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Case Report

Favorable Primary Outcome of Bilateral Medial Medullary Infarction: A Case Report

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ABSTRACT

Bilateral Medial Medullary Infarction (MMI) is a rare stroke subtype. Quadriplegia, sensory disturbance, hypoglossal palsy and bulbar paralysis are the most common symptoms but clinical diagnosis without neuroimaging is very difficult.

We report a patient, with a past medical history of diabetes and hypertension, who presented to the emergency with sudden left hemiparesis. After 24 hours, he presented a motor weakness of the right side. Initial brain scan objected only old ischemic lesions. Brain MRI was requested showed characteristic "heart appearance" sign at Diffusion Weighted Imaging (DWI), confirmed bilateral medial medullary stroke. The differential diagnosis such as spinal infraction or Guillan baree syndrome was eliminated by spine MRI and lumbar function.

The main aetiologyof MMI is vertebral artery atherosclerosis and thrombosis affecting the anteromedial and anterolateral territories of medulla. Better understanding of this syndrome will help clinicians recognize bilateral MMI and discuss early therapeutic interventions.

Keywords: Medial medullary infarction; Hypoglossal palsy; Diffusion weighted imaging

INTRODUCTION

Vertebrobasilar strokes account for about 15% to 20% of all ischemic strokes [1]. Bilateral bulbar infarction is a subset of this category, representing 0.5%-1.5% of cases [2]. The medulla is perfused by the Posterior-Inferior Cerebellar Artery (PICA) and by direct smaller branches from the vertebral arteries. The infarction in this territory is severe and the prognosis is conditioned the association of swallowing disorders which are life-threatening. Early diagnosis is critical. It requires a high degree of suspicion, both as neurologist and as radiologist.

We report the observation of bulbar infarction in order to discuss the differential diagnoses and to make a review of the literature on this rare subject.

CASE PRESENTATION

It was a 50-year-old, Mr A.M, who presented to the emergency with acute vertigo and heaviness in the left side on 12 March 2019. He had a past medical history of diabetes and hypertension. He was admitted in stroke unit of our department at 3 pm. The admission examination showed left hemiparesis, cranial pairs were intact and there were no sensory or sphincter disturbances. Brain CT showed previous ischemic stroke of different ages in the posterior and anterior arteries territories. Patient received aspirin at a dose of 250 mg per day and atrovastatine at 80 mg.

On the following day, he developed mild right-sided weakness and he rapidly evolved to a tetraparesis with bilateral Babinski sign, without nystagmus, tongue paralysis or sensory disturbance.

Guillain-Barresyndrome was ruled out based on clinical findings. For the possibility of brainstem encephalitis, lumbar puncture was performed which showed normal cell, protein, and glucose. Blood and CSF cultures were negative. Diagnosis of stroke in vertebro-basilar territory was considered.

Brain MRI showed bilateral anterior bulbar ischemic lesion (Figures1-3) and spine MRI was normal. An exhaustive

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etiological assessment was carried out including 24-hour ECG Holter monitoring and a transthoracic echocardiogram which were normal. Angio MRI showed stenosis of the right vertebral (Figure 4). A cerebral CT angiography was performed, it didn't objective any abnormality in internal or external carotid arteries but it confirmed vertebral artery stenosis.

Rehabilitation was initiated. The patient had gradually recovered and at five-month follow-up, he is ambulant and independent in activities of daily living, though he has residual mild paraparesis.

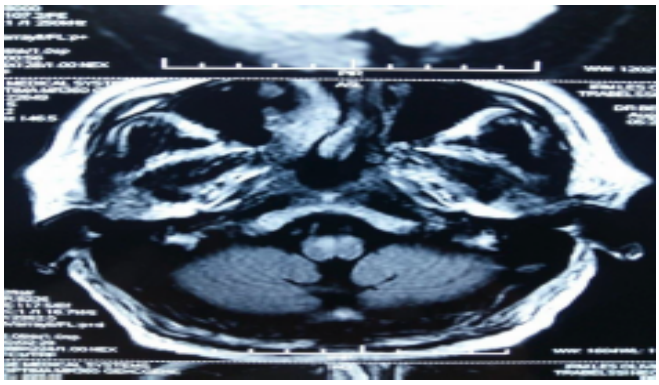

Figure 1: MRI sections in axial sequence (Flair and diffusion), sagittal section respectively showing bilateral anterior bulbar ischemic.

