



Case Report

Vestibular Neuritis Unveiled: A Rare Case Report



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ABSTRACT

Background: Vestibular neuritis is a condition characterized by inflammation of the vestibular nerve, leading to vertigo, imbalance, and other related symptoms. This condition is commonly seen in younger adults, and its presentation in individuals in their 40s is rare.

Case Presentation: This case study highlights the diagnostic journey and clinical management of vestibular neuritis of a 43-year-old female patient who presented with an acute onset of vertigo, nausea, and imbalance. She also presented with a left-sided headache radiating to the right clavicle, dizziness, and sudden palpitations. The presentation lacked a preceding respiratory infection, and the patient had a history of similar episodes without palpitations. The patient's medical history, clinical management, and imaging results were carefully reviewed, ultimately leading to the diagnosis of vestibular neuritis.

Conclusion: This case study discussed the differential diagnosis, the challenges in distinguishing it from other vestibular disorders, and the therapeutic interventions that led to the patient's recovery. This case certainly contributes to the valuable insight into the atypical presentation of vestibular neuritis in middle-aged women, emphasizing the importance of early diagnosis and appropriate management for optimal outcome.

Keywords: Vestibular neuritis, Headache, Palpitations, Nausea

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Highlights

- This study reported a case of vestibular neuritis in a 43-year-old female patient.
- The patient had a left-sided headache radiating to the right clavicle, dizziness, imbalance, and sudden palpitations.
- This case report certainly contributes to the valuable insight into the atypical presentation of vestibular neuritis in middle-aged women, emphasizing the importance of early diagnosis and appropriate management.

Introduction

Vestibular neuritis, also known as vestibular neuronitis, is typically marked by sudden, severe vertigo, imbalance, nausea, and oscillopsia without auditory symptoms [1]. It often follows a viral upper respiratory tract infection. While the classic presentation is well-established, atypical cases are increasingly recognized and can complicate diagnosis [2]. This case will expand on vestibular neuritis for a middle-aged woman who is also associated with vestibular neuritis.

Figure 1 illustrates the pathophysiology of vestibular neuritis, highlighting the inflammation that is triggered by viral pathogens as a central cause [3]. This inflammation primarily affects the superior branch of the vestibular nerve, which innervates the utricle and semicircular canals [4]. Within these structures, sensory hair cells located in the crista ampullaris and otolith organs detect head movement and transmit balance information to the brain [5]. When the nerve is inflamed, this transmission is disrupted, leading to impaired processing of balance signals. As a result, the patient experiences symptoms, such as sudden onset of vertigo, imbalance, and nausea, while hearing typically remains unaffected [6].

Case Presentation

A 43-year-old woman presented with a sudden episode of vertigo accompanied by nausea, dizziness, and imbalance. She also reported a left-sided headache radiating to the right clavicle and palpitations that began simultaneously with the vertigo. The episode lasted several hours and was not associated with any loss of consciousness, visual changes, or weakness. She denied any preceding upper respiratory infection, fever, or trauma. The patient noted experiencing similar but milder episodes of dizziness over the past two years, approximately 3 to 4 episodes per year, none of which were accompanied by palpitations or headache. She had no prior history of migraines, cardiovascular disease, or psychiatric illness and was not on any regular medications. Given the recurrence and increasing severity of symptoms, she was admitted to the Medical Ward for further evaluation. Nu-

merous investigations have been conducted to evaluate her condition.

Clinical assessment

Her clinical examination demonstrated no signs of focal neurological deficits, indicating the absence of localized brain or spinal cord damage [7]. Examination of cranial nerves II through XII revealed no abnormalities, with all cranial nerves functioning appropriately. Overall, the neurological exam was unremarkable, with no evidence of central or peripheral nervous system involvement beyond the vestibular issue.

A head impulse test was conducted, and a positive head impulse test was observed on the left side, indicating a dysfunction of the vestibular system on that side. This suggests that the left vestibular apparatus, which is responsible for detecting head movement and maintaining balance, is impaired.

