

# Letters

## OBSERVATION

### Benign Paroxysmal Positional Vertigo After Use of Handheld Massage Gun

Recent clinical observations suggest a potential connection between benign paroxysmal positional vertigo (BPPV) and handheld percussive massage guns. BPPV is the most common form of peripheral vertigo, with a prevalence of 3.2%.<sup>1</sup> Traditionally, BPPV is characterized by the displacement of otoconia within the semicircular canals of the inner ear. This phenomenon culminates in vertigo triggered by head movement. Although head trauma is a known risk factor for BPPV,<sup>2</sup> the effects of less severe vibrational injuries are underreported. Studies have shown BPPV to be associated with vibrational exposure stemming from various activities and tools, such as using electric toothbrushes, undergoing dental procedures, and engaging in intense exercise.<sup>3-5</sup>

Recently popularized handheld percussive massage guns, which apply force more intensively than traditional devices, are widely available and have raised safety concerns. These massage guns have been associated with rhabdomyolysis and vertebral artery dissection.<sup>6</sup> However, there is a lack of literature on the specific relationship between BPPV and the use of handheld massage guns.

**Report of 2 Cases |** A 31-year-old healthy woman sought medical attention for a sudden episode of vertigo. Physical examination revealed right-sided BPPV, and treatment was performed. After further questioning, she disclosed a daily engagement with a handheld percussive massage gun used on the neck and shoulders 12 hours before symptom onset.

A 48-year-old woman with recurrent BPPV had a history of multiple standard treatments that initially provided temporary relief. BPPV symptoms recurred continuously until her fourth clinical visit when a thorough reevaluation revealed regular use of a massage gun near the upper neck and occiput. Cessation of massage device use was associated with the end of recurrences.

Medical history of both patients included a comprehensive vestibular assessment, including gait, Romberg, Fukuda, nystagmus, fistula, head-shaking, and finger-to-nose tests. In both patients, the Dix-Hallpike maneuver elicited positive nystagmus, confirming a diagnosis of BPPV. Both patients experienced marked symptomatic relief following repositioning maneuvers. After intervention and cessation of massage gun use, there was no recurrence of symptoms.

**Discussion |** Associations between BPPV and handheld massage guns remain unexplored in existing literature. The substantial force applied by these devices warrants attention for potential vestibular effects. Accurate measurement of this force, specifically in force per cm<sup>2</sup>, is crucial for evaluating its impact on the user. Handheld massage guns are advertised to deliver 14 to 32 kgs of no-stall force with up to 5000 strokes per minute and an amplitude of up to 16 mm, distinguishing these from other mas-

sage devices in both force delivery and design. The application of this force to the head and shoulders may potentially dislodge otoliths within the inner ear, thereby precipitating the onset of BPPV in susceptible individuals.

BPPV is more frequent in older individuals, likely due to age-related deterioration.<sup>1</sup> However, these 2 cases show a notable presence of BPPV in relatively younger patients, challenging typical age-related expectations, and highlighting the potency of the powerful vibration inflicted by massage guns. Clinicians should diligently document patient history regarding massage device use, particularly in those with recurrent BPPV, to identify potential associations. It is essential that a comprehensive examination and history taking include inquiries into other lifestyle factors that may be implicated in the causes of BPPV, particularly in recurrent cases as described.

This observational report emphasizes the importance of considering the use of percussive massage guns during the evaluation of potential BPPV diagnoses. BPPV can substantially affect quality of life, and judicious use of percussive massage devices may reduce its recurrence. Timely recognition and treatment of BPPV induced by massage guns can prevent treatment delays. Although these findings are preliminary, they align with previous research<sup>3-5</sup> indicating an association between vibrational exposure and BPPV. Given this context, manufacturers should issue generalized warnings on vertigo risks associated with these devices, especially when used near the head and upper neck.

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