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Case Report

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Triplegia due to right vertebral artery thrombosis: anterior medullary tia or stroke? A case report

Abstract

Anterior medullary syndrome is a rare type of stroke due to theocclusion of the anterior spinal artery or vertebral artery or its branches. Here, we report the case of a 65-year old female with a clinical presentation of triplegia, caused by unilateral right proximal vertebral artery (VA) thrombosis, treated with intravenous thrombolysis in the Emergency Room. No diffusion-weighted imaging (DWI) magnetic resonance (MR) lesions were detected. Was it a transient ischemic attack (TIA) or a stroke of medullary pyramid?

Keywords: vertebral artery ischemia, anterior medullary syndromes, transient ischemic attack, posterior circulation

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Abbreviations: ASA, anterior spinal artery; PICA, posterior inferior cerebellar artery; VA, vertebral artery; DWI, diffusion-weighted imaging; MR, magnetic resonance; CT, computed tomography

Introduction

The medulla oblongata can be divided into four 4 zones according to its arterial circulation: the medianzone, whichis perfused bythe anterior spinal artery (ASA) at the level of lower medulla and the upper bulbar branches at the level of upper medulla, the paramedian zone, perfused by ASA, posterior inferior cerebellar artery (PICA) and the middle bulbar branches, the lateral zone,perfused by PICA and lower bulbar branches, and the dorsal zone,perfused byPICA and posterior spinal artery. Dissection or thrombosis of the vertebral artery (VA) may involve ASA, PICA, and multiple bulbar branches, causing infarctions in both the medial and lateral medulla, although such infarctions due to failure of the VAhave not been reported yet in detail.[1,2]

Here, we describe thecase of a 65-year old female with triplegia caused by unilateral right VA thrombosis. No diffusion-weighted imaging (DWI) magnetic resonance (MR) lesions were detected. Was it a transient ischemic attack (TIA) or a stroke of the anterior region of medulla oblongata?

Case report

We report the case of a 65-year old housewife, with risk factors for atherosclerosis, including hypertension and hyperlipidemia,who had in her history one episode of paraplegia lasting 24 hours. Six months later she came to medical attentiontothe Emergency Department for sudden development of weakness of theright leg, which resolved completely within one hour. Subsequently, she suddenly developed a triplegia (right hemiparesis and paresis of left leg, with bilateral Babinski sign, NIHSS 3). Brain computed tomography (CT) with vascular study of extra- and intracranial vessels was performed. Brain CT was normal, but the vascular study showed proximal thrombosis of right VA (Figure1). She was treated with intravenous thrombolysisafter20 minutes fromthe onsetof symptoms. At the end of the treatment the neurological examination was normal (NIHSS 0 and no Babinski sign). Thereafter, the patient was admitted to the Stroke Unit, and underwent brain and cervical MR, which didn't show any ischemic lesion on DWI-MR.She was treated with acetylsalicylic acid 300 mg and statin, and she was discharged. After 2 months transcranial duplex sonography showed flow signals and increased flow velocities in right VA V3segment (150 cm/sec of peak systolic flow velocity and IP 1.35), no flow in right VA V4 segment.

After six months, brain CT with vascular study showed no changes compared to the previous one, confirmingthe proximal thrombosis of right VA. Then, the patient felt well, and no new ischemic event occurred.

Discussion

Infarction of anterior region of medulla oblongata is a rare condition with only pyramidal tract involvement. However, reviewing the literature, we found that the clinical features are variable in medullary stroke/TIA. In particular, Opalski syndrome is characterized by the presence of ipsilateral hemiplegia associated with symptoms of alateral medullary syndrome. Thus far, most of the reported cases of this syndrome have been attributed to VA occlusion/stenosis, or dissection, which compromises the medullary penetrating arteries. The pyramidal fibersinvolvement in Opalski syndrome areipsilateral to the side of the infarct, asthese fibersare after their crossing from contralateral side at the level of lower medulla. Diffusion-weighted imaging is a sensitive MR sequence to detect an acute infarct. However, according to the available literature, the detection of this infarct as cause of Opalski syndrome has been reportedonly twice before, and is extremely rare.[4–7]

Our patient presented with a neurological examination that revealed right-sided hemiparesis, left leg paresis and bilateral plantar reflex in extension.The brain CT examination with vascular study of extra- and intracranial vessels showed proximal thrombosis of right VA, and the patient was quickly treated with intravenous thrombolysis; therefore, no DWI-MRlesions were detected (Figure 1).

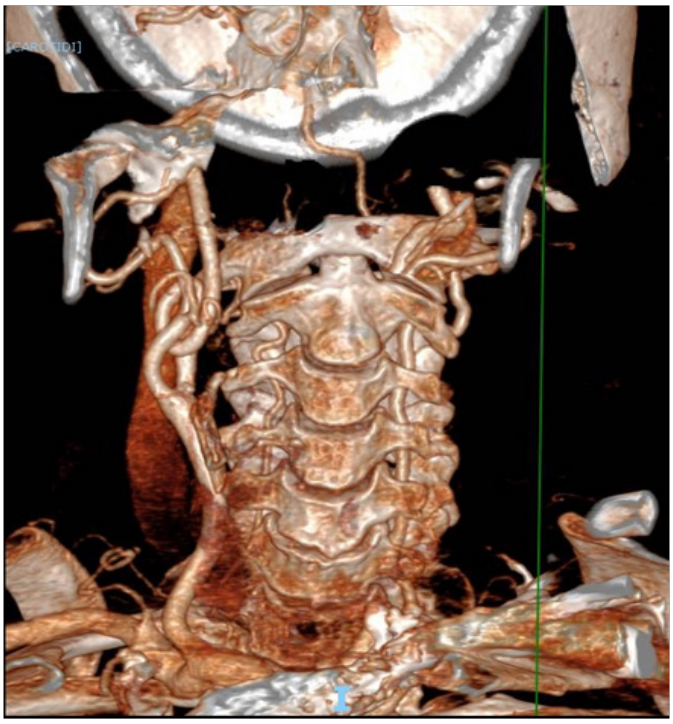

Figure 1 Proximal thrombosis of right VA in Brain CT with vascular study.

In case of chronic and slowly progressing occlusive processes, patients with VA stenosisdevelop collateral pathways (from anterior circulation via the posterior communicating artery -PCoA- or from the posterior circulation via ASA or from leptomeningeal arteries). However, often this is no sufficient, andmay lead to impaired perfusion in the dependent brain territories. If a completed stroke occurs, the infarct pattern depends on the site of the vascular pathology (8).

This case report is of interest for two reasons. First, the patientsuddenly developed triplegia, and we suspected an hemimedullary infarct and contralateral medial medullary infarct (anterior medullar zone of pyramidal crossing), and this combination is rare. Second, the DWI-MR was normal after intravenous thrombolysis; thus,we can hypothesize an early revascularization, but also a TIA on a hemodynamic basis.[10–12]

Acknowledgments

None.

Conflicts of interest

The author declares no conflicts of interest.

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