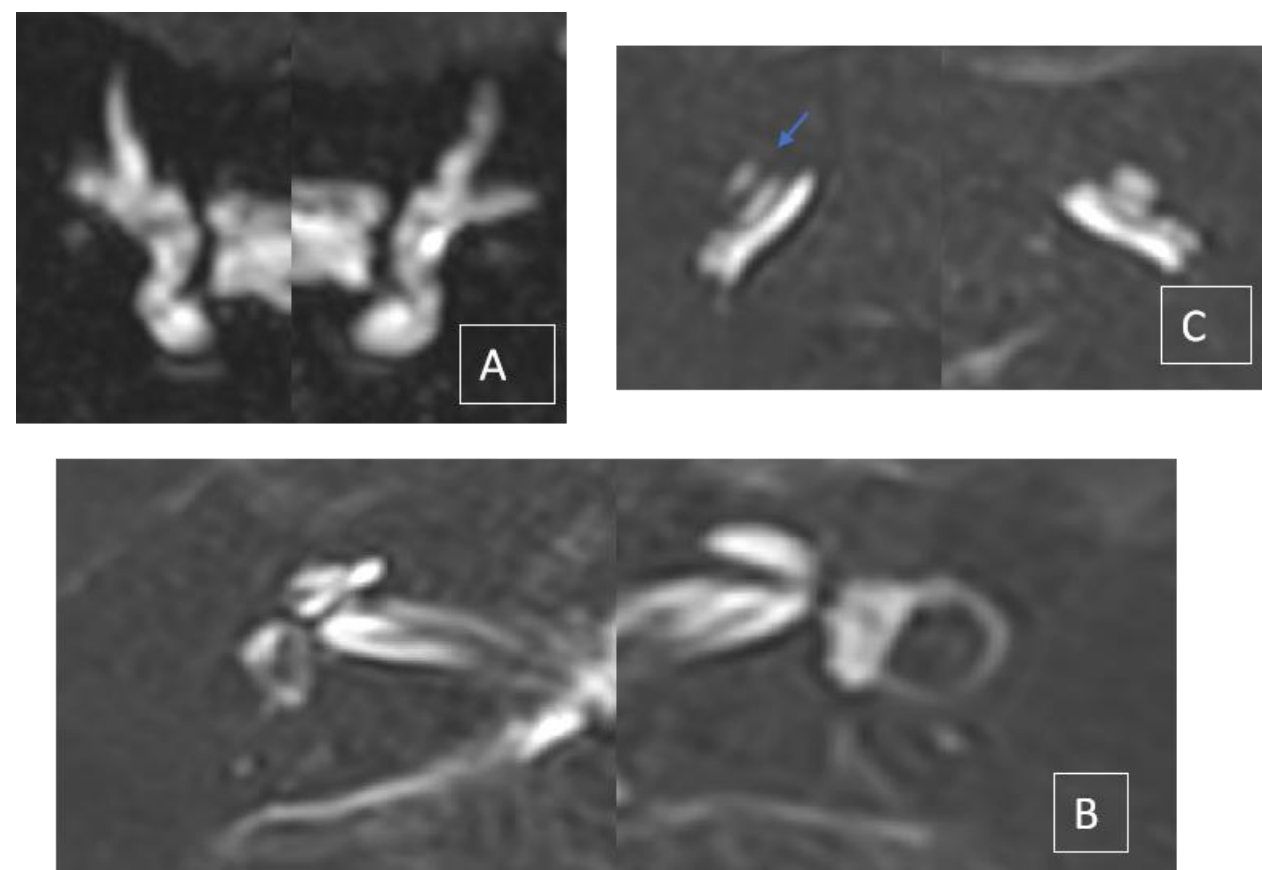