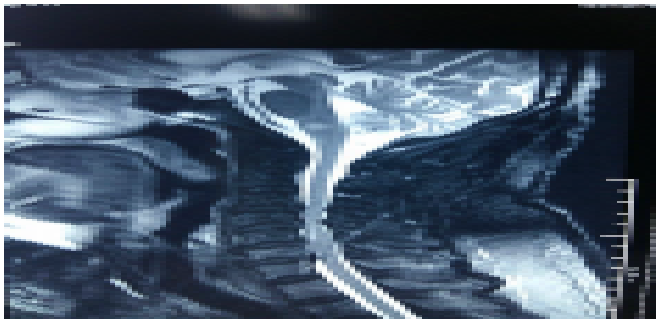

Figure 2: MRI sections in axial sequence (Flair and diffusion), sagittal section respectively showing bilateral anterior bulbar ischemic.

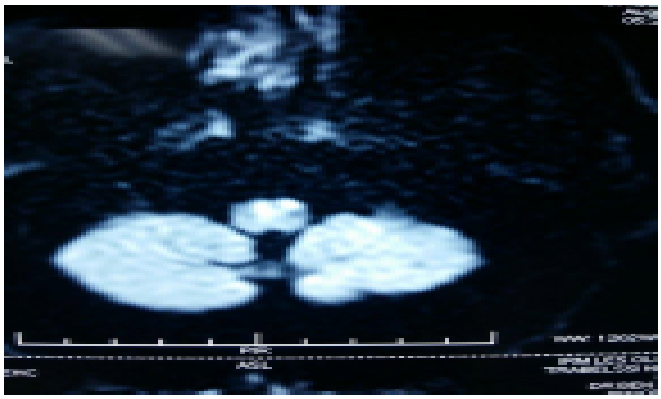

Figure 3: MRI sections in axial sequence (Flair and diffusion), sagittal section respectively showing bilateral anterior bulbar ischemic.

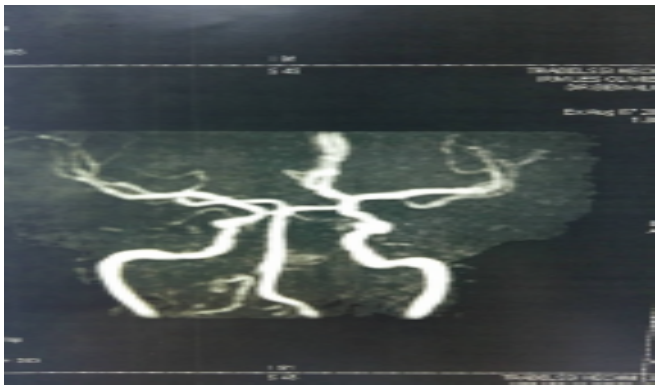

Figure 4: Angio IRM section showing a small aspect of the right vertebral.

DISCUSSION

The most well-known bulbar infractionis the Wallenberg syndromes and Dejerine syndrome [2]. Bilateral anterior bulbar infarction has only been reported in isolated clinical cases [3,4]. Hemiparesis or tetraparesis is the most constant symptom [4,5]. Tongue paralysis, ataxia, dysarthria, oculomotor disorders, respiratory disorders and hypaesthesia have been described [4,6].

The higher risk of dysphagia could put patient at higher risk of pneumonia and be life threatening as this complication could be underdiagnosed [4,7].

Diffusion Weighted Image and ADC-map on MRI, which shows a V-shape infarction, facilitate the diagnosis [8].The abnormal DWI signal in early stages of this type of stroke may not be a typical "heart appearance" shape, and other variants such as small dot or linear DWI signal at midline must and Diffusion-Weighted Imaging (DWI) exhibited a "heart appearance" sign in the bilateral ventral medulla [7].

The diagnosis could clinically be misdiagnosed as early stage Guillain-Barré Syndrome, before brain MRI was performed [9]. Other diagnosis were discussed as brain stem encephalitis and high cervical cord lesion.

