

A CASE REPORT :

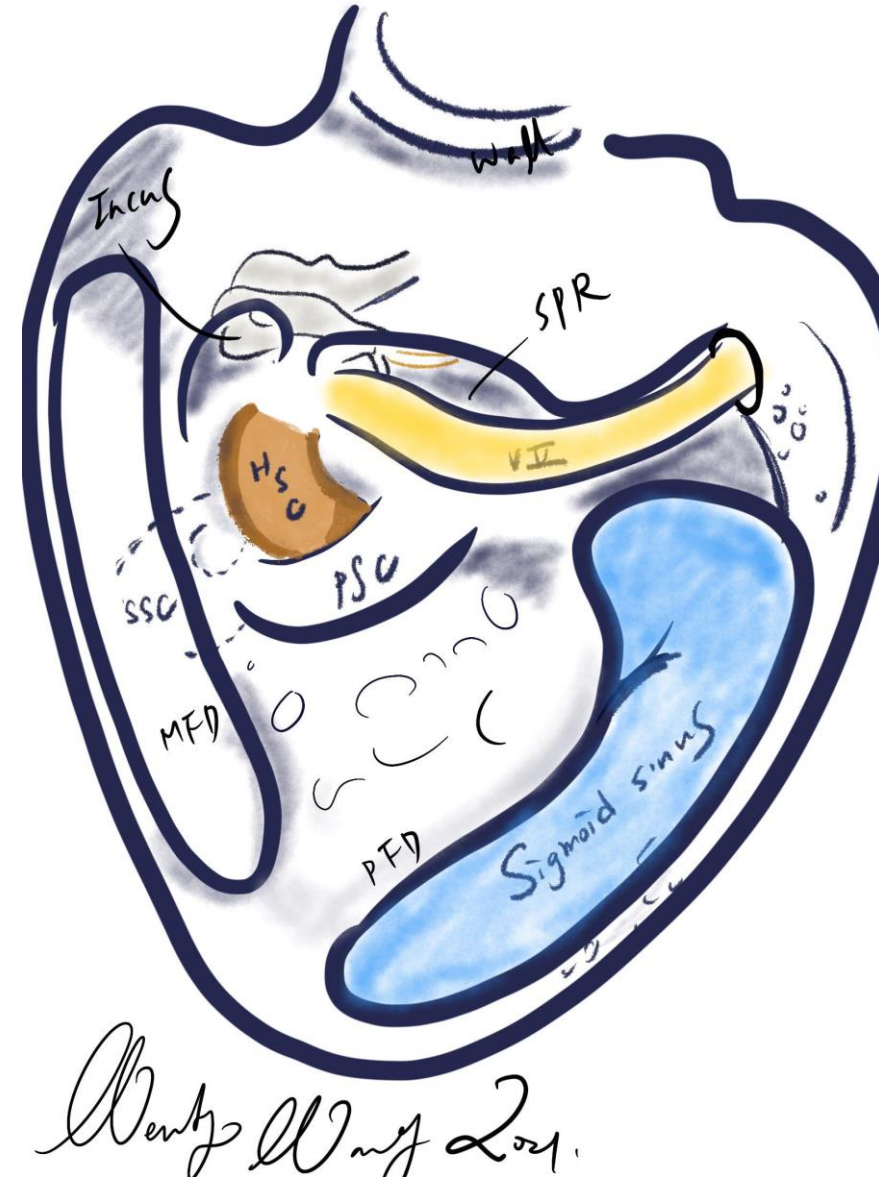
Peripheral vertigo- Lateral semicircular canal fistula secondary to cholesteatoma



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Background Knowledge



- Labyrinthine fistula (LF) is one of the most common complications associated with cholesteatoma
- The loss of the overlying protective bone allows pressure or mass-induced motion of the underlying endolymphatic compartment, evoking vestibular and auditory symptoms
- Preoperative detection of LF is important to ear surgeons, LF may not be associated with any specific symptoms before surgery

Table 2. Pre-operative symptoms and signs (n=5)

	Cases	Percent
Vertigo	4	80%
Tinnitus	4	80%
Spontaneous nystagmus	2	40%
Hearing impairment	5	100%
Pure conductive hearing loss	2	40%
Mixed type hearing loss	3	60%
Cholesteatoma open to EAC*	5	100%

* External Auditory Canal

The Kaohsiung Journal of Medical Sciences, 14(1), 1998

5/38 (13%)

Studies reported :

incidence of **fistula** during surgery for COM with cholesteatoma in Different geographic areas and countries ranges between **2.9% - 12.5%** (average Bailey 10 % ! !)

Table 4. Correlation Between Incidence of Facial Nerve Dehiscence and Presence of Lateral Semicircular Canal Fistula in 155 Ears*

Lateral Semicircular Canal Fistula	Facial Nerve Dehiscence		Total
	Present	Absent	
Present	4†	4	8
Absent	42	105	147
Total	46	109	155

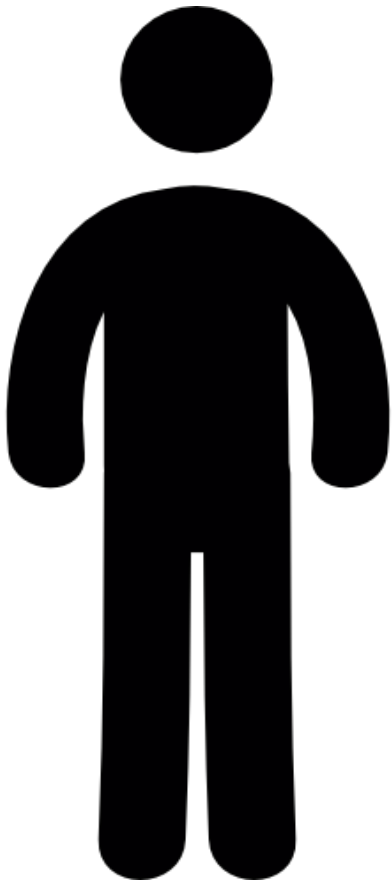
*P = .13, Fisher exact test.

