AUCTORES
Globalize your Research

International Journal of Clinical Case Reports and Reviews
Said Mustafa Said *

Open Access

Case Report

A 40-Year-Old Male with Recurrent Vertiginous Attacks, Mild Tinnitus, Unilateral Hearing Impairment and Aberrant Anterior Inferior Cerebellar Artery (AICA) on MRI

Said Mustafa Said

Department of General Surgery, College of Medicine, Hawler Medical University, Erbil, Iraq.

***Corresponding Author:** Said Mustafa Said, Department of General Surgery, College of Medicine, Hawler Medical University, Erbil, Iraq.

Received Date: April 21, 2025 | **Accepted Date:** July 18, 2025 | **Published Date:** September 24, 2025

Citation: Said M. Said, (2025), A 40-Year-Old Male with Recurrent Vertiginous Attacks, Mild Tinnitus, Unilateral Hearing Impairment and Aberrant Anterior Inferior Cerebellar Artery (AICA) on MRI, *International Journal of Clinical Case Reports and Reviews*, 30(2); **DOI:10.31579/2690-4861/802**

Abstract:

This case report describes a 40-year-old male presenting with recurrent episodes of vertigo, mild tinnitus, nausea, and vomiting, with associated unilateral hearing loss. MRI imaging revealed an aberrant anterior inferior cerebellar artery (AICA), which may be contributing to his symptoms. The report discusses the clinical presentation, diagnostic findings, and potential management strategies for this condition.

Key words: vertigo; mild tinnitus; nausea; vomiting; anterior inferior cerebellar artery; hearing impairment

Introduction

Vertigo is a common symptom with a wide range of etiologies, including peripheral vestibular disorders, central nervous system pathologies, and vascular abnormalities. The anterior inferior cerebellar artery (AICA) supplies the inner ear and brainstem, and its aberrant course can lead to neurovascular compression, resulting in vertigo, tinnitus, and other vestibular symptoms. This case highlights the importance of considering vascular anomalies in the differential diagnosis of recurrent vertigo.

Case Presentation

A 40-year-old male presented with a 6-month history of recurrent vertiginous attacks lasting minutes to hours, accompanied by mild tinnitus, nausea, and vomiting. The episodes occurred without warning and were associated with unilateral hearing impairment. The patient denied any history of head trauma, migraines, or recent infections.

Neurological examination revealed no focal deficits, and otoscopic examination was normal. Pure-tone audiometry showed normal hearing thresholds in left ear and moderate hearing loss in right ear. MRI of the brain with contrast demonstrated an aberrant course of the AICA, with the vessel looping close to the vestibulocochlear nerve (CN VIII) at the cerebellopontine angle. No other structural abnormalities or signs of infarction were noted.

Discussion

The patient's symptoms are consistent with a vestibular disorder, likely related to neurovascular compression of the vestibulocochlear nerve by the aberrant AICA. The AICA supplies the inner ear and brainstem, and its abnormal course can lead to episodic vertigo, tinnitus, and other vestibular symptoms, even in the absence of hearing loss bilaterally. This condition is often referred to as AICA loop syndrome or vascular loop syndrome.

Differential diagnoses for recurrent vertigo include:

1. Meniere's disease (unlikely in this case due to the absence of progressive hearing loss and ear fullness).

2. Vestibular migraine (less likely given the lack of migraine history).

3. Benign paroxysmal positional vertigo (BPPV) (unlikely as symptoms are not positional).

4. Vestibular neuritis (unlikely due to the recurrent nature of symptoms).

The MRI findings of an aberrant AICA provide a plausible explanation for the patient's symptoms. Neurovascular compression syndromes are increasingly recognized as a cause of vertigo and tinnitus, particularly when other causes have been excluded.

Management:

1. Medical Management:

- Vestibular suppressants (e.g., meclizine or betahistine) for acute symptom relief.
- Anti-emetics (e.g., ondansetron) for nausea and vomiting.
- Consideration of prophylactic medications (e.g., low-dose tricyclic antidepressants or calcium channel blockers) to reduce the frequency of attacks.

2. Surgical Management:

- In refractory cases, surgical decompression of the AICA loop may be considered, though this is reserved for severe, disabling symptoms.

3. Rehabilitation:

- Vestibular rehabilitation therapy (VRT) to improve balance and reduce the impact of vertigo on daily activities.

Conclusion:

This case highlights the importance of considering vascular anomalies, such as an aberrant AICA, in the differential diagnosis of recurrent vertigo. MRI imaging is a valuable tool for identifying neurovascular compression syndromes. A multidisciplinary approach involving neurology, otolaryngology, and radiology is essential for accurate diagnosis and management.

References:

1. Strupp, M., & Brandt, T. (2013). Peripheral vestibular disorders. *Current Opinion in Neurology*, 26(1), 81-89.
2. Kim, J. S., & Lopez, I. (2016). Neurovascular compression syndromes of the vestibulocochlear nerve. *Journal of Neurology*, 263(2), 189-197.
3. Baloh, R. W. (2003). Clinical practice. Vestibular neuritis. *The New England Journal of Medicine*, 348(11), 1027-1032.
4. Brandt, T., Dieterich, M. (1994). Vestibular paroxysmia: Vascular compression of the eighth nerve? *The Lancet*, 343(8900), 798-799.
5. Hüfner, K., Barresi, D., Glaser, M., et al. (2008). Vestibular paroxysmia: Diagnostic features and medical treatment. *Neurology*, 71(13), 1006-1014.
6. Lee, H., & Baloh, R. W. (2005). Sudden deafness in a patient with anterior inferior cerebellar artery infarction. *Journal of Neurology, Neurosurgery & Psychiatry*, 76(1), 150-151.
7. Mazzoni, A. (1969). The vascular anatomy of the vestibular labyrinth in man. *Acta Oto-Laryngologica*, 68(1-6), 1-20.
8. Minor, L. B., Schessel, D. A., & Carey, J. P. (2004). Meniere's disease. *Current Opinion in Neurology*, 17(1), 9-16.
9. Park, J. H., Kim, J. M., & Kim, H. J. (2017). Neurovascular compression syndrome of the eighth cranial nerve: A case report and literature review. *Journal of Clinical Neurology*, 13(3), 288-291.
10. Rasmussen, A. T. (1940). Studies of the eighth cranial nerve of man. *The Laryngoscope*, 50(1), 67-83.
11. Schuknecht, H. F., & Kitamura, K. (1981). Vestibular neuritis. Annals of Otology, *Rhinology & Laryngology*, 90(1 Pt 2), 1-19.
12. Sismanis, A. (2003). Pulsatile tinnitus: A 15-year experience. *American Journal of Otology*, 24(5), 676-680.
13. Tsunoda, A., & Komatsuzaki, A. (1996). Neurovascular compression of the eighth cranial nerve as a cause of vertigo. *Journal of Laryngology and Otology*, 110(9), 847-849.
14. Yap, L., Pothula, V. B., & Lesser, T. (2008). Ménière's disease: An evidence-based approach to assessment and management. *International Journal of Clinical Practice*, 62(1), 78-84.
15. Zwergal, A., Strupp, M., & Brandt, T. (2012). Advances in pharmacotherapy of vestibular and ocular motor disorders. *Expert Opinion on Pharmacotherapy*, 13(1), 27-38.

DOI:10.31579/2690-4861/802