidore
- T Jampens Irma Césarine
- T JAMPENS ANTOINE
- T Jampens Mieke Ivonne
- T Jampens Marc
- T Jampens Axelle
- T Jampens Ria Juliana
- T Jampens Lucienne Leona
- T Jampens Eveline Marc
- T Jampens Philippe André
- T Jampens Mildred Germaine
- T Jampens Gil
- T Jampens (De Leeuw) Willy Hendrik
- T Jampens (Seghers) Nicole Elza
- T Jampens (Van Loo) Arthur Philippe
- T Jampens (Verniers) Sandra Paula
- T Jolyn Jacques Medard

Edit

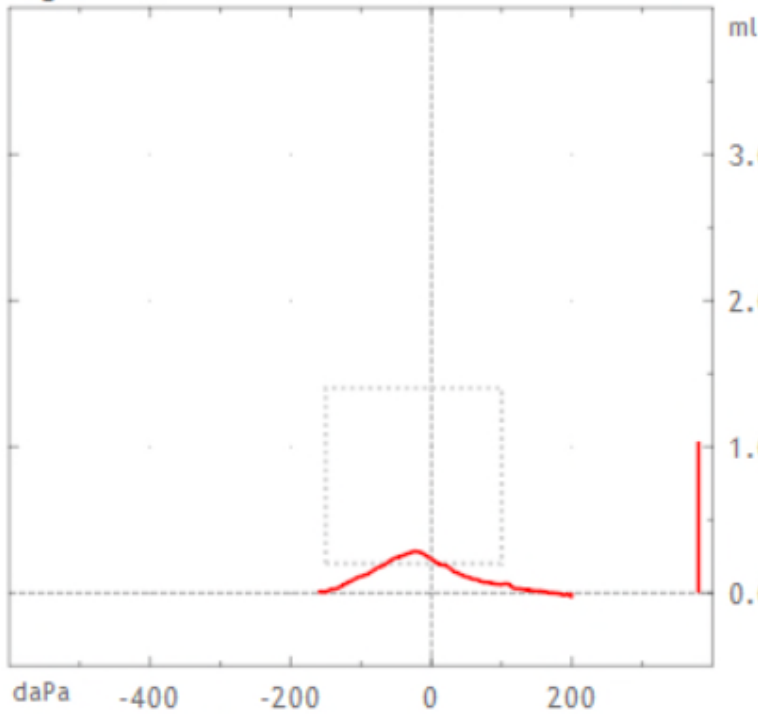




# Tympanogram

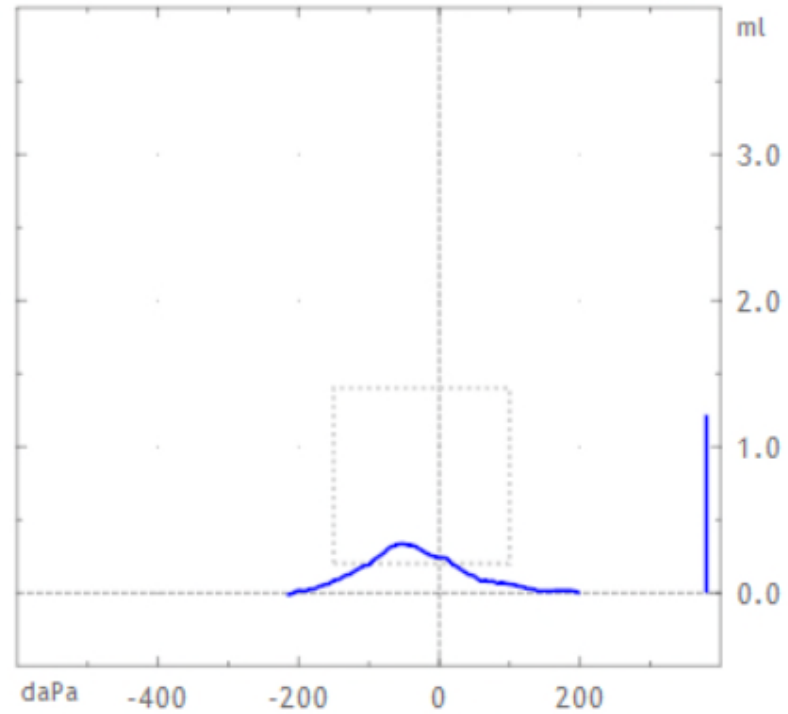
226 Hz

Right



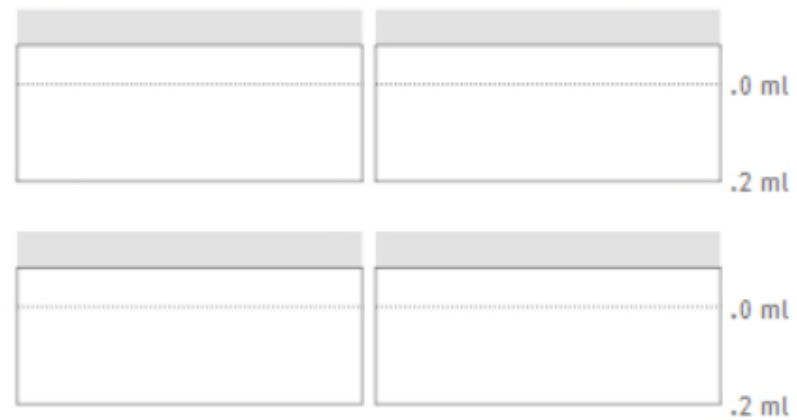
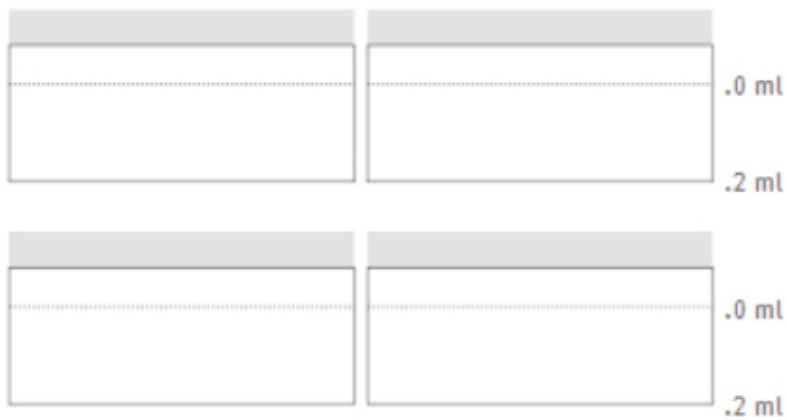
Volume: 1.0 ml  
Compliance: 0.3 ml  
Pressure: -24 daPa