†All in the tympanic segment; 3 with mastoidectomy; 2 male and 2 female patients.

Arch Otolaryngol Head Neck Surg. 2006 Dec;132(12):1307-10.

8/155 (5%)

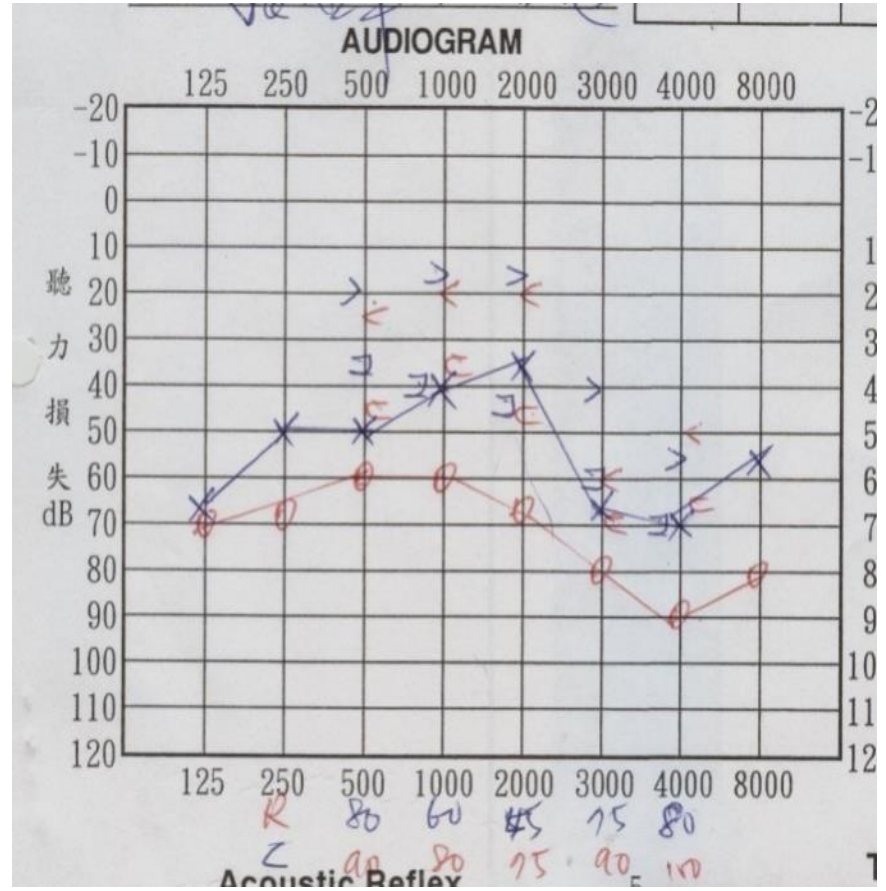
Patient Profile



- Mrs Chang
- Age : 55 yr
- CC : Right otorrhea on and off since childhood

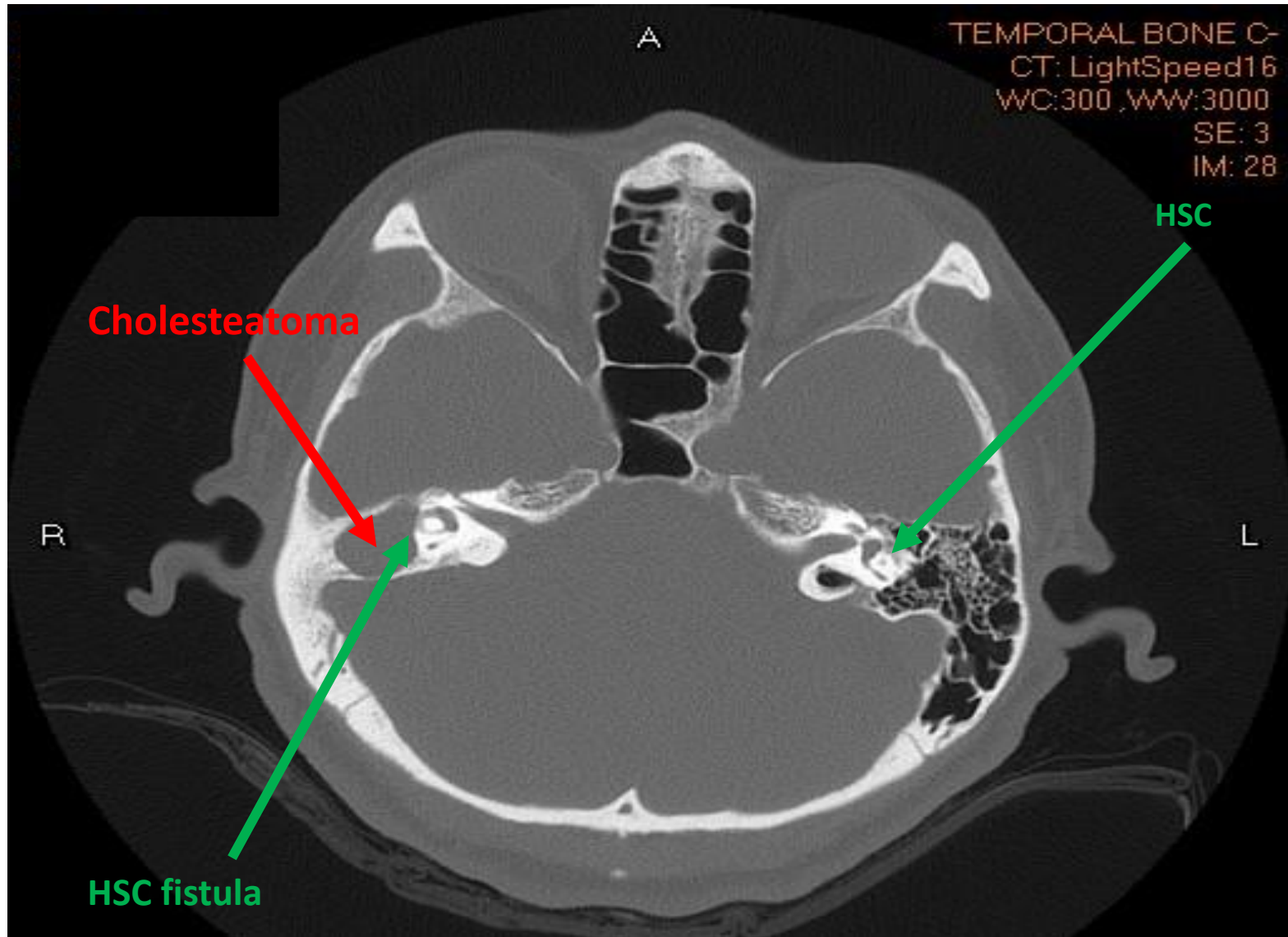
	Right ear	Left ear
Hearing loss	+	-
Tinnitus	+	-
Otorrhea	+	-
Otalgia	-	-
Dizziness	-	-
Vertigo	-	-

