

THE ROLE OF VIDEONYSTAGMOGRAPHY AND MAGNETIC RESONANCE IMAGING IN RECURRENT POSITIONAL VERTIGO: A CASE REPORT

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ABSTRACT

Background. Benign paroxysmal positional vertigo (BPPV) is the most frequent cause of positional vertigo and usually responds well to canalith repositioning maneuvers. Atypical clinical features should raise suspicion for central nervous system pathology.

Case presentation. We present a 64-year-old male with recurrent positional vertigo initially diagnosed as posterior canal BPPV. Dix–Hallpike testing elicited transient torsional geotropic nystagmus, and symptoms initially resolved after an Epley maneuver. One month later, vertigo recurred, and repeated repositioning maneuvers resulted only in partial improvement. Cranial magnetic resonance imaging revealed a posterior fossa intracranial lesion. The patient underwent neurosurgical treatment and was symptom-free at follow-up.

Conclusion. Early recurrence and incomplete response to repositioning maneuvers are red flags for central positional vertigo. High-resolution magnetic resonance imaging of the posterior fossa is recommended in such cases.

Keywords. benign paroxysmal positional vertigo; central positional nystagmus; magnetic resonance imaging; vestibular rehabilitation

ROLI I VIDEONISTAGMOGRAFISË DHE REZONANCËS MAGNETIKE NË VLERËSIMIN E VERTIGOS POZICIONALE TË PËRSËRITUR: RAPORTIM RASTI

ABSTRAKT

Hyrje. Vertigo paroksizmale beninje pozicionale është shkaku më i shpeshtë i vertigos pozicionale dhe zakonisht trajtohet me sukses me manovrat e ripozicionimit të kanaloliteve. Tiparet atipike klinike duhet të ngrenë dyshimin për patologji qendrore.

Prezantimi i rastit. Paraqitet rasti i një mashkulli 64-vjeçar me vertigo pozicionale të përsëritur, fillimisht e diagnostikuar si BPPV e kanalit posterior. Testi Dix–Hallpike shkaktoi nistagmus torsional gjeotropik kalimtar dhe simptomat u përmirësuan pas manovrës Epley. Një muaj më vonë u shfaq rikthimi i vertigos dhe manovrat e përsëritura sollën vetëm përmirësim të pjesshëm. Rezonanca magnetike kraniale zbuloi një lezion intrakranial në fossën posteriore. Pacienti iu nënshtrua ndërhyrjes neurokirurgjikale dhe në ndjekje rezultoi pa simptoma.

Përfundimi. Rikthimi i hershëm dhe përgjigjja jo e plotë ndaj manovrave të ripozicionimit përfaqësojnë shenja alarmi për vertigo pozicionale qendrore. Rekomandohet MRI me rezolucion të lartë e fossës posteriore.

Fjalë kyç. vertigo pozicionale beninje; nistagmus pozicional qendror; rezonancë magnetike

INTRODUCTION

Benign paroxysmal positional vertigo accounts for approximately 80% of positional vertigo cases, with posterior semicircular canal involvement in 80–90% of patients. [2,3] It is characterized by brief vertigo triggered by head position changes and a typical positional nystagmus during the Dix–Hallpike maneuver, showing latency, a torsional upbeat component, and fatigability.[4,9]

Most patients respond successfully to canalith repositioning maneuvers and do not require further investigations. [4,6] However, certain findings, such as absence of latency, lack of fatigability, pure vertical nystagmus, minimal vertigo during testing, and poor therapeutic response, suggest central nervous system involvement. [5,10] Between 12% and 20% of positional vertigo cases may have a central origin.[1] This report highlights the importance of differentiating peripheral BPPV from central positional vertigo.

CASE PRESENTATION

A 64-year-old male presented with several months of positional vertigo, particularly when turning in bed to the left. His past medical history was unremarkable. Otoscopy was normal. Pure-tone audiometry showed mild high-frequency sensorineural hearing loss in the right ear and normal hearing in the left ear. Videonystagmography demonstrated normal gaze, saccadic, and oculomotor tests. The Dix–Hallpike maneuver elicited transient rotatory geotropic left-beating nystagmus. An Epley maneuver was performed, with complete symptom resolution at one-week follow-up.

One month later, the patient returned with recurrent vertigo. Dix–Hallpike testing remained positive, eliciting rotatory geotropic nystagmus. Repeated Epley maneuver resulted in only partial improvement, and the Semont maneuver was ineffective.