Positional testing reported an increase in dizziness with head movements and positional changes, a common symptom in vestibular disorders. These changes in position likely triggered vertigo, suggesting that the vestibular system is unable to properly adapt to or compensate for changes in head position. This could be indicative of peripheral vestibular dysfunction, such as in vestibular neuritis, where the vestibular system's ability to detect and respond to movement is compromised, leading to symptoms of dizziness and imbalance [8].

Cardiac assessment was conducted due to the palpitations that the patient reported, which were intermittent episodes of an irregular or fast heart rate, often perceived as a fluttering or pounding sensation in the chest. However, during the examination, the palpitations resolved, indicating that they were likely transient and not associated with any sustained arrhythmia. The resolution of palpitations during the examination suggests that the cause was likely benign, such as anxiety, stress, or a non-cardiac issue, rather than a persistent cardiac arrhythmia. Her heart rate upon examination was found to be regular, indicating that there was a consistent rhythm without irregularities, such as extra beats or skipped beats. A

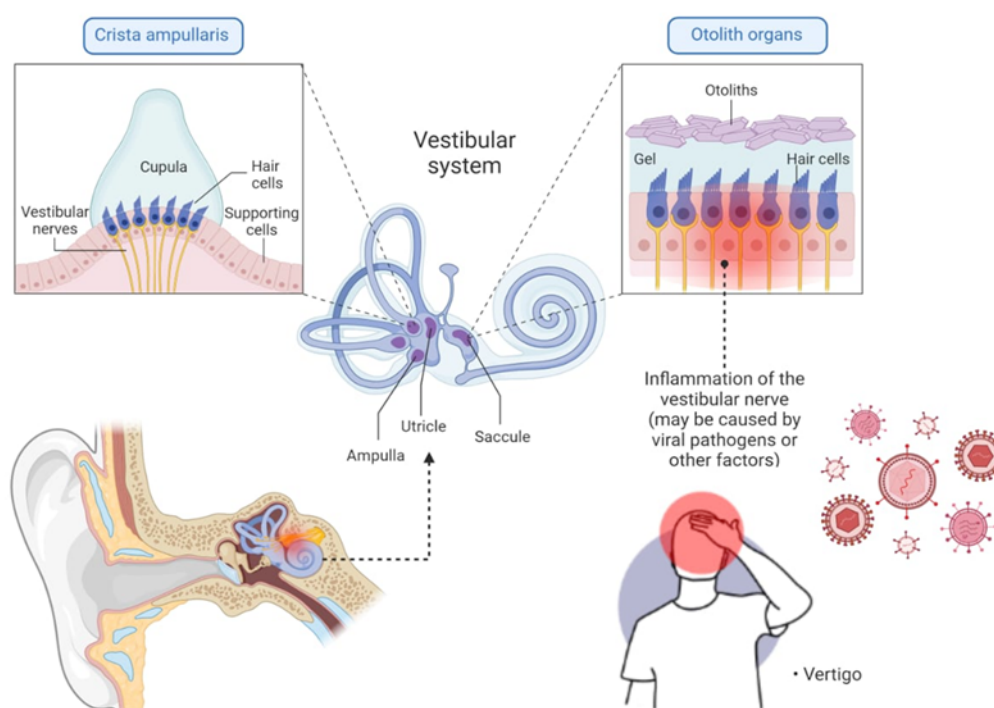


Figure 1. Neuroinflammatory pathway in vestibular neuritis

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regular heart rate is a positive sign, suggesting that there is no underlying arrhythmia or significant heart rhythm disturbance during the examination.

Imaging tests, including magnetic resonance imaging (MRI), suggested that there were no signs of a recent or past stroke, tumor, or other structural abnormalities within the brain that could account for the patient's clinical presentation.

Laboratory investigations, including a complete blood count (CBC), metabolic panel, and thyroid function tests, were all within normal limits. These results suggest no abnormalities in hematologic, electrolyte, or metabolic parameters and indicate normal thyroid function, ruling out potential systemic causes for the patient's symptoms, such as anemia, electrolyte imbalances, or thyroid dysfunction.