Preoperative Examination



PTA : Rt 68.75 DB, Lt 48.75 DB (Rt mixed hearing loss)

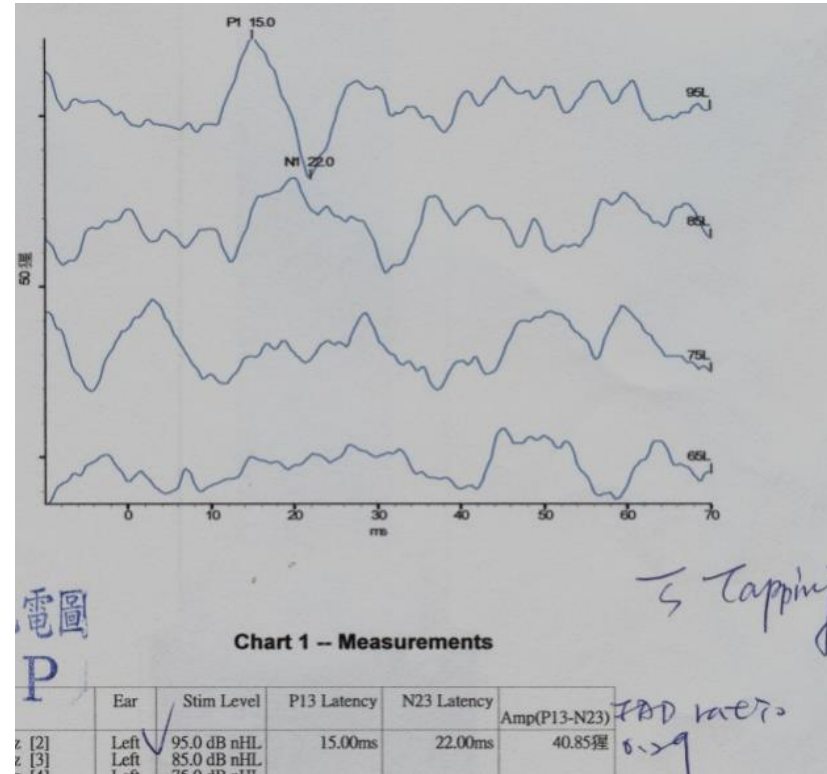
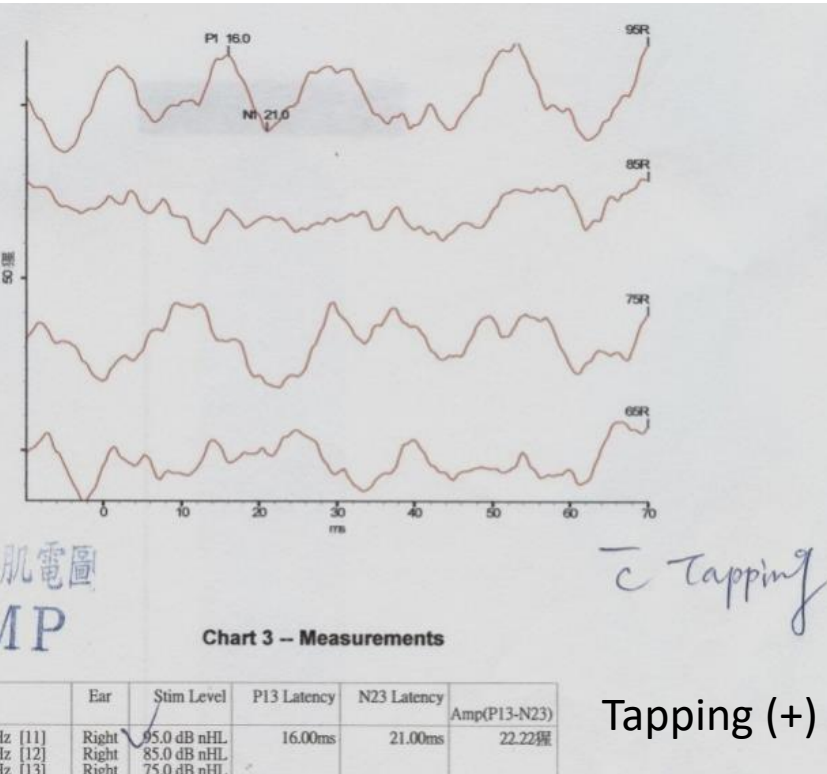
Pre-op Temporal Bone HRCT



Rt middle ear cholesteatoma with labyrinthine fistula (HSC)

Pre-op vertigo (-)

