

Unresolved and Misdiagnosed of Floating Sensation in a Young Man: A Case Study

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Abstract

Persistent Postural-Perceptual Dizziness (PPPD) stands out as a prevalent peripheral vestibular disorder, earning its recognition in the International Classification of Vestibular Disorders in 2017. Characterized by chronicity, this condition manifests symptoms persisting for more than three months, encompassing a disconcerting array such as a floating sensation, unsteadiness, and dizziness. Notably, individuals afflicted with PPPD often report symptom exacerbation following prolonged standing, self-initiated motion, or exposure to dynamic visual stimuli. This case study spotlights a 22-year-old Chinese man who presented with a three-month history of a persistent floating sensation coupled with a six-month struggle against imbalance. Despite seeking medical attention in multiple healthcare centres, his condition failed to ameliorate. An initial Magnetic resonance imaging (MRI) scan of the brain returned normal results, perplexing healthcare providers about the etiology of his symptoms. The patient's ultimate diagnosis of PPPD sheds light on the complexity of vestibular disorders. PPPD can manifest in isolation or coexist with other conditions, confounding both patients and clinicians alike. The precise pathophysiologic mechanisms triggering PPPD remain elusive, underscoring the intricate nature of the disorder. In a positive turn of events, the case took a favorable trajectory with the implementation of balance rehabilitation. After undergoing three sessions of targeted intervention, the patient experienced a remarkable 70% improvement in his condition. This underscores the importance of tailored therapeutic approaches for PPPD, potentially offering a ray of hope for those grappling with its debilitating symptoms. This case not only highlights the clinical nuances associated with PPPD but also emphasizes the importance of a multidisciplinary approach in managing such conditions. As our understanding of vestibular disorders evolves, personalized and effective interventions, as exemplified in this case, become pivotal in enhancing the quality of life for individuals navigating the challenges posed by PPPD.

Keywords: PPPD, Vestibular Disorders, Pathophysiologic mechanisms, Balance rehabilitation, Therapeutic approaches.

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INTRODUCTION

Persistent Perceptual Postural Dizziness (PPPD) is a chronic disorder of the nervous system characterized by persistent symptoms such as dizziness, unsteadiness, and non-spinning vertigo [1]. This condition represents a long-term maladaptation to various neuro-ontological, medical, or psychological events that initially caused vestibular symptoms. It is essential to consider PPPD within the broader spectrum of functional neurological illnesses [2]. Individuals with PPPD often experience symptoms for most of the day or most days of the week. Diagnosis involves observing behaviours such as walking straight, standing up, and visual impulses.

Typically afflicting individuals between the ages of 30 to 50 years old, PPPD can significantly impact daily life and influence personal and social well-being [3]. Research has identified four precursors to PPPD: phobic postural vertigo (PPV), space-motion discomfort (SMD), visual vertigo (VV), and chronic subjective dizziness (CSD). These precursor disorders exhibit clinical characteristics that form the basis for PPPD diagnostic criteria [4]. The pervasive nature of PPPD underscores its profound effects on individuals, not only disrupting their daily routines but also shaping their emotional and social experiences. As a chronic condition, PPPD necessitates a comprehensive understanding of its origins and symptoms to develop effective interventions and support for those affected. The recognition of PPPD's broader neurological context allows for a more holistic approach to diagnosis and treatment, emphasizing the intricate interplay between physiological, medical, and psychological factors. Persistent Perceptual Postural Dizziness (PPPD) has undergone a fascinating evolution in both its understanding and nomenclature since it was initially defined as Phobic Postural Vertigo (PPV) by Brandt and Dieterich in the 1980s [5]. This term was coined based on their clinical diagnoses, which revealed patients experiencing symptoms such as postural dizziness and a sense of unsteadiness accompanied by minor anxiety and depression [6]. The clinical characteristics of PPV set it apart from other vestibular disorders and psychiatric conditions, as researchers, including Brandt, Dieterich, and their contemporaries, highlighted its persistent nature [7]. Over the years, the condition underwent further scrutiny, leading to the adoption of the name Chronic Subjective Dizziness (CSD) in the early 2000s to better encapsulate the clinical manifestations associated with PPV [8]. CSD served as a bridge in nomenclature, providing a term that conveyed the chronic nature of the disorder along with the subjective experiences reported by patients. It continued to encompass the core elements of postural dizziness, unsteadiness, and the psychological components of anxiety and depression that characterized the condition. Researchers delved deeper into the neurobiological aspects of CSD, attempting to unravel the complex interplay between vestibular dysfunction and the perceptual and postural components of the disorder [9]. In 2017, a significant milestone was reached when the International Classification of Vestibular Disorders (ICVD) renamed this chronic disorder as Persistent Perceptual Postural Dizziness (PPPD) [10]. This reclassification aimed to provide a more comprehensive and precise description of the condition, reflecting the nuanced understanding gained over the years. The inclusion of PPPD in the World Health Organization's (WHO) new disease classification further solidified its standing as a distinct and recognized medical entity. This acknowledgment by a global health authority underscored the significance of PPPD as a legitimate health concern, deserving attention and research efforts. The diagnostic criteria for PPPD encompass a range of symptoms, including chronic dizziness, unsteadiness, and heightened sensitivity to self-motion or motion in the environment. The psychological dimension, often marked by anxiety and depression, remains integral to the diagnosis, emphasizing the intricate connection between the vestibular system and mental health. Ongoing research continues to delve into the underlying mechanisms of PPPD, exploring neurobiological pathways, potential genetic predispositions, and effective treatment modalities. The evolving understanding of this disorder has prompted a shift from merely symptom management to targeted interventions addressing the multifaceted nature of PPPD. In conclusion, the journey from Phobic Postural Vertigo to Chronic Subjective Dizziness and ultimately to Persistent Perceptual Postural Dizziness reflects the dynamic nature of medical science. This evolution is not merely linguistic but mirrors the deepening comprehension of the disorder's intricacies. The recognition of PPPD by international health organizations signifies a crucial step forward in elevating awareness, facilitating accurate diagnoses, and fostering ongoing research endeavours aimed at unravelling the complexities of this persistent and challenging condition.

