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# Too much fluid in the inner ear

IMAGES IN MEDICINE

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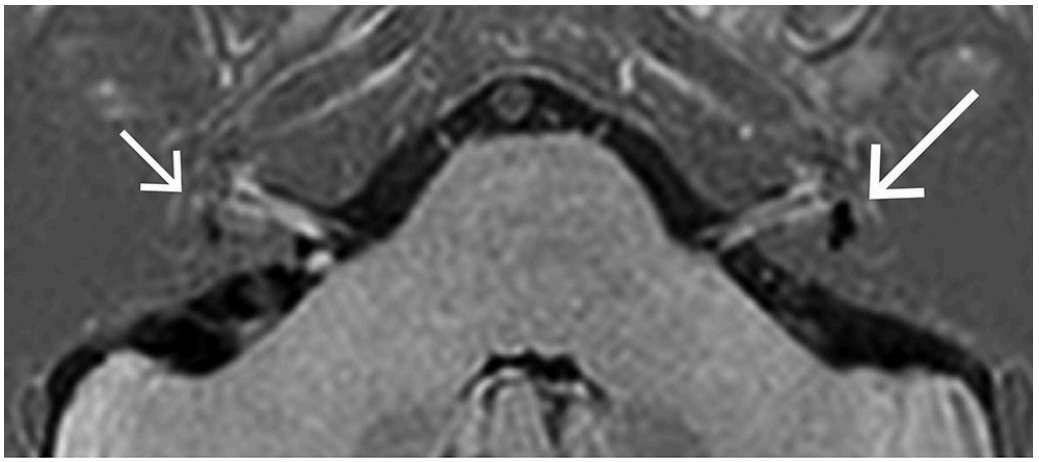

The image shows endolymphatic hydrops in the vestibule on the patient's left side (large arrow), visualised by magnetic resonance imaging (MRI) with intravenous gadolinium contrast and phase-sensitive reconstruction. Endolymph does not take up contrast medium and therefore appears as a low-signal (dark) area; in this case it is abnormally enlarged within the vestibule on the affected side, while appearing narrow and normal on the contralateral side (small arrow). The patient, a woman in her 50s, was investigated for episodic vertigo and intermittent left-sided sensorineural hearing loss, with suspected conditions including Ménière's disease.

The inner ear consists of two fluid-filled compartments: an outer compartment containing perilymph and an inner compartment, known as the membranous labyrinth, which contains endolymph. In endolymphatic hydrops, accumulation of endolymph can lead to distension of all or parts of the membranous labyrinth, with secondary displacement of the surrounding perilymph. This pathological process can be visualised using MRI, as only the outer compartment shows gadolinium enhancement.

The distinction between the two compartments is most clearly demonstrated on delayed imaging using a double dose of gadolinium contrast (four hours after intravenous gadobutrol at 0.2 mL/kg).

Although endolymphatic hydrops is not specific to Ménière's disease, it is particularly associated with the condition, and may explain clinical symptoms. Histopathological studies have demonstrated hydrops in 97 % of patients with the disease in post-mortem studies (1). Ménière's disease is characterised by recurrent episodes of vertigo, hearing loss, and/or tinnitus in varying degrees and combinations. Diagnostic evaluation is often prolonged because of fluctuating symptoms and the lack of disease-specific tests. MRI, however, enables detection and grading of endolymphatic hydrops (2), with such findings reported more frequently in Ménière's disease than in other audiovestibular disorders or in healthy individuals. Some authors have proposed that characteristic MRI findings could be incorporated into the diagnostic criteria for Ménière's disease (3); nevertheless, the diagnosis remains primarily clinical.

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*The patient has consented to publication of the article.*

*The article has been peer-reviewed.*

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