55 years /female 2009 8 6



Rt c-VEMP

Lt c-VEMP

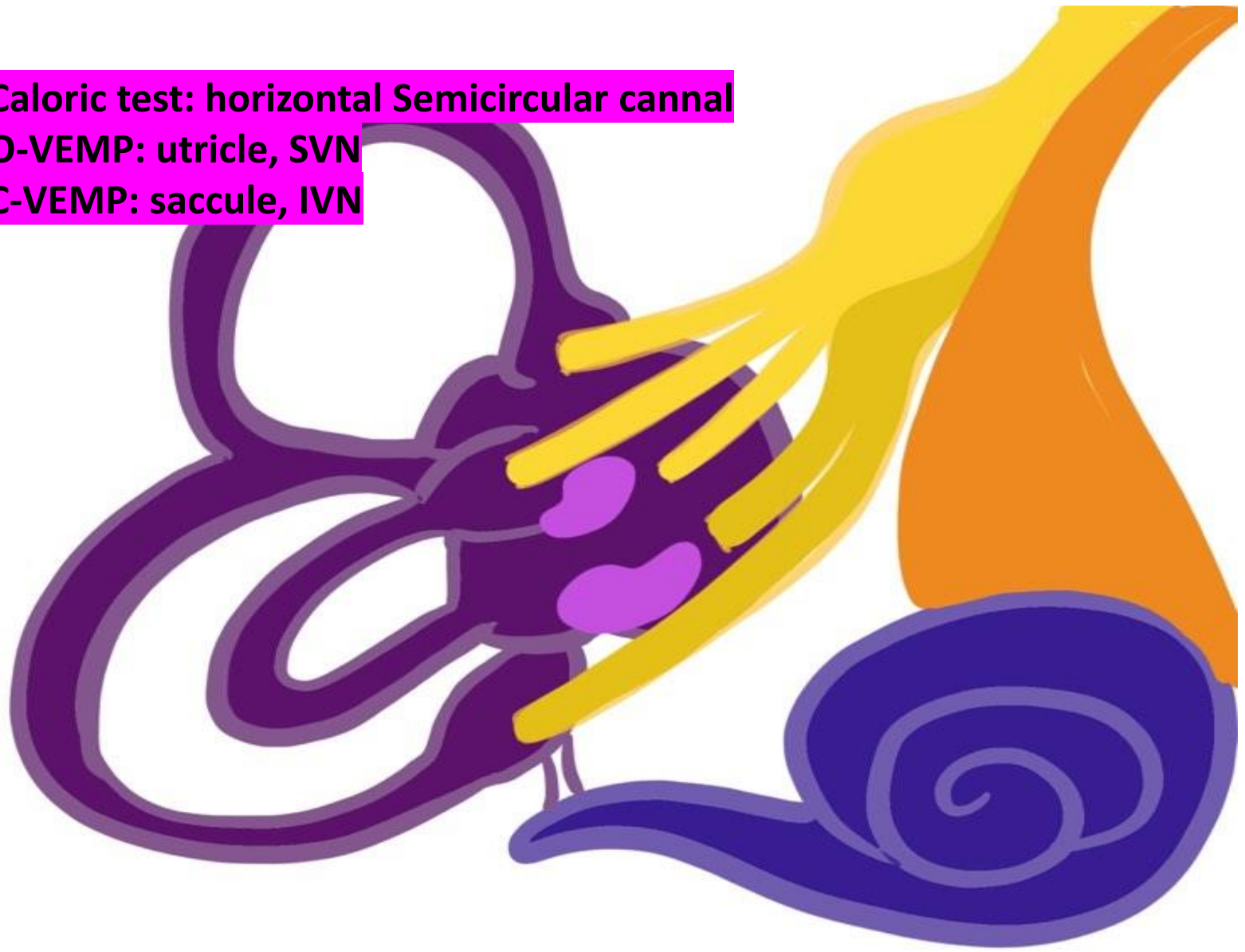
C -VEMP test : IAD ration 0.29 (Normal)

Caloric test : Rt unilateral weakness (77%)

Caloric test: horizontal Semicircular cannal

O-VEMP: utricle, SVN

C-VEMP: saccule, IVN

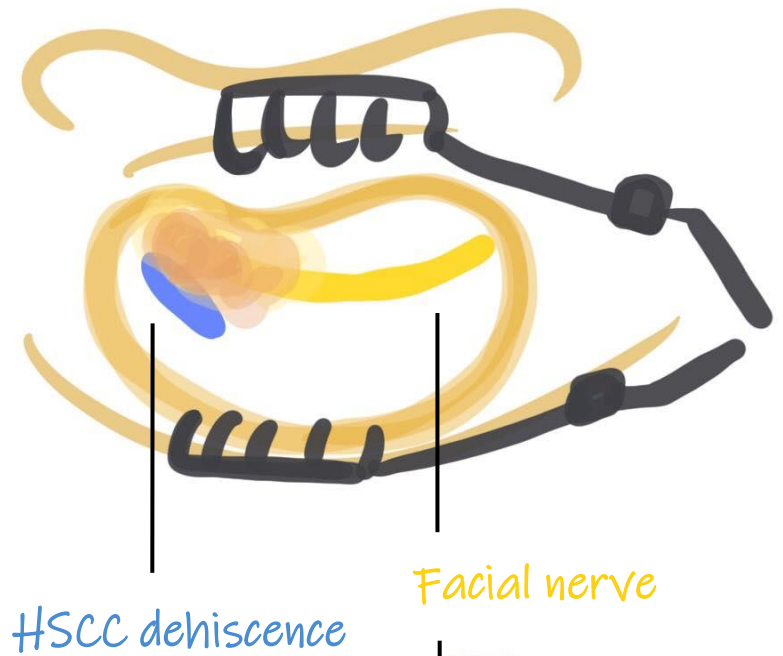
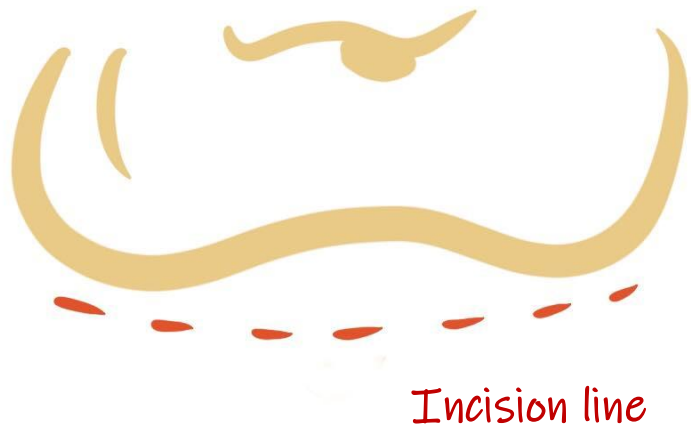


