

# Acute Diagnosis and Management of Stroke Presenting Dizziness or Vertigo



Seung-Han Lee, MD, PhD<sup>a</sup>, Ji-Soo Kim, MD, PhD<sup>b,\*</sup>

## KEYWORDS

• Stroke • Vertigo • Nystagmus • Head impulse test • Cerebellum • Brainstem

## KEY POINTS

- Stroke is an important cause of acute dizziness/vertigo in the emergency department.
- Small stroke involving the cerebellum and brainstem may cause acute vestibular syndrome in isolation.
- Findings of bedside neuro-otologic examinations including direction-changing nystagmus and negative head impulse test are useful for differentiating stroke from a more benign inner ear disorder.
- Neuroimaging studies, including diffusion MRI, may fail to disclose small strokes in the posterior fossa, especially during the acute stage.



Video of head impulse tests accompanies this article at <http://www.neurologic.theclinics.com/>

## CASE (WALLENBERG SYNDROME)

A 55-year-old man with hypertension presented with acute vertigo and unsteadiness for 2 days. He reported a sensation of spinning and being pushed rightward to the ground. He also had nausea and blurred vision, but denied hearing loss or tinnitus.

The blood pressure measured 160/100 mm Hg. He showed spontaneous left-beating nystagmus that increased with removal of visual fixation and during leftward gaze, and changed into right-beating nystagmus during rightward gaze. After horizontal head shaking for about 15 seconds, the nystagmus changed into right-beating nystagmus. Saccades were hypermetric

<sup>a</sup> Department of Neurology, Chonnam National University Medical School, Gwangju, Korea;

<sup>b</sup> Department of Neurology, Seoul National University Bundang Hospital, Seoul National University College Medicine, Seoul, Korea

\* Corresponding author. Department of Neurology, Seoul National University Bundang Hospital, Seoul National University College of Medicine, 173-82 Gumi-ro, Bundang-gu, Seongnam-si, Gyeonggi-do 463-707, Korea.

E-mail address: [jisookim@snu.ac.kr](mailto:jisookim@snu.ac.kr)

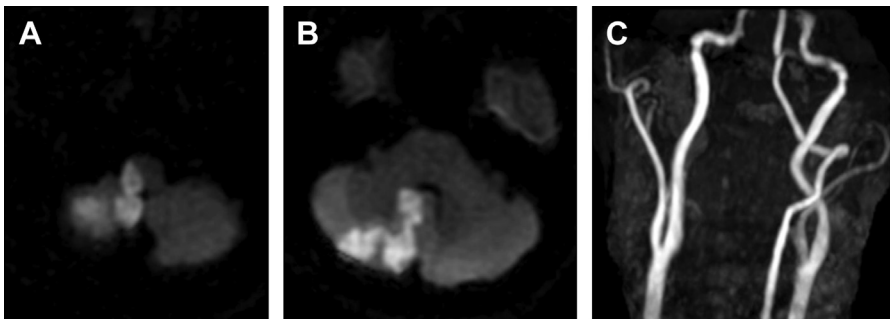
to the right and hypometric to the left, which was consistent with rightward saccadic lateropulsion. Leftward smooth pursuit was impaired. Head impulse tests (HITs) were normal (Video 1). The gag reflex was diminished. He also showed right Horner syndrome, and diminished pain and temperature sensation on the right side of the face and left side of the body. Right upper extremity was dysmetric on finger-to-nose testing. He fell to the right on standing.

The clinical features were consistent with acute prolonged vertigo syndrome. Given the Horner syndrome, direction-changing gaze-evoked nystagmus (GEN), central-type head-shaking nystagmus (HSN), normal HITs, crossed sensory loss, and severe imbalance, he had a clinical diagnosis of Wallenberg syndrome, and MRIs confirmed an acute infarction in the territory of right posterior inferior cerebellar artery (PICA) involving the right lateral medulla and inferior cerebellum (Fig. 1).

## PREVALENCE AND PATHOMECHANISM

Strokes may present as acute dizziness/vertigo.<sup>1</sup> Vascular vertigo mostly presents as acute (AVS, acute prolonged dizziness) or episodic (EVS, spontaneous recurrent dizziness) vestibular syndrome, and rarely positional vestibular syndrome (recurrent positional dizziness). Approximately 20% of ischemic strokes occur in the territory of the posterior (vertebrobasilar) circulation, and dizziness/vertigo is the most common symptom of vertebrobasilar ischemia.<sup>2</sup> Even though it has been a medical adage that isolated dizziness/vertigo is rare, if any, in central lesions including strokes,<sup>2</sup> inferior cerebellar and small brainstem infarctions have been increasingly recognized as a cause of isolated vertigo with improvements in clinical neurotology and neuroimaging.<sup>3</sup>

It is important to differentiate isolated vertigo of a vascular cause from more benign disorders involving the inner ear, as managements and prognosis differ between those conditions.<sup>4,5</sup> Misdiagnosis of acute stroke can result in significant morbidity and mortality, whereas overdiagnosis of vascular vertigo leads to unnecessary workups and medication.<sup>4</sup> Stroke is a small (3.2%) proportion of all dizziness presentations to the emergency department (ED).<sup>6</sup> However, ED patients with dizziness/vertigo had a twofold higher risk of stroke or cardiovascular events than those without during a follow-up of 3 years.<sup>7</sup> Furthermore, those who had been hospitalized with isolated vertigo had a threefold higher risk for stroke than the general population during the 4-year follow-up.<sup>8</sup> Particularly, the patients with 3 or more risk factors had a 5.5-fold higher risk for stroke than those without risk factors.<sup>8</sup>



**Fig. 1.** Brain MRI and MR angiography of the case. Axial diffusion-weighted images (A, B) show acute infarctions involving the lateral medulla, and infero-medial cerebellum including the nodulus and tonsil on the right side. The right vertebral artery is not visualized on MR angiography (C).

Download English Version:

<https://daneshyari.com/en/article/3078019>

Download Persian Version:

<https://daneshyari.com/article/3078019>

[Daneshyari.com](https://daneshyari.com)