

Why recurrent vertigo often goes undiagnosed, despite clear patterns

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Patients presenting with recurrent episodes of spontaneous vertigo often face a diagnostic odyssey, with many experiencing prolonged periods of uncertainty and ineffective management. The underlying causes are diverse, but a significant portion of these cases are attributable to conditions that, while well-characterised, remain persistently underdiagnosed in routine clinical practice. This diagnostic gap leaves many without appropriate treatment, impacting their quality of life and increasing healthcare burden.

KEY TAKEAWAYS

- **The Pivot:** Vestibular migraine is a leading cause of recurrent spontaneous vertigo, yet it is frequently missed or misdiagnosed.
- **The Data:** Clinical criteria for vestibular migraine are established, but their consistent application in primary and secondary care remains a challenge.
- **The Action:** Clinicians should actively consider vestibular migraine in patients with recurrent vertigo, particularly those with a history of migraine or migraine features during vertigo episodes.

Recurrent spontaneous vertigo, defined as repeated episodes of dizziness or a sensation of spinning that occurs without an obvious external trigger, represents a significant challenge in neurological and otological practice. This condition is not merely a nuisance; it profoundly affects daily activities, employment, and mental health, often leading to anxiety and depression. The episodic nature of the symptoms, coupled with a broad differential diagnosis, contributes to diagnostic delays and misdirection in treatment. Patients frequently report years of symptoms before receiving a definitive diagnosis, navigating multiple specialists and undergoing numerous investigations that often yield no clear answers.

The spectrum of conditions causing recurrent spontaneous vertigo is wide, encompassing peripheral vestibular disorders, central nervous system pathologies, and systemic diseases. Peripheral causes include Meniere's disease, benign paroxysmal positional vertigo (BPPV), and vestibular paroxysmia. Central causes might involve transient ischaemic attacks (TIAs) affecting the posterior circulation, certain forms of epilepsy, or multiple sclerosis. But, one of the most prevalent yet frequently overlooked causes is vestibular migraine. This condition, often considered a distinct entity from typical migraine with aura, presents with vestibular symptoms that can occur independently of headache, complicating its recognition.

Understanding Vestibular Migraine

Vestibular migraine is now recognised as the commonest cause of recurrent spontaneous vertigo, affecting a substantial proportion of individuals who experience episodic dizziness. Its prevalence is estimated to be higher than Meniere's

disease, yet awareness and diagnostic rates remain comparatively low. The condition is characterised by recurrent vestibular symptoms, which can include spontaneous vertigo, positional vertigo, visually induced dizziness, or head motion intolerance. These symptoms typically last from minutes to days, often accompanied by other migraine features such as headache, photophobia, phonophobia, or visual aura, though these are not always present during every vertigo episode. The diagnostic criteria, established by the Bárány Society and the International Headache Society, require at least five episodes of vestibular symptoms of moderate or severe intensity, lasting between 5 minutes and 72 hours. Patients must also have a current or past history of migraine with or without aura, and at least half of the vestibular episodes must be associated with migraine features like headache, photophobia, phonophobia, or visual aura. This complex presentation often leads to diagnostic confusion, particularly when the headache component is absent or mild.

The pathophysiology of vestibular migraine is not fully elucidated, but it is believed to involve a complex relationship of genetic predisposition and neurovascular mechanisms similar to those in classic migraine. Cortical spreading depression, a wave of neuronal and glial depolarisation that propagates across the cerebral cortex, is thought to play a role, potentially affecting vestibular pathways in the brainstem and cerebellum. Alterations in neurotransmitter systems, particularly serotonin, also contribute to the heightened excitability of the central nervous system. This neurobiological basis explains why patients may experience vestibular symptoms even without a concurrent headache, as the underlying neural dysfunction can manifest in different ways. The condition often co-occurs with other migraine-related disorders, such as motion sickness and benign paroxysmal positional vertigo, further suggesting a shared neurological substrate. For a deeper dive into related neurological conditions, clinicians might find the Oxford Handbook of Neurology a useful quick-reference guide.

The Diagnostic Challenge in Practice

The primary reason for the underdiagnosis of vestibular migraine lies in several factors. First, the variability of symptoms means that not all patients present with the classic triad of vertigo, headache, and other migraine features simultaneously. Many patients experience vertigo as their sole or predominant symptom, leading clinicians to focus exclusively on peripheral vestibular causes. Second, a lack of awareness among primary care physicians and even some specialists regarding the diagnostic criteria for vestibular migraine contributes to misattribution of symptoms. Patients are often referred for extensive vestibular testing, which frequently returns normal results, further delaying an accurate diagnosis. This can lead to unnecessary investigations and treatments, increasing patient frustration and healthcare costs. But the diagnostic process is further complicated by the episodic nature of the attacks. Patients may present to a clinician when they are asymptomatic, making it difficult to observe the vertigo directly. Detailed history-taking is paramount, focusing on the characteristics of the vertigo, its duration, associated symptoms, and any triggers. Clinicians must specifically inquire about a personal or family history of migraine, motion sickness, and other migraine-associated symptoms, even if they do not occur concurrently with the vertigo. The absence of nystagmus or other objective vestibular signs during an attack does not rule out vestibular migraine, as these findings can be transient or subtle. This requires a high index of suspicion and a systematic approach to history-taking, which is not always prioritised in busy clinical settings.