Mastoidectomy

1. Incision post auricle



2. Harvest temporalis fascia



Rt middle ear cholesteatoma with labyrinthine fistula (HSC)

55 years /female

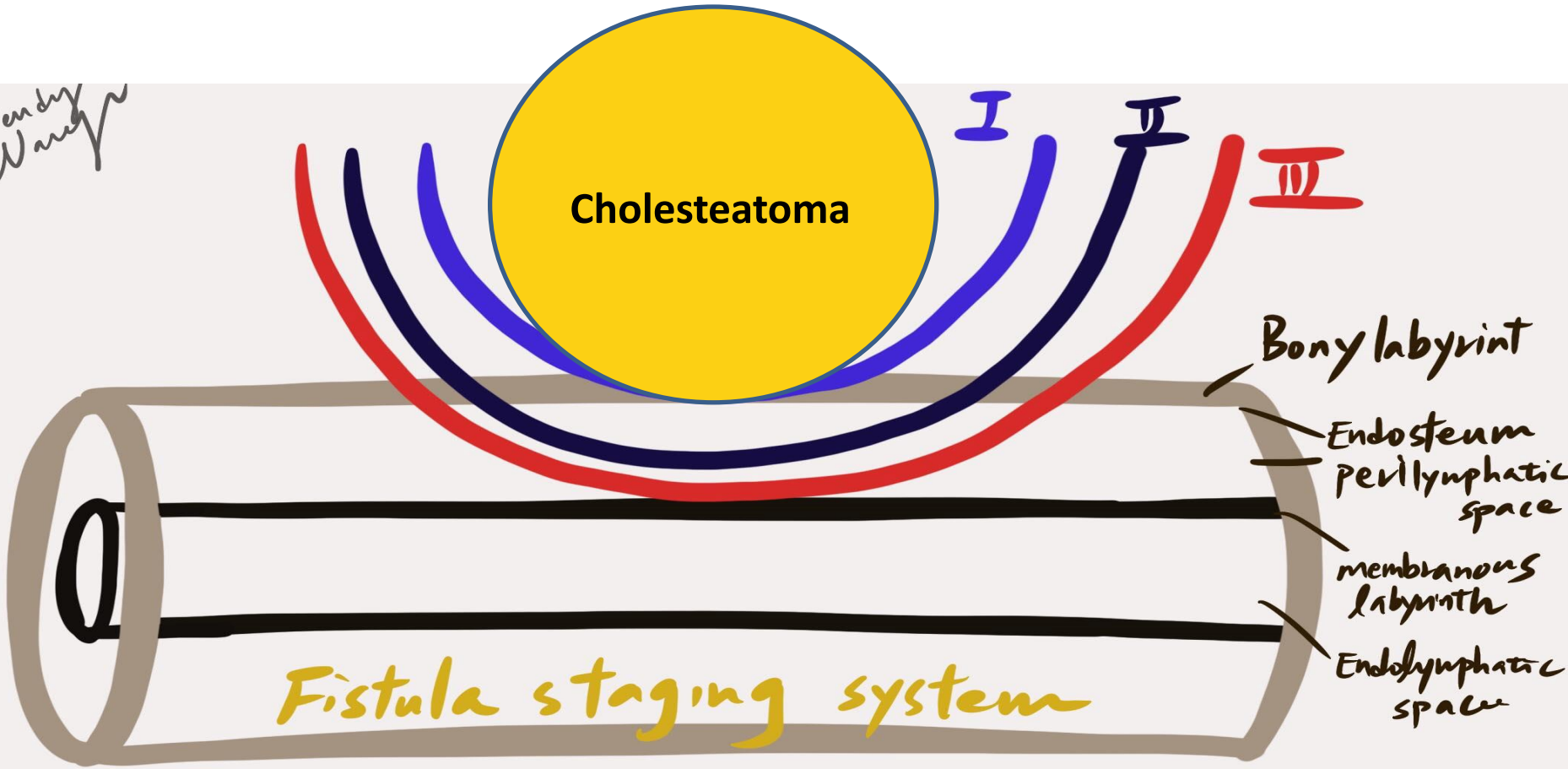
Post-op vertigo (+) for 4 days

2009 8 17 (after operation)