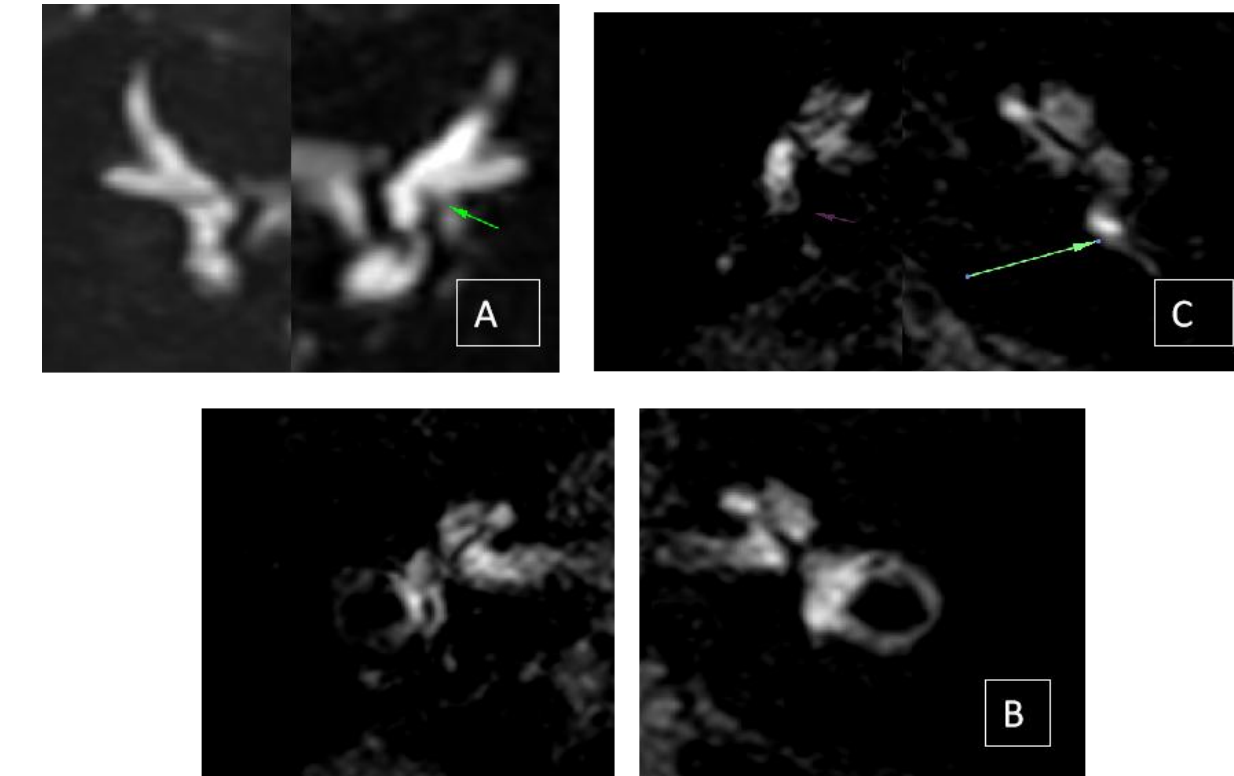


