Meniere's disease presented with micro vascular compression of the vestibulocochlear nerve

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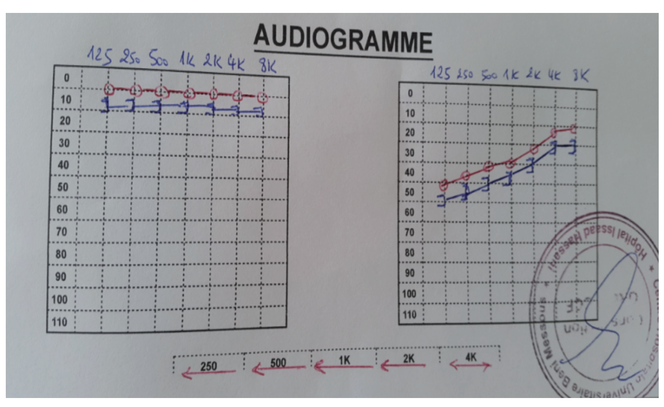
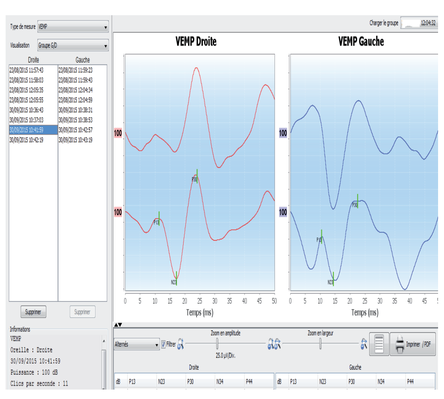
Case presentation:

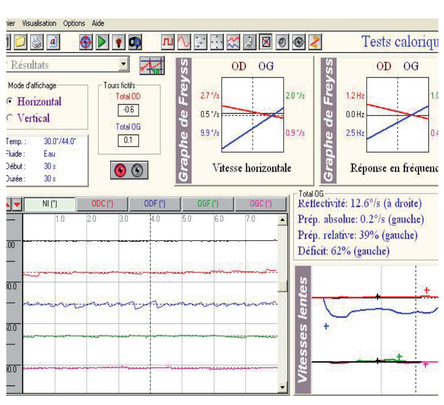
- A 41 year-old-woman presented at our clinic with a 4-year history of Meniere's disease. She is a teacher at the University and a candidate for doctoral thesis.
- During the first attack, an initial period of acute severe vertigo lasting several hours was immediately followed by sensorineural hearing loss and imbalance. Other episodes of severe vertigo occurred accompanied by left-sided aural fullness and tinnitus.
- Medical treatment was not successful and surgery was suggested due to the negative influence of the vertigo and tinnitus on her quality of life.
- Preoperative audiometric testing showed hearing impaired in the left side and vestibular evaluation was realized with caloric stimulation and Vestibular Evoked Myogenic Potential (VEMP). It showed an hyporreflexia in the left side.

The preoperative audiogram of the patient show a hearing loss in the left side

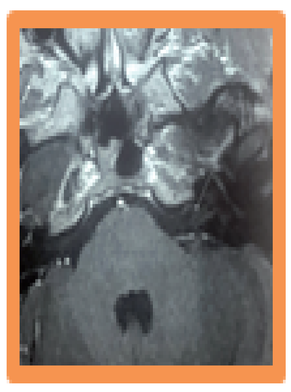


Caloric test/VEMP: hyporreflexia in the left side.

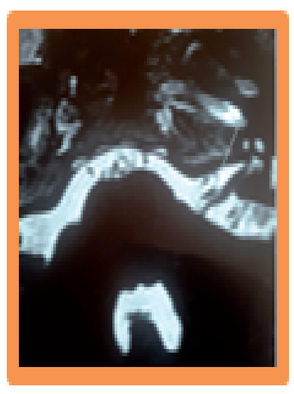




- MRI of the brain didn't show any abnormality but MRI angiography showed a left loop compression of the anterior inferior cerebellar artery (AICA).