Horizontal nystagmus to Lt



Wendy Wang



Cholesteatoma

I

II

III

Bony labyrinth

Endosteum
perilymphatic
space

membranous
labyrinth

Endolymphatic
space

Fistula staging system

Fascia

Bone plate

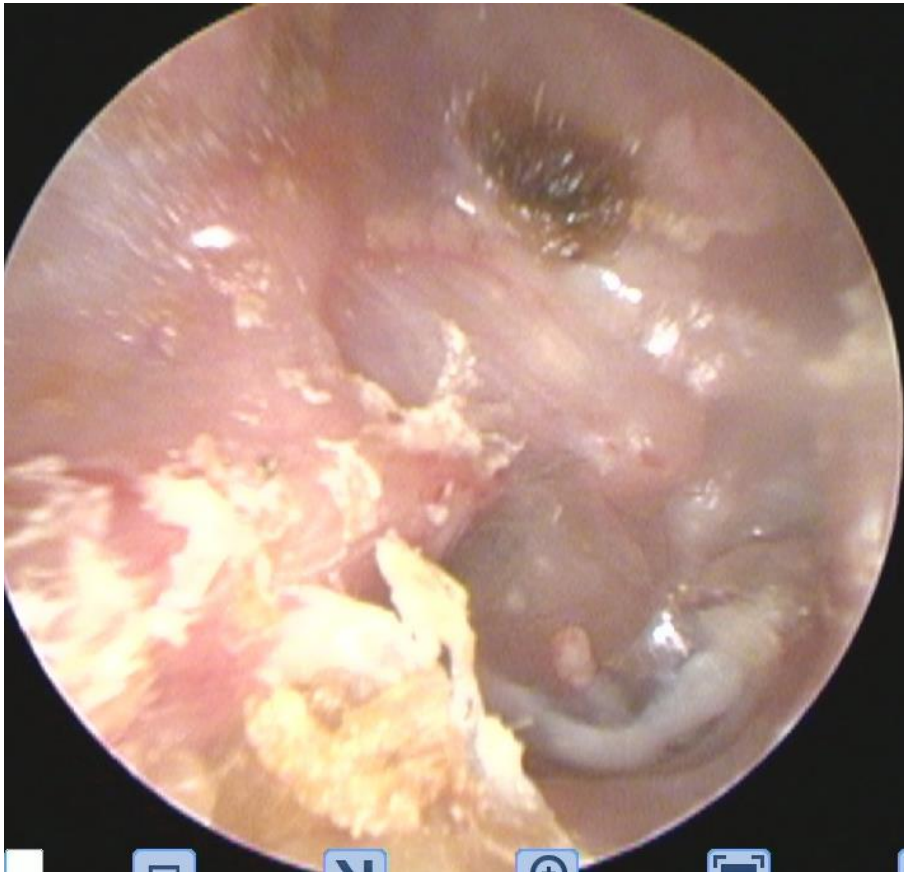
Canal

Adapted from

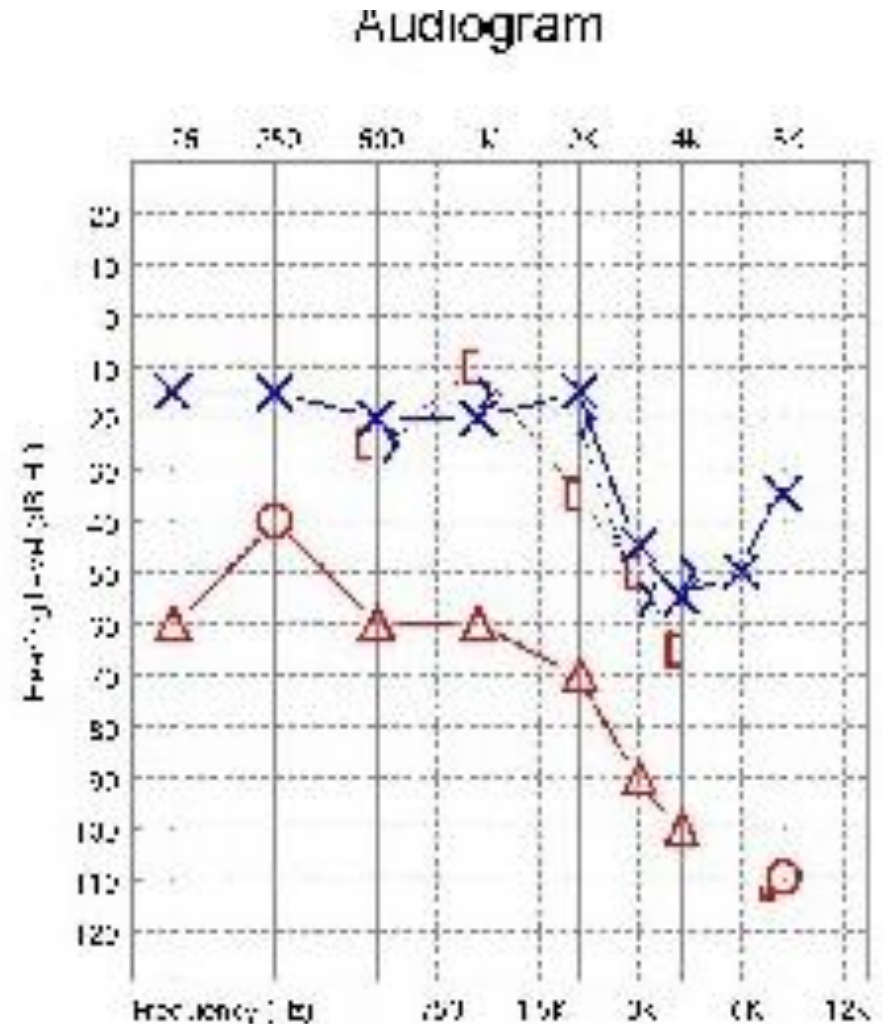
(Dornhoffer JL. Milewski C. '95)