Left

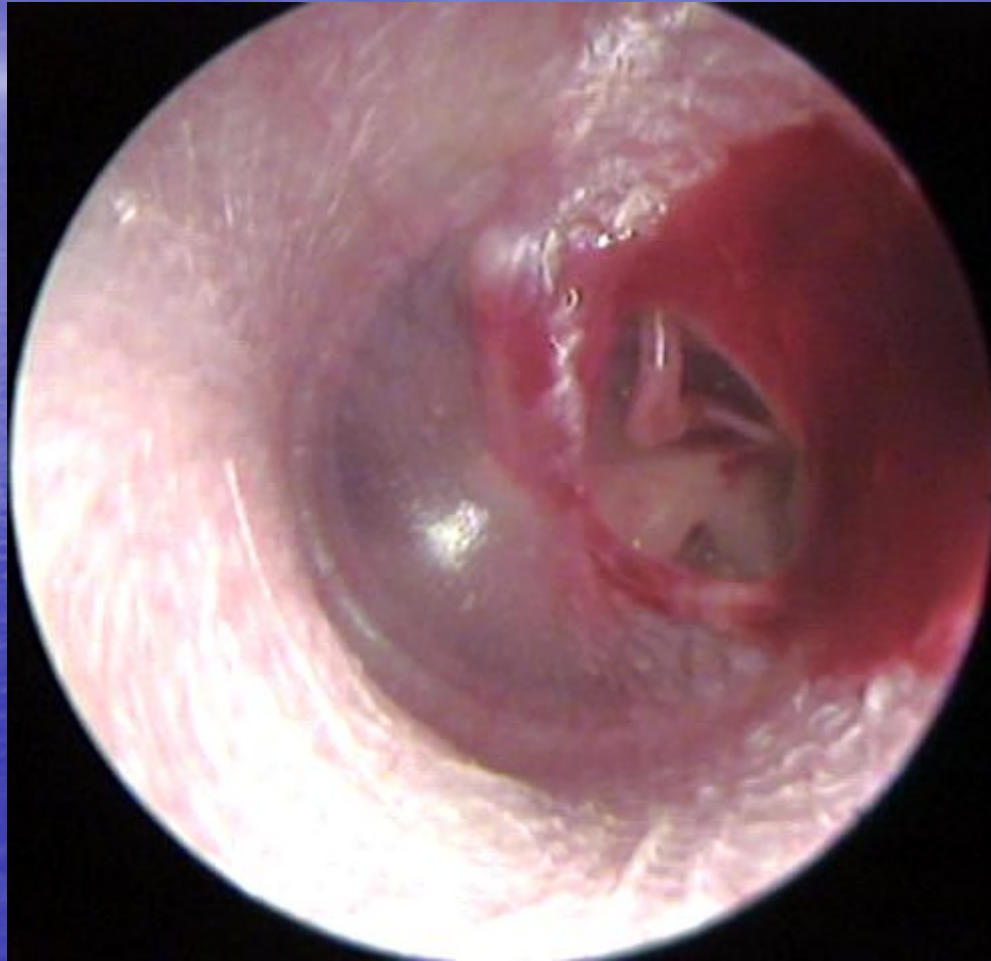


Volume: 1.2 ml  
Compliance: 0.3 ml  
Pressure: -53 daPa

## Stapedius reflex



# Trommelvlies perforatie











### Cauwels Arnout Rita, 23/04/2009 / m

Paul Van der Eecken

[ Patient ]  
**Cauwels Arnout Rita**  
23/04/2009 / m  
PID: 904232008  
CID: 31455985