Although the root of the illness is unknown, it is believed to be brought on by a disruption of the visual and postural control systems [11]. Patients most frequently get PPPD after experiencing an insult or damage to the balance system (such as vestibular migraine and vestibular neuritis), a medical problem (such as a severe episode of low blood pressure causing dizziness) or trauma (both physical and psychological). PPPD is frequently observed in patients with severe anxiety, neuroticism,

depression, and excessive body vigilance as psychological conditions could be one of the factors of this disorder. Staab et al mentions that PPPD is grouped as vestibular disorder although it is associated with psychological condition such as anxiety, depression, and migraine.

The diagnosis of Persistent Postural-Perceptual Dizziness involves a thorough examination of the patient's medical history, focusing on symptoms such as unsteadiness, non-spinning vertigo, and light-headedness [12]. Typically, individuals with PPPD recount experiences of episodic unsteadiness or non-spinning vertigo. To ensure accurate evaluation, a comprehensive approach is employed, including physical examination, vestibular assessment, and neuroimaging. This aids in determining the presence or absence of PPPD and ruling out other potential causes like vestibular injuries, autonomic disorders, head injuries, or cardiac problems. Further examinations are crucial to establish a precise diagnosis and guide appropriate treatment strategies for individuals affected by PPPD.

CASE REPORT

A 22-year-old Chinese man sought medical attention due to a persistent floating sensation that had been bothering him for three months, accompanied by an imbalance lasting six months. Despite undergoing an MRI that showed no abnormalities in the brain, his symptoms persisted, prompting visits to multiple healthcare centers without significant improvement. Finally, he received a diagnosis of Persistent Postural-Perceptual Dizziness (PPPD). Subsequently, the patient underwent three sessions of balance rehabilitation, resulting in a remarkable 70% improvement in his condition. This case highlights the challenges in diagnosing and treating subjective and complex vestibular disorders like PPPD. The positive response to balance rehabilitation underscores the importance of tailored interventions for such conditions, offering hope for individuals grappling with persistent and enigmatic symptoms.



Figure 1. Bal Ex Foam test.

To evaluate the postural control pre and post therapy we used Bal Ex Foam test (Figure 1). This Bal Ex test has a structured scoring foam that is divided into six sections (Table 1).

Table 1. Bal Ex Scoring Foam.

Level	Description	Pre Bal ex session	Post Pre Bal ex session
1	Stand on the floor with arms across your chest and feet together and hold for 30 seconds (opened eyes)	Normal	Normal
2	Stand on the floor with arms across your chest and feet together and hold together and hold for 30 seconds (closed eyes)	Normal	Normal
3	Stand on the floor with arms across your chest, toe touching the other side of heel and hold for 30 seconds (opened eyes)	Normal	Normal
4	Stand on the floor with arms across your chest, toe touching the other side of heel and hold for 30 seconds (closed eyes)	< 7 seconds	Normal
5	Stand on a 3-inch-high density foam cushion with your arms crossed, feet together and hold for 30 seconds (opened eyes)	Normal	Normal

6	Stand on a 3-inch-high density foam cushion with your arms crossed, feet together and hold for 30 seconds (closed eyes)	< 9 seconds	Normal
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DISCUSSION AND CONCLUSION

The sensation of floating is a prevalent symptom in Persistent Postural-Perceptual Dizziness (PPPD), a condition that, if left untreated, can persist over an extended period. Individuals afflicted by PPPD often endure prolonged bouts of dizziness, characterized by sensations of unsteadiness, non-spinning vertigo, and light-headedness. Unfortunately, misdiagnosis by clinicians is a common occurrence, prolonging the suffering of patients. Accurate diagnosis of PPPD necessitates a thorough examination, including a detailed medical history and specific investigations. The complexity of this condition underscores the importance of healthcare professionals possessing both knowledge and experience in its identification. This case underscores the critical role of correct diagnosis and appropriate treatment in the management of PPPD. Armed with the right information and expertise, clinicians can offer interventions that not only alleviate symptoms but also enhance the overall quality of life for patients. Recognizing the nuanced nature of PPPD and tailoring interventions accordingly can be transformative, leading to improved outcomes and a restoration of well-being for individuals grappling with this often-debilitating condition.

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