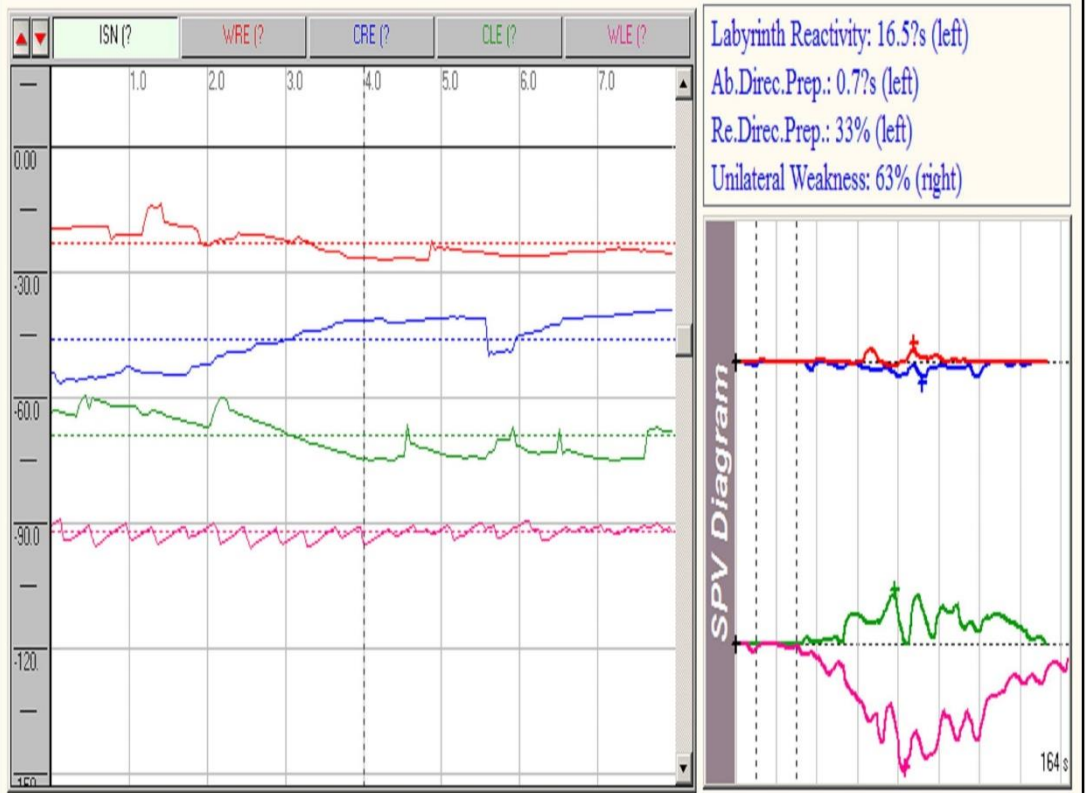
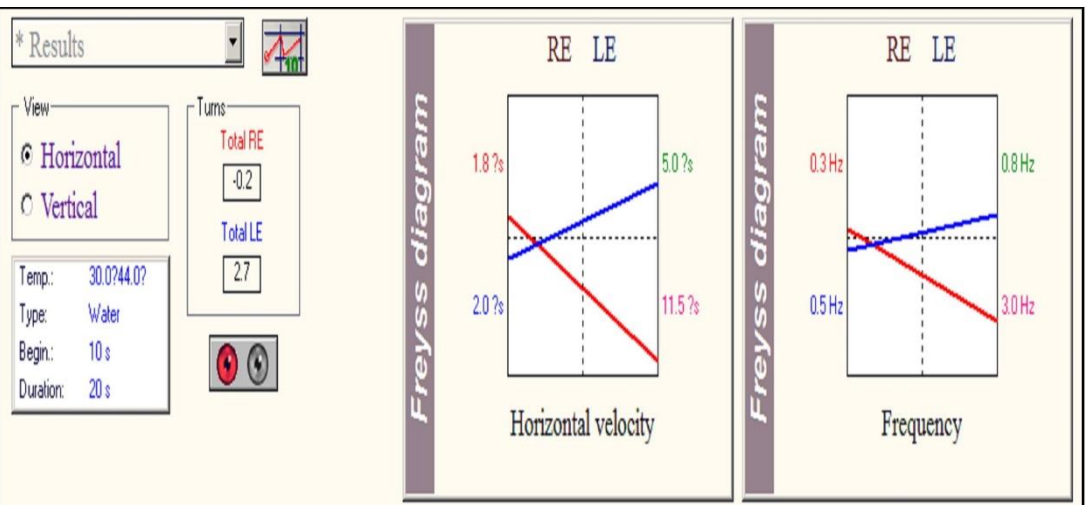
Recent follow up on 2021/3/9

The patient denied vertigo or dizziness while follow up



PTA : Rt 72 DB, Lt 27.5 DB



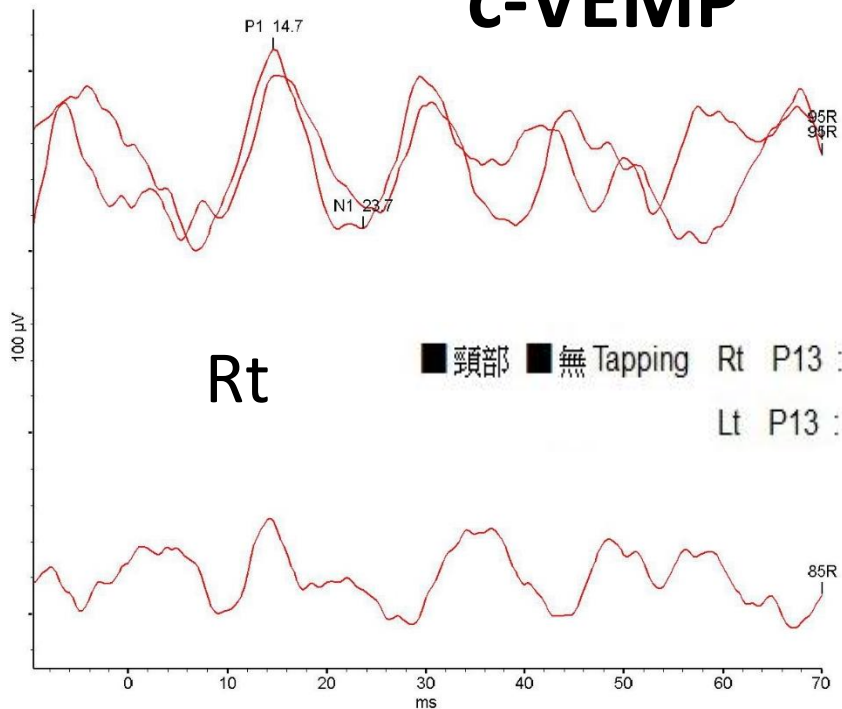


Caloric Test :

