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Case Report

Hemifacial spasm due to vertebrobasilar dolichoectasia: a case report

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ARTICLE INFO

Article history:

Received 14 July 2015

Accepted 29 August 2015

Available online 23 October 2015

Keywords:

Hemifacial spasm

Vertebrobasilar dolichoectasia

ABSTRACT

Hemifacial spasm (HFS) happens because of vascular compression of the facial nerve at the root exit zone. Vertebrobasilar dolichoectasia (VBD) is a very rare cause of HFS. VBD is diagnosed by computed tomography angiography and magnetic resonance imaging. Here, we report a case of 65-year-old female patient with HFS due to VBD. We discuss the complications and the treatment options for the case.

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Introduction

Hemifacial spasm (HFS) is characterized by involuntary irregular and recurrent tonic and clonic contractions of the muscles supplied by the facial nerve [1]. HFS is produced by compression of the ipsilateral facial nerve root exit by a vascular loop or cerebellopontine angle mass. Dolichoectasia is marked elongation, dilatation, and tortuosity of an artery; it is also referred to as dilative arteriopathy because dilatation is the most important feature [2,3].

In the current report, we describe a patient who presented with HFS due to vertebrobasilar dolichoectasia (VBD), and we discuss the treatment options of such a condition.

Case report

A 65-year-old female who presented with the complaint of twitching of the face for last 4 years. She initially started having twitching of the face on left side. Neurologic examination revealed HFS on the left side. The rest of the neurologic examination, including the right facial nerve and the remaining cranial nerves, did not reveal any abnormalities. She does not smoke or drink alcohol. She had previously received botulinum neurotoxin injection for spasm one time which provided relief of symptoms for months before recurrence.

Magnetic resonance imaging shows the flow void of dolichoectatic right vertebral artery distally forming the basilar

Competing Interests: The authors have declared that no competing interests exist.

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<http://dx.doi.org/10.1016/j.radcr.2015.08.006>

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artery which is causing compression over root entry zone of left facial nerve (Fig. 1A). The facial nerve along with vestibulocochlear nerves enters the left internal auditory canal after coursing through the cerebellopontine angle cistern. The compression by the dolichoectatic vertebrobasilar artery resulted in left HFS. Computed tomography angiogram images show dolichoectatic right vertebral artery which takes a tortuous route before joining the left vertebral artery (Fig. 1B) to form the basilar artery. The loop of right vertebral artery causes compression over left side pons at root entry zone of facial nerve. The 3-dimensional maximum intensity

projection reconstruction of computed tomography angiogram shows dolichoectatic right vertebral and basilar artery (Fig. 1D). The patient was referred to University of Pittsburgh for microvascular decompression.

Discussion

HFS is a symptom comprising involuntary, painless spasms of the muscles supplied by the facial nerve. It typically starts with spasm of the orbicularis muscle and then progresses to all facial

