CASE REPORT

Basilar Artery Occlusion

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Received on: 12 May 2022; *Accepted on:* 11 August 2022; *Published on:* 27 February 2023

Abstract

Basilar artery occlusion is rare, accounting for approximately 1% of ischemic strokes characterized by pons and cerebellum infarction. Symptoms range from paresthesia and oculomotor symptoms to locked-in syndrome. Here, we report a rare case of basilar artery infarction in a 79-year-old female patient who presented with a right-sided lower motor neuron-type facial nerve palsy. This case is being reported to highlight the neuroimaging and clinical features of this condition.

Keywords: Basilar artery, Cerebellum, Infarction, Lower motor neuron palsy, Pons.

Journal of Mahatma Gandhi University of Medical Sciences and Technology (2022): 10.5005/jp-journals-10057-0210

Introduction

The basilar artery is a major component of the posterior circulation, contributing to the circle of Willis and supplying the structures of the posterior cranial fossa, including the pons and cerebellum. It runs anterior to the brainstem and is formed by the union of two vertebral arteries.

Occlusion of the basilar artery can have a variety of clinical manifestations ranging from transient weakness or paresthesia to near-complete paralysis. The characteristic symptoms of basilar artery disease include motor and bulbar symptoms—decrease or loss of consciousness, paresthesia, motor weakness, pupillary and oculomotor symptoms, dysarthria, and dysphagia.

Complete occlusion of the proximal or middle basilar artery leads to ischemia of the para median base of the pons but spares the tegmentum. The result is a locked-in syndrome, in which consciousness and oculomotor function are preserved, but all other voluntary muscle movement is lost. A complete distal basilar artery occlusion (the "top of the basilar" syndrome) can cause ischemia to the midbrain and thalamus, most often resulting in oculomotor abnormalities and alterations in alertness and behavior.

Case Description

A 79-year-old female, known as hypertensive, developed sudden onset of giddiness associated with nausea and not being able to balance while standing and was brought to a local hospital. There she was found to have systolic blood pressure above 200 mm Hg, for which oral and intravenous antihypertensive was administered. The patient was symptomatically better after the treatment and was discharged.

After 2 days, the patient presented to our emergency department with a left-sided weakness for the last 8 hours and deviation of the angle of mouth on the left side, and slurring of speech for the last 6 hours. She was unable to close her right eye properly (Fig. 1). There was no history of fever, headache, seizure, or trauma. She had a past history of hypertension for the last 1 year and was irregular on medication.

On examination patient was afebrile, dull, and drowsy but arousable, with slurred speech (Glasgow Coma Scale—10/15) with a regular heart rate of 66/minute, blood pressure of 130/80 mm hg, and respiratory rate of 18/minute. Her angle of mouth deviated toward the left side with an inability to close her right eye. Bilateral pupils were 3 mm, reactive to light, and there was left-sided hemiparesis (power—left upper limb (U/L)—proximal—2/5, distal—2/5; left lower limb (L/L)—proximal—2/5, distal—2/5). The plantar response was extensor on the left side and flexor on the right side. Fundus examination reveals dot and blot hemorrhages.

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How to cite this article: Patel P, Gupta D, Kalia A, *et al.* Basilar Artery Occlusion. J Mahatma Gandhi Univ Med Sci Tech 2022;7(2):55–56.

Source of support: Nil

Conflict of interest: None

Patient consent statement: The author(s) have obtained written informed consent from the patient for publication of the case report details and related images.