Clinical impression, based on the patient's clinical presentation—including the symptoms of vertigo, positive vestibular function testing, and negative brain imaging—a diagnosis of vestibular neuritis was established. The positive head impulse test on the left side and the patient's increased dizziness with head movements and positional changes support this diagnosis.

Medical management

The patient was initiated on the following treatment regimen:

Tab. stemetil (prochlorperazine): An antiemetic and antipsychotic medication used to control nausea and dizziness associated with vestibular disorders.

Tab. betasec (betahistine): A vasodilator used to improve blood flow to the inner ear, helping to alleviate symptoms of vertigo associated with vestibular conditions.

Tab. norgesic (orphenadrine): A muscle relaxant that can help alleviate muscle tension and discomfort, commonly used to manage symptoms of dizziness and imbalance.

Tab. neurontin (gabapentin): An anticonvulsant and nerve pain medication, which may help reduce neuralgia or nerve-related discomfort associated with vestibular dysfunction.

The treatment was aimed at symptom relief rather than directly targeting the underlying cause. At the two-week follow-up, the patient reported significant symptom reduction: No further palpitations, resolution of the head-

ache, and only mild dizziness with rapid head movements. However, since vestibular neuritis is a self-limiting condition, the improvement may have occurred independently of treatment, and causality cannot be confirmed.

Discussion

This case highlights an atypical presentation of vestibular neuritis, marked by the absence of preceding respiratory symptoms and the unusual association of dizziness with palpitations. Additionally, the left-sided headache radiating to the right clavicle may suggest concurrent cervical involvement, which can coexist with vestibular symptoms and complicate diagnosis [9].

The patient's history of prior episodes of dizziness without palpitations raises the possibility of a recurrent vestibular disorder, potentially exacerbated by stress or physical triggers. This recurrent pattern suggests an underlying vulnerability in the vestibular system, which may be further aggravated by external factors.

Furthermore, the relationship between vestibular disorders and autonomic symptoms, such as palpitations, is crucial to recognize. The presence of palpitations in conjunction with dizziness can add complexity to the clinical presentation, potentially leading to misinterpretation of the underlying cause [10] non-specific presenting complaint in primary healthcare and emergency departments. Palpitations are mostly a symptom of benign underlying disease but a sign of life-threatening conditions. Importantly, palpitations are a symptom and not a diagnosis, and cardiac causes are the most concerning aetiology. Clinicians should seek to identify the underlying cause. History and physical examination are important in the assessment of patients with palpitations, and the use of a 12-lead electrographic (ECG). A thorough understanding of this link is essential, as it can influence management decisions and treatment approaches, ensuring that both vestibular and autonomic symptoms are appropriately addressed.

The diagnosis of vestibular neuritis was based on clinical presentation, acute vertigo without hearing loss, positive head impulse test, and exclusion of central causes via imaging. However, due to the lack of viral serology, caloric testing, vestibular evoked myogenic potentials (VEMPs), or long-term cardiac monitoring (e.g. Holter ECG), alternative or concurrent diagnoses, such as vestibular migraine or transient arrhythmia, cannot be fully excluded.

Conclusion

Vestibular neuritis can present with a wide range of symptoms, and atypical presentations highlight the importance of a comprehensive clinical evaluation and careful differential diagnosis. Accurately identifying the condition is essential, as prompt and effective management can lead to significant symptom relief and substantial improvements in the patient's quality of life. However, due to the variability in clinical manifestations, further research is needed to explore the mechanisms behind these unusual presentations and to evaluate the effectiveness of various treatment approaches in managing this disorder. Such studies could help refine diagnostic and therapeutic strategies, ultimately leading to better patient outcomes.

Ethical Considerations

Compliance with ethical guidelines

This study was approved, and verbal consent was given by the patients, who are also the principal authors of this case study. Written informed consent was obtained from the patient for the publication of the details of their medical case and any accompanying images. Ethical approval is not required for this study in accordance with local guidelines.

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Authors contributions

Conceptualization and study design: Kaleiwani Nadason; Writing the original draft: Kogila Supramanian; Validation: Komathi Karupanan; Review and editing: Santhini Devi Venoo.

Conflict of interest

The authors declared no conflict of interest.

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