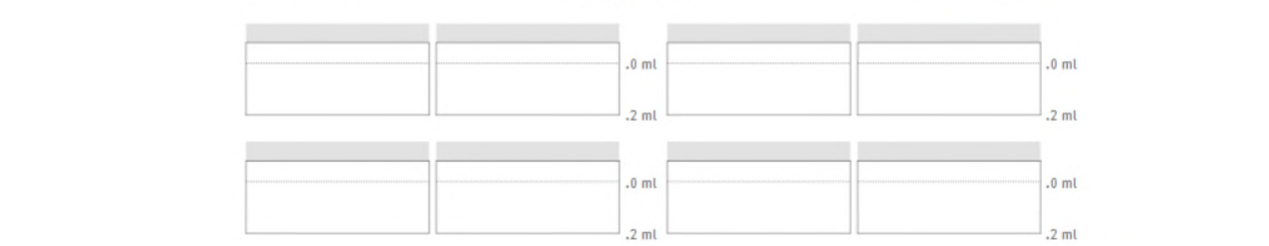
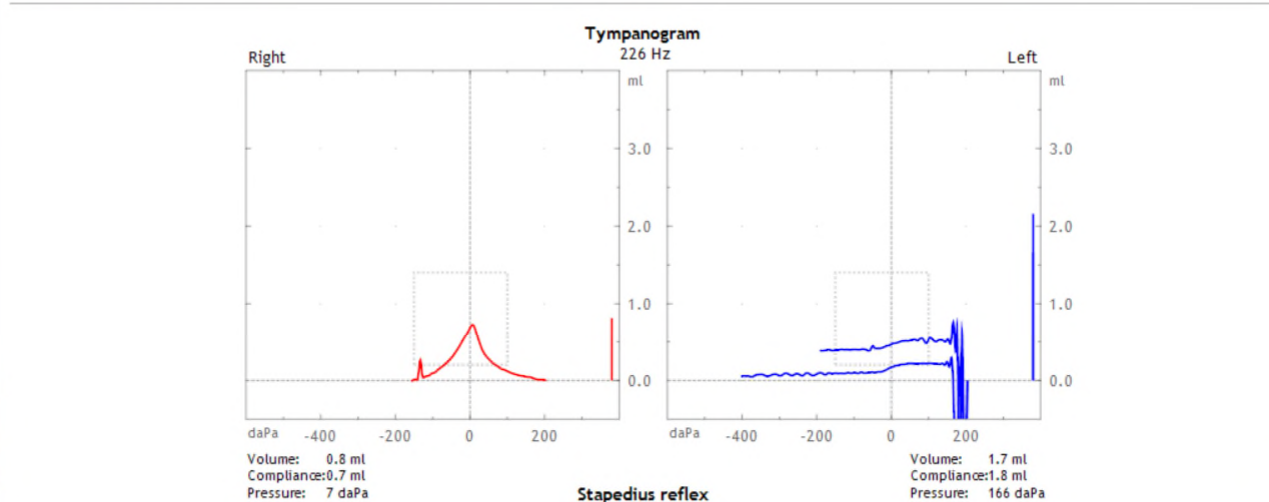
[ Tymp ]  
Date: 26/06/2018 CID: 30631175 Comment:  
Time: 08:05:24

[ Search Patients ]  
CID:  
PID:  
Last name:  
First name:  
DOB:  
Enter for search \*\* complete

[ Clinical History ]

Quick Filter 17

Tymp	4/09/2019	R L
T. audio	4/09/2019	R L
Rhino	16/04/2019	
Tymp	16/04/2019	R L
T. audio	16/04/2019	R L
T. audio	1/03/2019	R L
T. audio	3/01/2019	R L
Tymp	3/01/2019	R L
T. audio	19/12/2018	R L
Tymp	19/12/2018	R L
Tymp	26/06/2018	R L
T. audio	26/06/2018	R L
Tymp	16/01/2018	R L
T. audio	16/01/2018	R L
T. audio	20/06/2017	R L
T. audio	4/06/2014	R L
T. audio	8/01/2014	R L



- Used lately:
- Scheerlinck Steven
  - Dekeghel Emile
  - Van Doren Jan Erik
  - Goubau Victoria Patricia
  - Bauwens Gitte

- Matching patients [1000]:
- T Hart Martin
  - T JAECKX ELFRIDE
  - T Jampens Emilio Patrick
  - T Jampens Fernand Ronny
  - T Jampens Roger Isidore
  - T Jampens Irma Césarine
  - T JAMPENS ANTOINE
  - T Jampens Mieke Ivonne
  - T Jampens Marc
  - T Jampens Axelle
  - T Jampens Ria Juliana
  - T Jampens Lucienne Leona
  - T Jampens Eveline Marc
  - T Jampens Philippe André
  - T Jampens Mildred Germaine
  - T Jampens Gil
  - T Jampens (De Leeuw) Willy Hendrik
  - T Jampens (Seghers) Nicole Elza
  - T Jampens (Van Loo) Arthur Philippe
  - T Jampens (Verniers) Sandra Paula
  - T Jolyn Jacques Medard

PDF Audiology



**“As the risk is never zero,  
play it SAFE ”**

**“ The difference between  
an awesome day of diving and tragedy is  
the ability to flexibility ! “**



**Vriendelijk dank voor Uw aandacht !**