



The clinical manifestations of vestibular migraine: A review



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ABSTRACT

Objectives: To provide an overview of vestibular migraines presentation, pathology, and diagnosis, as well as an update on current diagnostic criteria.

Methods: A review of the most recent literature on vestibular migraines was performed.

Results: Vestibular migraine is a process with significant impact on the quality of life for those afflicted with the disease, with attacks of spontaneous or positional vertigo and migraine symptoms lasting several minutes to 72 h. Inner ear disease can co-exist with migraine and the vestibular symptoms occurring with vestibular migraine can mimic inner ear disorders providing a challenge for clinicians in establishing diagnosis. Recent diagnostic criteria for vestibular migraine proposed by a joint committee of the Bárány Society and the International Headache Society provide an important standard for clinical diagnosis and research endeavor.

Conclusion: Vestibular migraine is a challenging disease process to both diagnose and treat. Proper diagnosis and treatment requires a thorough understanding of the current literature.

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1. Introduction

Vestibular migraine (VM) is a variant of migraine resulting in vestibular symptoms in addition to symptoms typical of migraine. It is estimated that 1% of the population suffers from vestibular migraine [1] making it the most common central cause of episodic vertigo and second most frequent cause of vertigo overall [2].

Diagnosis of vestibular migraine is challenging as there is no established confirmatory test for the diagnosis. Furthermore, while 30–50% of migraineurs experience vestibular symptoms at some point [3,4]; these symptoms can result from associated

inner ear disease rather than from migraine itself [5,6]. In addition, vestibular symptoms resulting from migraine can be very similar to those occurring in common inner ear disorders such as positional dizziness due to benign paroxysmal positional dizziness [3,4] and episodic vertigo due to Meniere’s disease [5]. Several terms have been used to describe vestibular symptoms occurring with migraine, including: vestibular migraine, migrainous vertigo, migraine-associated vertigo, migraine-associated balance disturbance, and benign paroxysmal vertigo [1,7]. Of these only benign paroxysmal vertigo is an established migraine entity according to the International Headache Society (IHS) criteria [8]. However, vestibular and auditory symptoms are also recognized to occur with migraine with brainstem aura [8].

Recently a joint committee of the IHS and the Bárány Society proposed criteria for diagnosing VM as a disorder in which vestibular symptoms are a manifestation of migraine

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rather than resulting from co-existing inner ear disease or other pathology [8]. In addition to meeting specific clinical criteria for VM, diagnosis requires that other potential causes of vestibular symptoms are excluded. The IHS society has included the criteria for diagnosing vestibular migraine in the Appendix of its International Classification of Headache Disorders (3rd Edition beta) indicating that it is a novel entity that has not yet been validated sufficiently by research for it to be formally accepted [8].

In an effort to summarize the current knowledge of VM, its epidemiology, diagnostic criteria, and options for therapy will be discussed in this review.

2. Methods

A literature search was performed using PubMed (MEDLINE). The search was conducted between the years 1980 to 2016 using keywords “vestibular migraine” and “vestibular disorders”. This resulted in a total of 597 articles with both keywords noted. Articles were then selected based on their discussion of diagnosis and treatment in relation to the underlying pathology of vestibular migraines. A total of 44 articles were selected; and the results of this comprehensive search are summarized in this review on vestibular migraines.

3. Results

3.1. Clinical manifestations

Sensory symptoms, ranging from reversible auras, photophobia, and phonophobia are common in migraine [9]. Vestibular symptoms can also occur with headache and have been found to be more common in patients with migraine than those with other types of headache [10,11]. The vestibular symptoms are most commonly described as true vertigo but can be positional dizziness or a feeling of disequilibrium [9]. One study found that 27% of patients with migraine headache experienced vertigo compared to only 8% in those with tension-type headaches [10].

Clinicians must distinguish vestibular symptoms as a manifestation of migraine from symptoms resulting from co-existing inner ear disease. Both migraine headaches and vestibular symptoms are common and co-existence may be coincidental [11]. Accurate diagnosis requires that diagnostic criteria for vestibular migraine be established.

In 2001, Neuhauser et al. proposed diagnostic criteria for migrainous vertigo, now called vestibular migraine [12]. Further studies and analysis since that time led to the recent collaboration between the Bárány Society and the International Headache Society, establishing the newest diagnostic criteria for VM [8]. Collaboration between basic scientists, otolaryngologists, and neurologists allowed for creation of the classification systems of VM (Table 1). With updates to the diagnostic criteria, the type of dizziness, duration, and intensity of dizziness are clarified. Ultimately, the changes in such criteria have made the Bárány criteria more specific compared to criteria proposed by Neuhauser [12].

Table 1

Diagnostic criteria of vestibular migraine from the 2012 International Headache Society and Bárány Society.

Vestibular migraine
A. At least 5 episodes of vestibular symptoms+ of moderate to severe intensity lasting 5 min–72 h.
B. Current or previous history of migraine +/- aura according to the International Classification of Headache Disorders (ICHD).
C. One or more migraine features++ with at least 50% of the vestibular episodes.
D. Not better accounted for by another vestibular or ICHD diagnosis.
Probable vestibular migraine
A. At least 5 episodes with vestibular symptoms+ of moderate to severe intensity lasting 5 min–72 h.
B. Only one of the criteria B and C for vestibular migraine is fulfilled.
C. Not better accounted for by another vestibular or ICHD diagnosis.

+Vestibular symptoms: Spontaneous vertigo (Internal vs. External); positional vertigo; visually-induced vertigo; head motion-induced vertigo; head motion-induced dizziness with nausea.

++Migraine features: Visual aura, photophobia, phonophobia, and/or headache with at least two distinct features (e.g. one-sided location, moderate to severe pain intensity, aggravation by routine physical activity, pulsating quality).

The new criteria for diagnosing VM requires at least five episodes of vestibular symptoms of moderate to severe intensity. These episodes have been reported at varying lengths, ranging from seconds to days and most often between 5 min to 72 h [13]. One study showed that attacks last a few seconds in 10% of patients; several minutes in 30% of patients; several hours in 30% of patients; and up to a few days in 30% of patients [1].

Vertigo can precede the migraine attack or occur during the attack. It is estimated that 25% of patients have headache accompanied by the vertigo [14], while 30% have vertigo independent of headache [12,15,16]. In cases presenting with vertigo without headache, diagnosis can be aided by the presence of other typical manifestations of migraine, including photophobia, phonophobia, osmophobia, nausea, vomiting, or aggravation by movement [17]. These must accompany at least 50% of the episodes of vertigo. In addition, when headache is present, it must have features of unilaterality, pulsating quality, moderate to severe intensity, and worsening with physical activity [13].

Vestibular migraine can cause spontaneous dizziness or dizziness provoked by positional change [14]. One study found that the most common pattern of dizziness due to vestibular migraine is spontaneous episodic true vertigo, occurring in 67% of patients [14]. Approximately 24% of patients with VM in the same study had positional vertigo [14]. Another study found that vertigo can present during migraine attacks as spontaneous vertigo evolving to positional dizziness or to disequilibrium with a gait disturbance [1]. During attacks of VM, clinical signs of central-vestibular dysfunction have been noted. Such signs include reports of gaze-induced nystagmus, saccadic pursuit, central positional nystagmus, and horizontal or vertical spontaneous nystagmus [1]. Nystagmus present only during attacks of vestibular migraine is variable with sustained low velocity positional nystagmus being the most common [18].

Typical of a migraine, VM affects females more commonly with a gender ratio of females to males between the range of 1.5–5:1 [19–21]. It is thought that this could be due to hormonal triggers, however, other triggers unrelated to gender have also

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