Abstract

Vestibular atelectasis is a new entity first described in 1988, by “Merchant and Schuknecht”, in a histopathological study. Since then it has rarely been reported in vivo. This disorder can manifest in various clinical aspects, and thanks to advances in imaging, can be early diagnosed. Nowadays, progress in high resolution MRI has transformed this histological entity into a radiological one with increasingly well-defined criteria.



Case 1: sudden hearing loss
(A) Coronal T2Space sequence showing vestibular structures appearing without abnormality.
(B) Flair 4H sequence showing endolymphatic saccule, utricle and ampulla structures of normal sized lateral SCC on right, not visible on left
(C) Significant dilation of the right cochlear canal filling the entire vestibular scala on the 2 and a half turns of the turn. Normal size cochlear canal on the left.



Case 2: otosclerosis
(A) Coronal T2Space sequence showing the piston (green arrow) in contact with the saccule
(B) Flair 4H sequence showing normal-sized saccule and utricle endolymphatic structures on the right, not visible on the left. Respect the lateral CSC bulb.
(C) Atelectasis of the ampulla of the posterior SCC

Objective

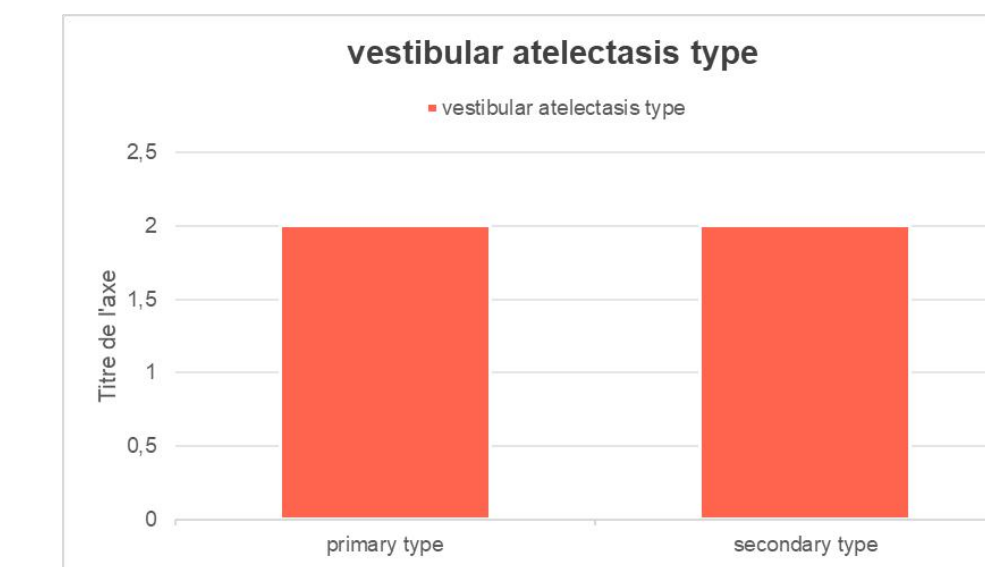
Elucidate through few cases, the importance of MRI which, when realized according to adequate protocols, plays a major role in the diagnosis of vestibular atelectasis with its numerous clinical aspects.

Methods & Materials

In this study, we specify the clinical and radiological characteristics of 04 patients who were diagnosed with vestibular atelectasis. All patients were explored with an MRI according to a specific protocol. The imaging was performed on a 3T Siemens Skyra and 1.5T Siemens Sola MRI. The patients benefited from a complete protocol including sequences at the cerebral level Flair axial, SET1 sagittal, SET2 coronal, T2EG, Axial diffusion, SET1 1mm centered on the internal ear canals, T2space 0.4mm centered on the rocks. A single dose injection of Gadolinium on 3T, double dose on 1.5T then a SET1 sequence fine sections FS on the rocks immediately after injection. Finally, Flair sequences according to hydrops protocol, 4 hours after injection of the contrast product.

Results

In our series of 04 patients, the mean age is 50 (14 to 70 years) and the sex ratio is 0.75. The symptomatology consists of attacks of rotating vertigo with a frank peripheral vestibular syndrome in 03 patients and sudden hearing loss in 01 patient. Delayed postcontrast 3D-FLAIR MRI sequences shows in all cases: a lack of individualization of utricle and at least two of the three semicircular canals ampullas in one side, suggesting a collapsed membranous labyrinth, in comparison to the other side where endolymphatic structures appear normal, meeting the diagnostic criteria of “vestibular atelectasis”.



We conclude to a “primary vestibular atelectasis” in two patients, and a “secondary vestibular atelectasis” in the others: due to an herpes zoster oticus in one case, and to the establishment of a stapes prosthesis in the context of otosclerosis for the other one. The treatment is not codified: for our patients: 03 were managed with medical treatment and the patient with sudden hearing loss benefited from a cochlear implantation, with good results.

Conclusion

With advances in imaging, a new radiological entity called “vestibular atelectasis” is emerging. This leads to admit the major role of imaging nowadays in the diagnosis and the optimal management of these disorders.

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