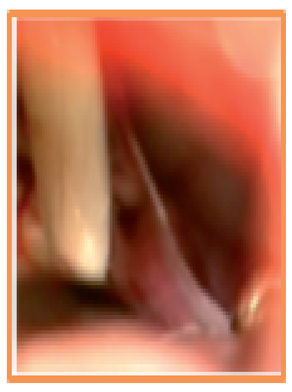
MRI T1/T2 axial, and angiography reveled a loop of the anterior cerebellar artery(AICA).



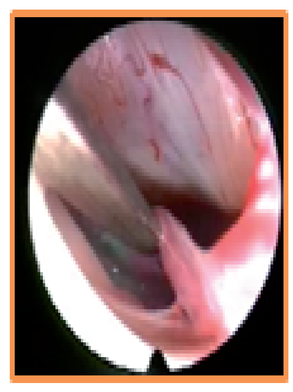
MRI T2 axial show on the left side : AICA in the perponducular contact with the vestibulocochlear nerve.

Results:

- The patient underwent a left retro sigmoid approach. Intraoperative findings proved the radiologic findings.

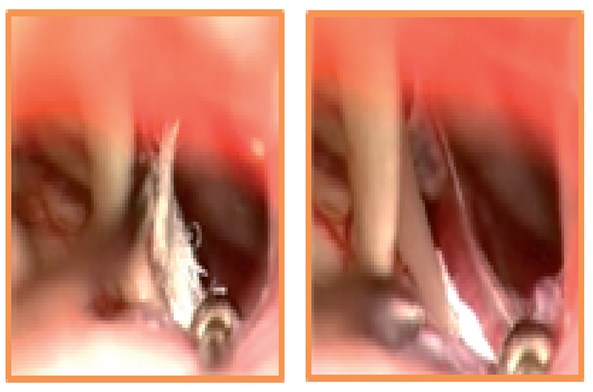


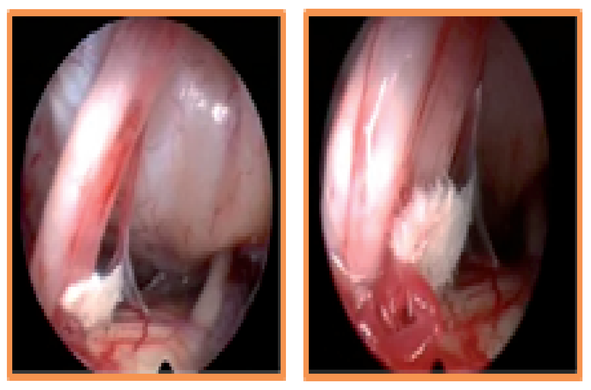
Microscopic view : loop of the left AICA encircles the vestibulocochlear nerve



Endoscopic view : Mobilisation of the loop of the AICA in contact with the vestibulocochlear nerve

- The AICA loop was mobilized and Teflon pad was interposed and separated from the vestibular nerve.





Microscopic and endoscopic view : The AICA loop was mobilized and Teflon pad was interposed and separated from the vestibular nerve

- The patient's symptoms resolved after surgery with a follow-up of 5 years.

Discussion:

- Vascular compression syndrome of the cranial nerves, first suggested in 1934 by Dandy (1) and popularized by Jannetta in the 1970's(2), are gaining acceptance with the improvement in MRI assenssement and the success of endoscope-assisted microvascular decompression (MVD).
- To confirm the diagnosis the simple presence of contact is not sufficient, several radiological criteria are required. For the auditory nerve, we expect to see displacement of the nerve with a certain distance between the facial and the cochlear nerves, with an imprint on the nerve and areduction of the diameter, and with brain stem distorsion caused by vascular structure at the level of the REZ of the cochlear nerve(3-4).
- MVD(microvascular decompression) of the vestibulocochlear nerve is not always successful (especially with regard to the improvement of tinnitus). In a study regarding MVD treatment for a selected group of 72 patients, Møller and Møller showed that 11% of patients had only slight improvement, 45,8% had no improvement, and 2,8% became worse, they showed that the success of such surgery depends on the duration of symptoms before the operation(5).

Conclusion:

- In the management of Meniere's disease, MRI should include sequences that are capable of demonstrating vascular anomalies in patients with persistent tinnitus and vertigo.
- The rate of success of surgical decompression is satisfactory. However, it is still difficult to consider neurovascular compression of the eighth cranial nerve as a major cause of disabling vertigo and tinnitus.

References

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