Fig. 1: Showing an inability to close the right eye

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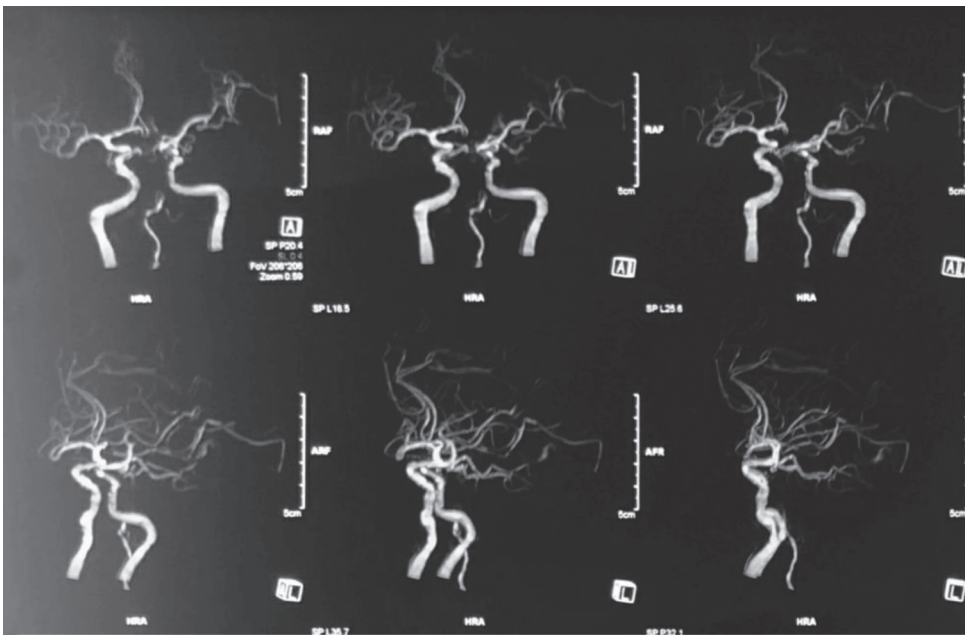


Fig. 2: MR angiography of brain vessels showing occlusion of the basilar artery and left vertebral artery

The fasting lipid profile was suggestive of mixed dyslipidemia, other biochemistry reports were normal, and blood counts were normal.

Electrocardiogram was suggestive of sinus rhythm with left ventricular hypertrophy.

Magnetic resonance (MR) imaging brain was done, which revealed—focal acute infarcts in the bilateral cerebellar hemisphere right>left (R > L) and pons. There is a lack of normal flow void in the visualized intracranial part of bilateral vertebral arteries and the proximal part of the basilar artery. MR angiography of brain and neck vessels was done later, which revealed a lack of significant flow within the basilar artery, and the intracranial part of the left vertebral artery likely occluded/thrombosed (Fig. 2).

A diagnosis of basilar artery infarction was made based on the typical imaging findings and clinical features such as left-sided hemiparesis, angle of mouth deviation on the left side, and unable to close her right eye. Echocardiographic evaluation of the heart revealed normal left ventricular (LV) function, LV ejection fraction—55%, LV hypertrophy, and grade 1 LV diastolic dysfunction.

She was started on anticoagulants and antiplatelets, and statins for therapeutic and preventive measures. She showed gradual improvement in power, was weaned off from the ventilator and was able to close her right eye during the hospital stay.

Discussion

Acute basilar artery occlusion is a rare, devastating type of stroke that represents only 1–4% of all strokes. It results in severe disability and significant morbidity.[1] Early diagnosis within the window of intervention allows the use of intravenous thrombolysis, intra-arterial thrombolysis, and mechanical endovascular procedures (thrombectomy). Such procedures allow for recanalization and subsequent improvement in the functional outcome. In basilar artery occlusion, the time window for intervention has often been longer than the typical window used in the anterior circulation.[2] Up to two-thirds of patients with basilar artery strokes have prodromal events, including transient ischemic attack, minor strokes, and other symptoms such as headache, dizziness, vertigo, altered level of consciousness, and motor and sensory symptoms.[3] Recently, intravenous or intra-arterial use of thrombolytic agents has been introduced with successful recanalization rates ranging from 44 to 88%. Although better, the mortality rate has remained high because of recurrent thrombosis, hemorrhagic complications, and irreversibility of the stroke itself.

The overall good outcome with no or mild deficit is 20–25%.[4] In patients with clinical and neurological findings suggestive of posterior circulation ischemia, further evaluation with computerized tomograph angiography, MR angiography, or conventional four vessels cerebral angiography is required. These imaging techniques will precisely visualize the basilar artery and rule out filling defects due to occlusion.[5] We recommend obtaining intracranial vessel imaging on all patients who are at high risk for intracranial strokes and presenting with unexplained acute delirium to rule out basilar artery occlusion.

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