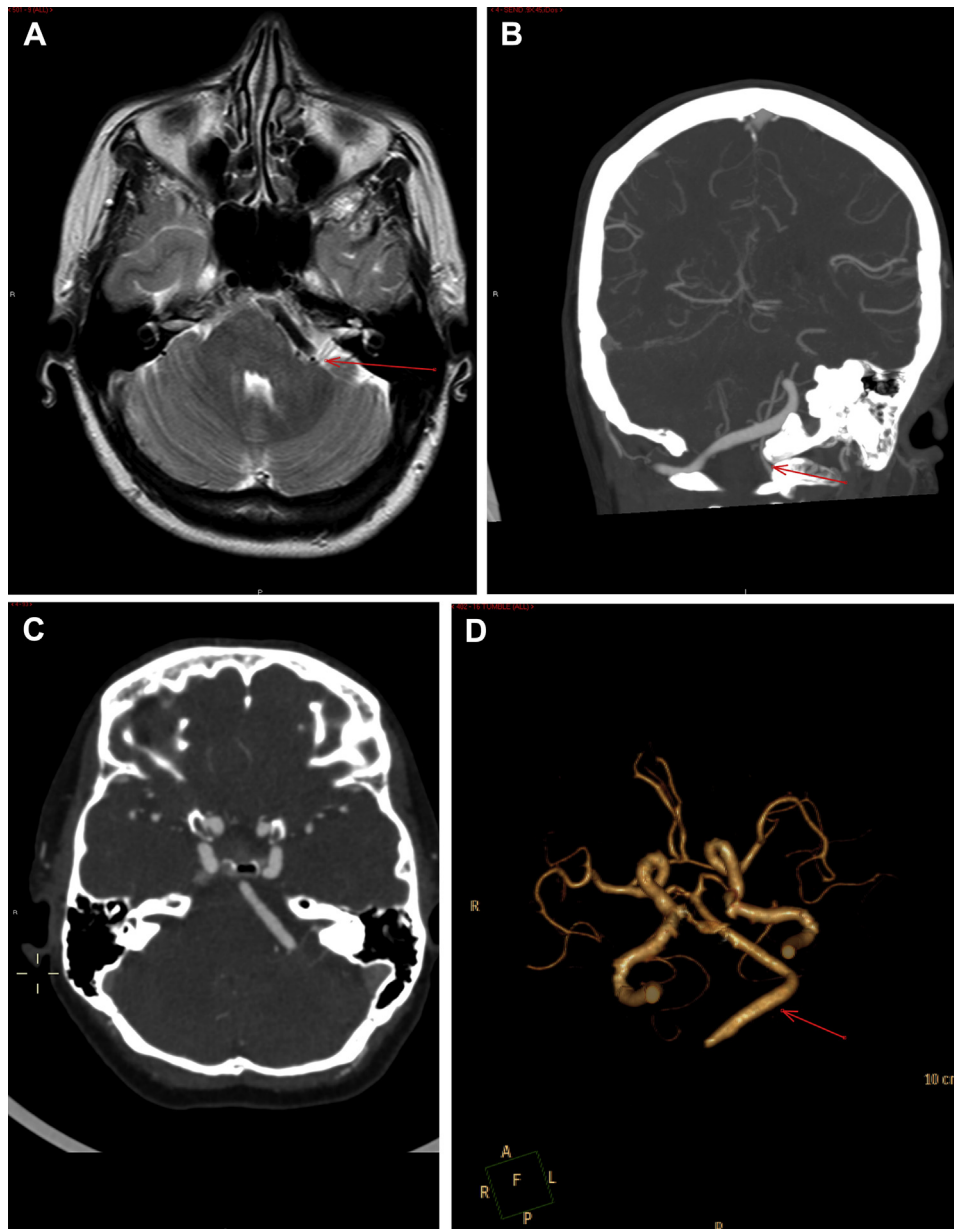


Fig. 1 – Axial (A) T2W magnetic resonance imaging image show the flow void of dolichoectatic right vertebral artery distally forming the basilar artery which is causing compression over root entry zone of left facial nerve (arrow). Coronal oblique (B) MIP images show dolichoectatic right vertebral artery B which take a tortuous route before joining the left vertebral artery (arrow in B) to form the basilar artery. Axial computed tomography angiogram (C) shows a dolichoectatic right vertebral artery which is taking a tortuous course around left side pons before forming the basilar artery which is also ectatic. A 3-dimensional MIP reconstruction of computed tomography angiogram (D) shows dolichoectatic right vertebral and basilar artery (arrow).

muscles. Its incidence in the United States is 0.5–2.4/100,000 depending on the age group [4]. The most common cause is compression of the facial nerve by tortuous blood vessels, usually involving the posterior inferior and anterior inferior cerebellar arteries [5]. Direct compression of the facial nerve by VBD is rarer, representing 0.7% of 1642 HFS cases in a recent study [6].

The most common complications of VBD are ischemic stroke (17.6%), brain stem compression (10.3%), and transient ischemic attack (10.1%) [7]. Cerebral microbleeds are more common in patients with VBD than patients without [8].

There are 2 main treatment choices of HFS because of VBD. Botulinum toxin injection is clinically successful with low incidence of adverse effects, and the treatment durations can extend to 20 years [9]. In our case, one-time Botox helped relieve the symptoms for a few months. Microvascular decompression is the definitive treatment, but it has some serious complications such as hearing impairment and facial palsy [10–12]. Microvascular decompression is effective and safe procedure for patients previously treated by botulinum toxin [13].

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