The anterior bulb receives arterial blood from small perforating arterioles originating from the vertebral artery or the anterior spinal artery [3,10]. An occlusion of one of its arteries can lead to bilateral anterior bulbar syndrome [3,7,9]. Computed Tomography Angiography (CTA) of our patient demonstrated a severe stenosis of vertebral artery. Embolism secondary to atherosclerosis of one of the abovementioned large vessels (vertebral arteries in 38.5%) is the main pathomechanism, followed by small vessel disease ("branch disease"), frequently occurring in a context of diabetes or hypertension [4,10]. In our case, we thought that mechanism is artery to artery embolism from thrombi generated on the intimal surface of the vertebral stenosis, considering his multiple risk factors (hypertension, tobacco and diabetes).

Bilateral medial bulbar infarctions are associated with poor prognosis [5]. However, our patient presented a good clinical course and this can be explained by the absence of swallowing or respiratory disorders.

In addition to neurological symptoms, our patient also experienced chronic diarrhoea in the past, which was examined and shown to be the result of inflammatory ulcers in the colon and ileum. Despite the non-specific biopsy results, she received empirical antitubercular medication because of a suspicion of intestinal tuberculosis. This might have been an indication that Crohn's disease was present (CD). Both CD and intestinal tuberculosis are chronic granulomatous illnesses that affect the gastrointestinal system. Their clinical presentations and pathologies are similar. It can be quite challenging to distinguish between the two, particularly in nations like ours where CD incidence is on the rise and tuberculosis is prevalent. Additionally, CD has a flexible course. We think there may be an underlying pathophysiological relationship between TA and concurrent intestinal pathology if there are clinical characteristics and studies that are consistent with TA. Numerous case reports and series have indicated a connection between TA and CD, a kind of inflammatory bowel disease. It's interesting because CD is also linked to hypercoagulability, and it's been suggested that the coexistence of TA and vascular wall inflammation contributes to the development of stroke in a mutually additive manner.

CONCUSION

Bilateral Medial Medullary Infarction (MMI) is a rare stroke subtype, with a typical MRI finding. A rare form of stroke known as bilateral MMI typically manifests as an abrupt onset of quadriparesis/quadriplegia, loss of deep feeling, hypoglossal palsy, and bulbar dysfunction, either with or without respiratory failure. The varied clinical appearance may make the first diagnosis difficult. The development of MRI has made MMI diagnosis easier. The two most frequent causes are small penetrating artery disease and large-artery atherosclerosis (ie, branch disease). The prognosis is severe and conditioned by the association of swallowing disorders. Early diagnosis is critical. Radiologists and neurologists must recognize clinical and MRI findings of this rare type of stroke.

REFERENCES

1. Bassetti C, Bogousslavsky J, Mattle H, Bernasconi A. Medial medullary stroke: report of seven patients and review of the literature. Neurology. 1997; 48:882-890.
2. Louis Caplan. Posterior Circulation Ischemia: Then, Now and Tomorrow: The Willis Lecture-2000. Stroke. 2000;31:2011-23.
3. Kameda W, Kawanami T, Kurita K, Daimon M, Kayama T, Hosoya T, et al. Lateral and medial medullary infarction: a comparative analysis of 214 patients. Stroke. 2004; 35:694-699.
4. Kleinert G, Fazekas F, Kleinert R, Schmidt R, Payer F, Offenbacher H, et al. Bilateral medial medullary infarction: magnetic resonance imaging and correlative histopathologic findings. Eur Neurol.1993; 33:74-76.
5. Ohashi T, Fujimoto M, Shimizu T, Atsumi T. A case of bilateral upper medial medullary infarction. Rinsho Shinkeigaku. 1995; 35:664-666.
6. Roh JK, Lee YS. Bilateral medial medullary infarction manifested as sensory ataxia: a case report and review of the literature. J Korean Med Sci. 1996; 11:193-196.
7. Del Brutto OH, Sánchez J, Mosquera A, Campos X. Bilateral medial bulbar infarct related to dolichoectasia of the vertebral artery. Rev Neurol. 1998;27:511-513.
8. Bailbé M, Rosier MP, Couderq C, Vandemarq P, Gil R, Neau JP. Bilateral medial medullary infarction. Rev Neurol (Paris). 2000; 156:384-387.
9. Katoh M, Kawamoto T. Bilateral medial medullary infarction. J Clin Neurosci. 2000;7:543-545.
10. Thijs RD, Wijman CA, van Dijk GW, van Gijn J.A case of bilateral medial medullary infarction demonstrated by magnetic resonance imaging with diffusion weighted imaging. J Neurol. 2001; 248:339-340.