Due to an incomplete therapeutic response and early recurrence, cranial magnetic resonance imaging was performed, revealing a lesion in the posterior fossa. The case was referred to the neurosurgery department, where the patient underwent total resection with intraoperative EMG monitoring. Histopathological examination of the biopsy confirmed a meningioma.

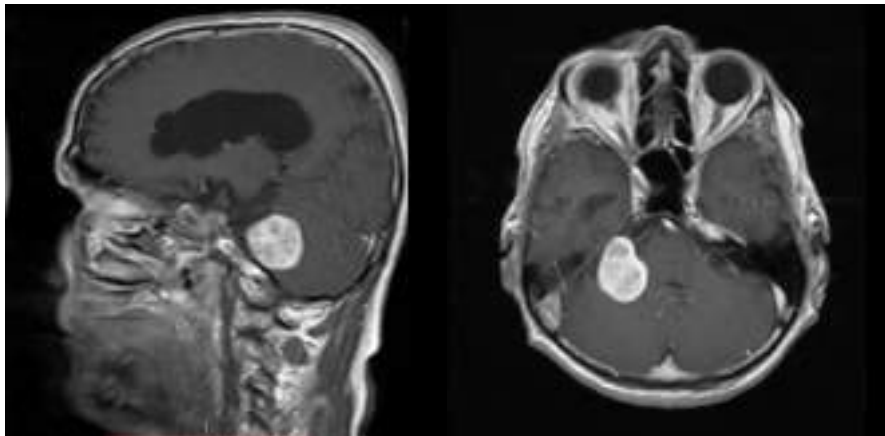


Figure 1. Preoperative MRI showing an intracranial lesion in the posterior fossa. The patient underwent neurosurgical intervention (Figure 2). At the ENT follow-up, he remained asymptomatic.

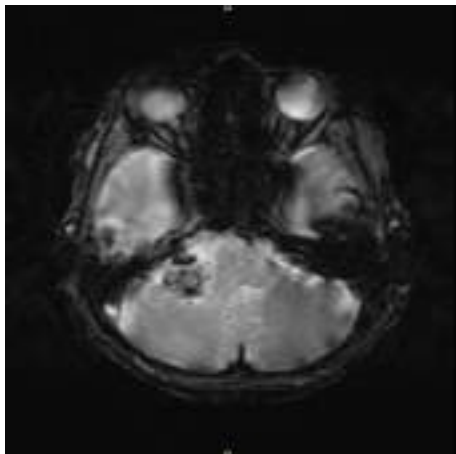


Figure 2. Postoperative MRI after neurosurgical intervention.

DISCUSSION

Central lesions may closely mimic BPPV, and early recurrence or poor response to repositioning maneuvers may be the only warning signs [5,10].

Although horizontal canal variants and cupulolithiasis can present with atypical features, [7,8] persistent, non-fatigable, or purely vertical positional nystagmus strongly suggests central pathology [10]. Central paroxysmal positional nystagmus has distinct mechanisms compared with peripheral BPPV and is frequently associated with cerebellar or brainstem lesions [10]. Posterior fossa lesions, particularly cerebellar tumors, are well-recognized causes of central positional vertigo and are frequently associated with downbeat nystagmus.

Magnetic resonance imaging is the diagnostic modality of choice when posterior fossa pathology is suspected, as computed tomography has limited sensitivity in this region.[11]

Clinical practice guidelines recommend against routine imaging in typical BPPV but strongly support further evaluation when atypical features or treatment failure occur [4,9].

This case underlines the importance of neuroimaging in patients with recurrent or partially responsive positional vertigo and demonstrates how central pathology may initially mimic peripheral vestibular disease.

CONCLUSION

The diagnosis of BPPV should be established only when positional testing demonstrates nystagmus with characteristic peripheral features. Certain findings should raise suspicion for central pathology. These include the absence of latency, lack of fatigability, pure vertical nystagmus, minimal vertigo during positional testing, and poor response to repositioning maneuvers. The presence of one or more of these red flags warrants further evaluation. In such cases, high-resolution magnetic resonance imaging of the posterior fossa is strongly recommended to exclude central nervous system lesions.

Patient consent. Written informed consent was obtained from the patient for publication of this case report and accompanying images.

Conflict of interest. None declared

Author contribution. All authors contributed to the preparation of the manuscript and approved the final version.

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