

Trigeminal neuralgia secondary to medulla oblongata compression by vertebrobasilar dolichoectasia

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Abstract

Background. Trigeminal neuralgia secondary to medulla oblongata compression by dolichoectasia of the vertebral artery is rare. Case report. A 60-year-old patient with trigeminal neuralgia secondary to medulla oblongata compression by a dolichoectatic vertebral artery is presented. There was a remarkable improvement in the pain after treatment with Gabapentine. Conclusions. Direct involvement of the nerve is the usual mechanism of trigeminal neuralgia. However, medulla oblongata compression might be an important non-recognized mechanism in cases with vertebral dolichoectasia.

Keywords: Trigeminal neuralgia; Medulla oblongata; Dolichoectasia; Vertebrobasilar; CT scan

1. Dear Editor

Vertebrobasilar dolichoectasia is an uncommon vasculopathy of unclear etiology which affects the arterial wall of vertebral and/or basilar arteries.¹

Patients with lesions in the dorsolateral medulla oblongata can develop facial pain². However, to our knowledge, trigeminal neuralgia secondary to medulla oblongata compression by a dolichoectasia of the vertebral artery had not been reported previously.

2. Case report

A 60-year-old male patient presented with a 2-year-history of severe lancinating pain in the distribution of the left second and third division of the trigeminal nerve. The pain came in sudden bursts that recurred many times during the day. Symptoms were exacerbated by talking, chewing, and shaving. The examination did not reveal any focal neurological deficit or sensory loss in the trigeminal nerve distribution, and the corneal reflex was normal.

MRI was requested to identify a vascular loop or any other condition affecting the trigeminal nerve; however, the investigation revealed a notch of the left aspect of the medulla oblongata by an ectatic vertebral artery (Figure 1).

MRI excluded trigeminal nerve compression, so involvement of the sensory tracts in the medulla oblongata was the most plausible explanation for the pain.

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Based on reports referring to the improvement of facial pain in Wallenberg Syndrome with medications for neuropathic pain, like Gabapentine. The patient progressively increased the dose of Gabapentine up to reaching a maintenance dose of 1200 mg/day, to which the patient responded.

The patient has been free of pain with Gabapentine for six months. Hence, the dose was reduced to 300 mg/day, and he is still taking this medication.

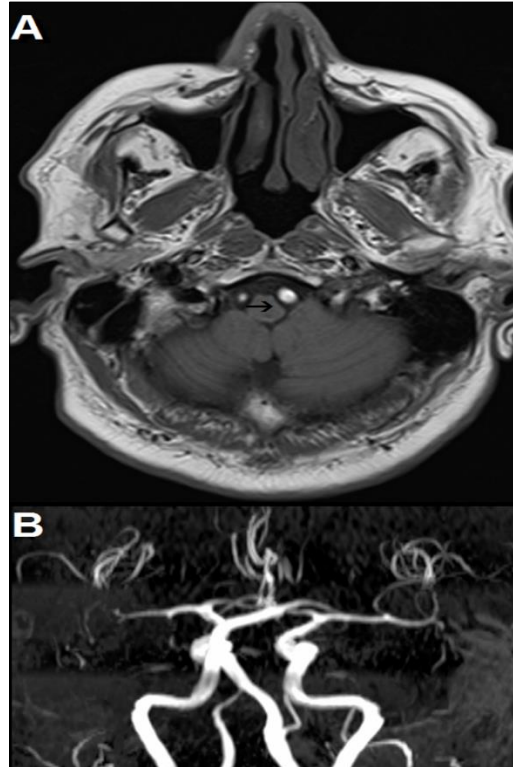


Figure 1 (A) MRI axial sections show impingement of the left side of the anterolateral medulla caused by a dolichoectatic left vertebral artery (arrow) (B) MR arteriogram, demonstrating a dolichoectatic left Vertebral Artery

3. Discussion

Ectatic or pathologically enlarged vertebrobasilar arteries have been reported with increasing frequency and are associated with several clinical syndromes. These include cranial nerve syndromes, transient or permanent motor deficit, cerebellar dysfunction, central sleep apnea, ischemic stroke, and hydrocephalus.^{1,3-5}

Direct nerve compression is the usual mechanism of trigeminal neuralgia in vertebrobasilar dolichoectasia^{6,7}. However, medulla oblongata compression might be an important non-recognized mechanism. Magnetic resonance imaging offered a good visualization of the brainstem, cranial nerves, and cerebral vessels, permitting the determination of the site of compression.

Patients with lesions in the dorsolateral medulla oblongata frequently develop pain in the ipsilateral face. The pain is generally chronic and has a superficial localization and a burning, stinging character, frequently associated with thermal sensation.⁸ The causal factor identified in an MRI-mapping study by Fitzek et al. was a lesion at the oral and interpolar trigeminal nuclei level.⁸

There is still uncertainty in the optimal treatment of Vertebrobasilar dolichoectasia since there has been no systematic review or long-term results from the different surgical interventions, including microvascular decompression.⁵

We found a favorable response from our patient to Gabapentine. In other patients with chronic facial pain after Wallenberg's syndrome, therapy with amitriptyline, lamotrigine, and Gabapentin has also been effective.⁸

Learning Points

- Direct nerve compression is the usual mechanism of trigeminal neuralgia. However, medulla oblongata compression might be an important non-recognized mechanism in patients with vertebral dolichoectasia.
- Magnetic resonance imaging is an essential investigation to establish the site of involvement of pain pathways in trigeminal neuralgia.

The facial pain secondary to medulla oblongata compression by the dolichoectatic artery might improve with Gabapentin.

4. Conclusion

Vertebrobasilar dolichoectasia is an uncommon vasculopathy affecting the arterial wall of vertebral and/or basilar arteries. Nonetheless, this case report demonstrates that this etiology should be considered in patients complaining of trigeminal neuralgia. To our knowledge, this is the first report of trigeminal neuralgia secondary to medulla oblongata compression by a dolichoectasia of the vertebral artery.

Compliance with ethical standards

Disclosure of conflict of interest

The Authors declare no conflicts of interest.

Statement of ethical approval

The Ethical Committee approved this study of the Institute of Neurology and Neurosurgery, Havana, Cuba.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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Authors short biography



Calixto Machado, MD, Ph.D., is a Full Professor and Researcher in neurology and clinical neurophysiology and currently works at the Institute of Neurology and Neurosurgery, Havana, Cuba. In 1992, he was the first Cuban neurologist who was a member of the American Academy of Neurology (AAN), nominated as a Corresponding Fellow. He is President of the Cuban Society of Clinical Neurophysiology and the President of the Organizing Committee of eight International Symposia on Brain Death and Disorders of Consciousness held in Havana since the early '90s. Dr. Machado is recognized as a world expert in brain death, coma, disorders of consciousness, neuroimaging, clinical neurophysiology, stroke, and recently on the way, SARS-CoV-2 attacks the nervous system. He has bestowed by many national and international Awards. In 2005 Dr. Machado received the AAN Lawrence McHenry Award. He was the main neurological expert in the Jahi McMath case, one of the most controversial suspected brain-dead patients, fully covered by the US and international press.