Clinical Overlap and Misdiagnosis

Vestibular migraine shares significant clinical overlap with other vestibular disorders, making differentiation challenging. Meniere's disease, for example, also presents with recurrent spontaneous vertigo, but typically includes fluctuating hearing loss, tinnitus, and aural fullness. While some patients may have both conditions, careful history and audiometry can usually distinguish between them. BPPV, another common cause of vertigo, is characterised by brief episodes of vertigo triggered by specific head movements, which can sometimes co-exist with vestibular migraine. Distinguishing between these conditions requires a thorough clinical examination, including Dix-Hallpike manoeuvres for BPPV, and an understanding of the typical duration and triggers of the vertigo episodes. The challenge of differential diagnosis is a recurring theme in medicine, as seen in why transthyretin amyloid cardiomyopathy remains underdiagnosed, where subtle symptoms are often missed.

Central causes of vertigo, such as TIAs or multiple sclerosis, also need to be considered, especially in patients with atypical presentations, neurological deficits, or risk factors for cerebrovascular disease. Imaging studies, such as MRI of the brain, are often performed to rule out these more serious conditions, particularly in cases where central vestibular signs are present or the vertigo is prolonged and severe. But, in the absence of red flag symptoms, extensive imaging for every patient with recurrent vertigo is neither practical nor cost-effective. The judicious use of investigations, guided by a careful clinical assessment, is essential to avoid over-investigation while ensuring serious pathologies are not missed. This balance is important in many areas of medicine, including the ongoing debate around cholecystectomy for recurrent gallstone pancreatitis.

Management and Unmet Needs

The management of vestibular migraine, once diagnosed, typically involves both acute and prophylactic strategies, mirroring the approach to classic migraine. Acute treatments aim to abort the vertigo attack and associated symptoms, often utilising triptans, antiemetics, or benzodiazepines. Prophylactic treatments, for patients with frequent or disabling attacks, include beta-blockers, calcium channel blockers, tricyclic antidepressants, and topiramate. Lifestyle modifications, such as regular sleep, stress management, and avoidance of triggers (e.g., certain foods, caffeine, alcohol), also play a significant role in patient well-being. Vestibular rehabilitation therapy can be beneficial in improving balance and reducing dizziness, particularly for patients with persistent symptoms between attacks.

But the lack of a specific, targeted therapy for vestibular migraine remains an unmet need. Current treatments are repurposed from general migraine prophylaxis, and their efficacy in vestibular migraine can vary. This highlights the ongoing need for dedicated research into the unique pathophysiology of vestibular migraine to develop more effective and specific interventions. The reliance on off-label use of migraine medications underscores the diagnostic and therapeutic challenges faced by clinicians and patients alike. Without a clear diagnosis, patients cannot access these established, albeit imperfect, treatments, perpetuating their cycle of symptoms and disability. The situation is not dissimilar to the challenges in treating children with IgA vasculitis nephritis, where targeted therapies are still lacking.

The open-label nature of many treatment approaches is an obvious caveat. While clinical experience supports the use of migraine prophylactics, robust, placebo-controlled trials specifically in vestibular migraine are still needed to solidify evidence-based guidelines. The heterogeneity of vestibular migraine presentations also complicates trial design, as patient populations may respond differently to various interventions. This complexity means that even when a diagnosis is made, optimising treatment can be a trial-and-error process, requiring close collaboration between patient and clinician. The importance of accurate diagnosis and appropriate management cannot be overstated, as it directly impacts patient

outcomes and reduces the burden on healthcare systems. This is a common thread across many conditions, including why some asthma patients continue to suffer attacks despite treatment.

Improving diagnostic rates for vestibular migraine requires a concerted effort in medical education, raising awareness among general practitioners, neurologists, and otolaryngologists. Standardised diagnostic pathways and clinical algorithms could help guide clinicians through the differential diagnosis of recurrent spontaneous vertigo, ensuring that vestibular migraine is considered early in the process. Emphasising detailed history-taking and the application of established diagnostic criteria are fundamental steps. Until these improvements are widely implemented, many patients will continue to suffer from a treatable condition that remains hidden in plain sight.

CLINICAL IMPLICATIONS

The persistent underdiagnosis of vestibular migraine is a clinical failing that directly impacts patient quality of life. Clinicians, particularly those in primary care, must elevate their index of suspicion for this condition, moving beyond the reflex of ordering extensive, often unrevealing, vestibular tests. A thorough history, specifically probing for migraine features and family history, is far more valuable than a battery of expensive investigations. The current reliance on repurposed migraine medications for treatment underscores a significant unmet need for targeted therapies. While these agents offer some relief, their variable efficacy and side effect profiles mean that many patients still struggle to find optimal management. Pharmaceutical companies should recognise this gap and invest in dedicated research for vestibular migraine, rather than treating it as a secondary consideration.

For patients, the diagnostic delay translates into prolonged suffering, anxiety, and often, unnecessary restrictions on their lives. An accurate and timely diagnosis of vestibular migraine can validate their experience and open the door to effective management strategies, even if those strategies are not perfect. It is a reminder that sometimes, the most common cause is the one we are least trained to recognise.

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