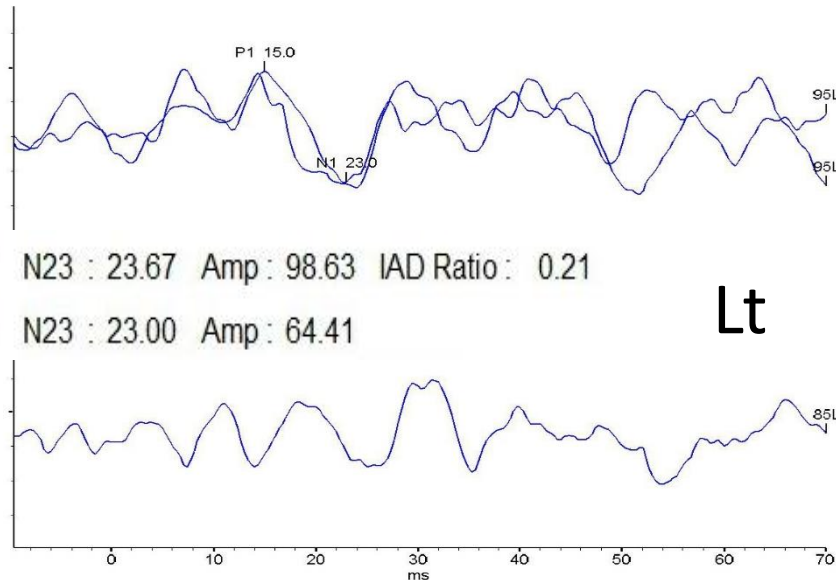
Right unilateral weakness

63 %

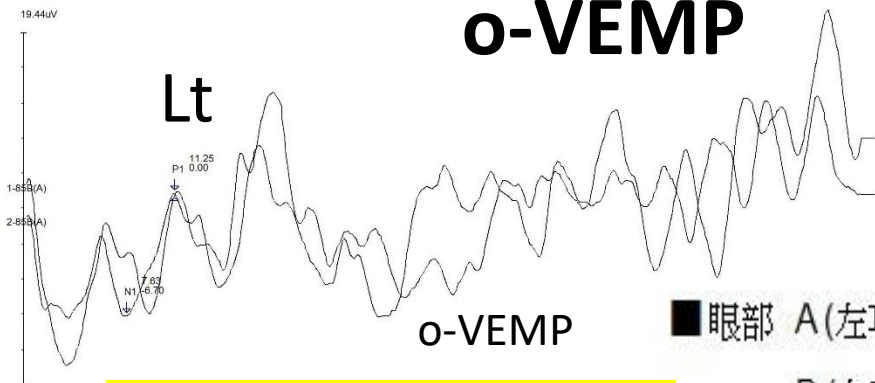
c-VEMP



IAD = 0.21



o-VEMP



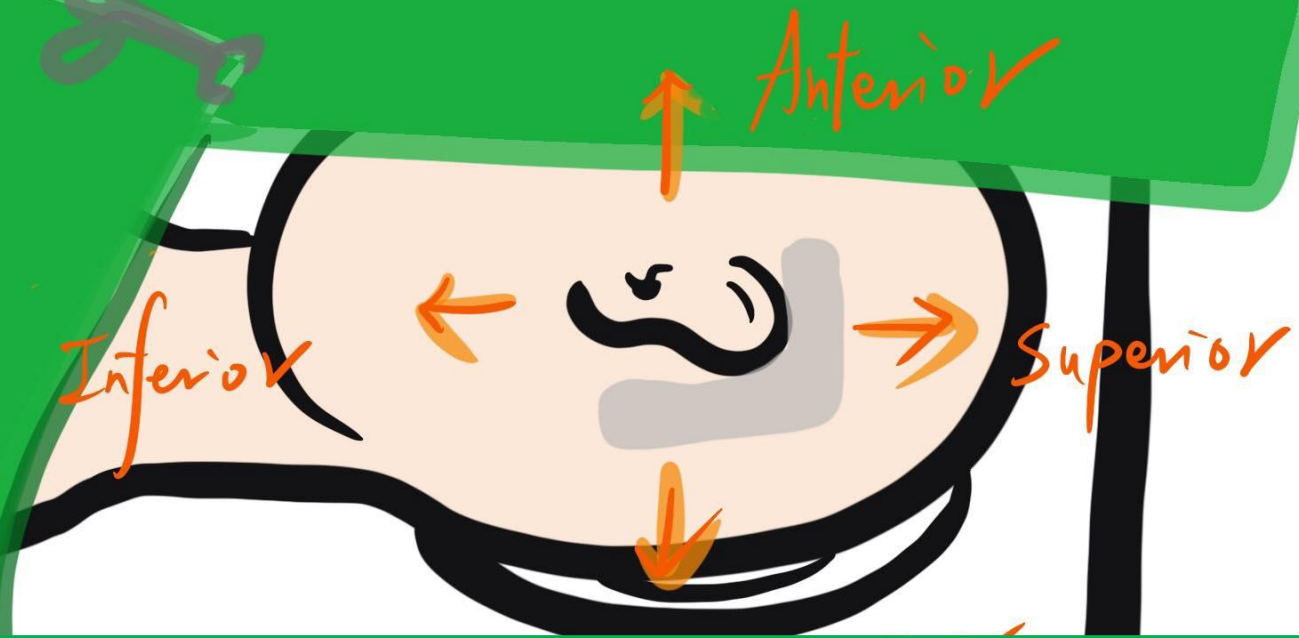
Rt o- vemp absent



IAD = 1.00

Take Home Message

- Cholesteatoma disease is the commonest pathology leading to fistula in labyrinth.
- **Lateral semicircular canal** is the most commonly affected site and is one of the reason of peripheral vertigo , pre operation vertigo may not be present
 - reason: the **fistula** is completely draped by cholesteatoma sac lining.
- **HRCT scan : Evaluate the extension of cholesteatoma?**
- **Inner ear invasion ?**
 - **If fistula (+) on CT >> suggest vestibular function test (E.g. o- VEMP, c- VEMP, caloric ..)**
- **Significant number of patient with fistula may not give history of vertigo**
 - presence of vertigo and/or a positive fistula test+ sensorineural hearing loss, should raise the suspicion for a fistula, but their absence does not guarantee an intact bony labyrinth



Thank you for attention



Wendy Wong