



Insufficient image quality

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Dear Sirs,

In their recent article [1], Kirsch et al. reported the case of a patient clinically diagnosed with vestibular migraine. By using multiple i.v. contrast-enhanced inner ear MRI studies, they reported varying degrees of endolymphatic hydrops (ELH) in this patient.

Menière's disease (MD) is traditionally defined as the idiopathic syndrome of ELH, the diagnosis of which could only be ascertained by post-mortem histologic proof of ELH in the past. Inspired by the advent of preclinical and clinical ELH imaging [2, 3], the new classification concept of hydroptic ear disease (HED) has recently emerged [4, 5], and the clinical features of certain HED have been defined [6]. Today, MD is no longer a diagnosis of exclusion, because the pathology can be ascertained by clinical MRI.

Recently, hydroptic ear disease has been confirmed by MRI not only in clinically "typical" MD patients, but also in clinical real-life situations with a less typical clinical picture [7–11]. It is well known that secondary HED may result from various lesions of the inner ear homeostasis, such as profound sensorineural hearing loss, vestibular schwannoma, noise-induced hearing loss, labyrinthitis and many more [4]. It is therefore of great interest to examine ELH in patients with other symptom-based diagnoses such as migrainous vertigo [11].

In their article, Kirsch et al. presented a patient who was examined three times with i.v. gadobutrol contrast-enhanced MRI of the inner ear. The inner ear MRI sequence used was a 3D FLAIR and was reported to follow the method published by Naganawa et al. [12] in 2010. A semi-automated segmentation algorithm was used for volumetry, which had originally been developed for inner ear MRI post-intratympanic injection of gadolinium chelate acquired using a 3D real-IR sequence [13]. The authors reported finding "significant changes of the endolymphatic space" between normal endolymphatic space and "relevant/medium hydrops".

However, the presented images are of insufficient quality for the evaluation of the possible presence of any ELH. The possible reasons are, e.g., an insufficient entry of the contrast agent into the perilymphatic space or the use of MR sequence parameters which are not suitable for i.v. contrast application. Of note, the image quality is markedly different from the referenced previous publication [12].

A previous longitudinal case study has clearly demonstrated a progression of ELH in a patient with hydroptic ear disease, but the time course was 2 years [14]. Another previous study longitudinally examined six patients with HED being treated with betahistine, with a follow-up of 6–29 months (mean 11 months), and did not find a change in hydrops severity in any of these cases [15].

The images presented by Kirsch et al. [1] do not allow for a measurement of endolymphatic space dimensions, because the contrast between endolymph and perilymph is too weak in the raw images (2D images). The main finding, i.e., the "novel result of fluctuating ELH", is therefore not supported by the data presented in the paper.

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Compliance with ethical standards

Conflicts of interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

Ethical approval Ethical approval for research involving human participants and/or animals: not applicable.

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