

# A Case of Bilateral Medial Medullary Syndrome

Uthayasankar M.K<sup>1</sup>, Raja M<sup>2</sup>, Sumanbabu I.S.S<sup>3</sup>, Sivaram A<sup>4</sup>

<sup>1</sup>Professor, <sup>2,4</sup>Postgraduate Residents, <sup>3</sup>Assistant Professor,  
Department of General Medicine, Sri Manakula Vinayagar Medical College and Hospital, Puducherry -605107

Corresponding Author: Raja M

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## ABSTRACT

Bilateral Medial medullary syndrome is a very rare form of posterior circulation strokes due to occlusion of the anterior spinal artery or vertebral artery. In this case report we present a patient who presented with bilateral medial medullary infarction.

**Keywords:** Posterior circulation stroke, Bilateral medial medullary syndrome.

## INTRODUCTION

The Brainstem parts are midbrain, pons and medulla oblongata. Medulla is an important structure where long tract fibres crossing over occur and contain important cranial nerves nuclei. Rostrally medulla continuous with the pons at the pontomedullary junction and caudally with the spinal cord at the C1 vertebrae. Most important structures involved in Medial medullary syndrome are the pyramid, medial lemniscus, hypoglossal nucleus, and medial longitudinal fasciculus.

The vertebral artery is the branch of subclavian artery which gives paramedian branches of anterior spinal artery. This paramedian branches supplies the medial medullary structures. The medial medullary syndrome is also known as Dejerine syndrome, which is caused by an infarction of the medial medulla.[1] Approximately less than 1% of cerebral infarction is due to medial medullary syndrome.[2]

Bilateral infarction of the medial medulla is very rare form of stroke. Very less information is available on clinical

characteristics, etiology, and prognosis. The most common vascular pathology was vertebral artery atherosclerosis and the overall outcome of this type of stroke is poor.[3]

## CASE REPORT

70 years male patient presented with weakness of all four limbs which was sudden in onset, non progressive. History of difficulty in speech was present. Past history revealed patient had forgetfulness since 2 years. He was a known case of diabetes mellitus since 15 years, not an regular medications. on examination his vital signs were normal. He had difficulty in calculation and impaired recent memory. Cranial nerve examination revealed right sided tongue atrophy. Motor system examination revealed left side power of 1/5 and right side 3/5. Bilateral plantar extensor. Vibration and Joint position sensation lost on both sides.

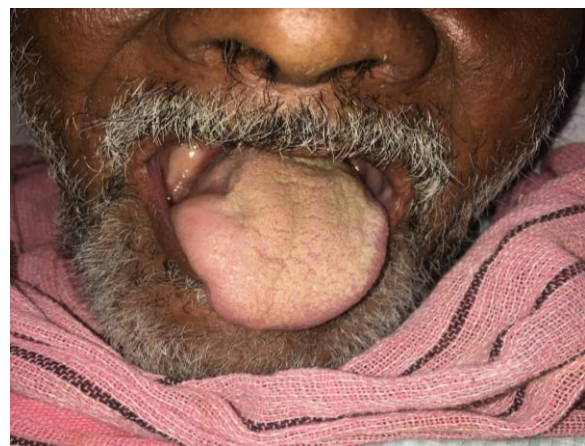


Fig. 1: Clinical image of patient.

His blood investigation showed high HBA1C level (10%), high random blood glucose level (350mg/dl). Urinary glucose 3+. Remaining all blood investigations were normal.

MRI brain showed hyperintense signal changes in diffusion weighted as well as T2-weighted imaging involving the medial medulla bilaterally suggestive of acute infarct.

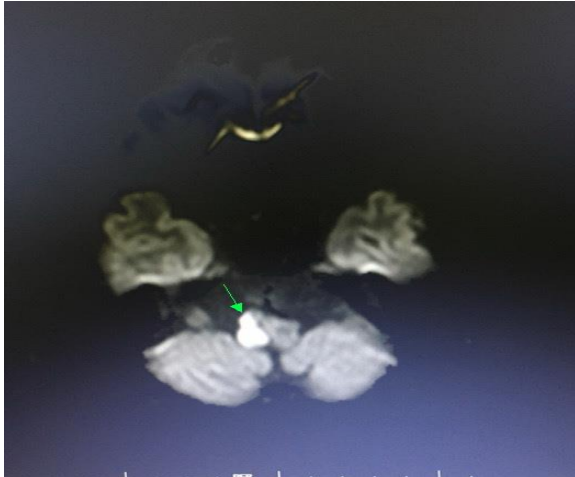


Fig. 2: MRI brain diffusion weighted image.

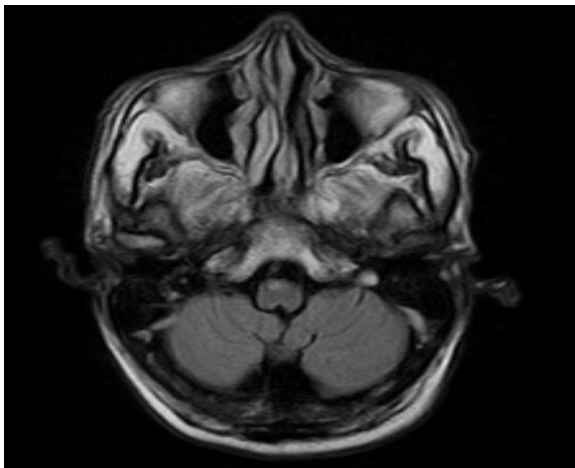


Fig. 3: MRI brain T2 weighted image.

Accidentally, he was found to have progressive supranuclear palsy features in MRI brain.

MRI brain T1W midsagittal view showed atrophy of midbrain with concavity at its cranial margin suggestive of hummingbird sign and magnetic resonance Parkinson's index-30 suggestive of progressive supranuclear palsy.

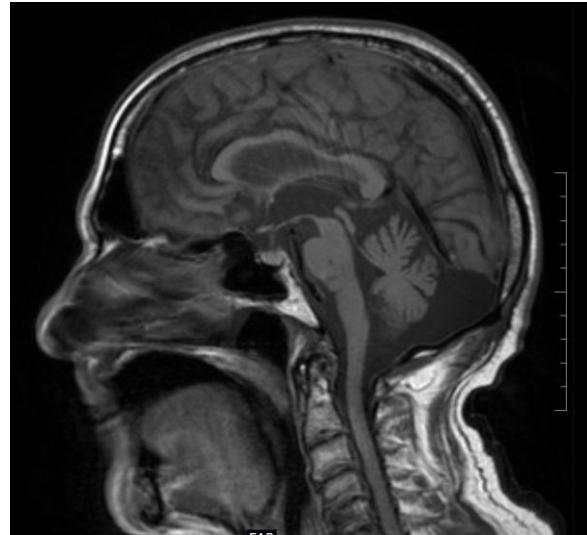


Fig. 4: MRI brain T1W midsagittal view showed atrophy of midbrain

## DISCUSSION

Bilateral Medial Medullary Infarct (MMI) is a rare stroke, usually presenting with sudden onset of quadriparesis/quadriplegia, loss of proprioception and vibration sensation in all limbs, hypoglossal nerve palsy. Some patients may develop bulbar dysfunction, with respiratory failure. The initial diagnosis may be difficult because of the bilateral clinical presentation. MRI sequences are very useful in the diagnosis of MMI. Very limited information is available in the literature regarding clinical presentations, stroke mechanisms, and prognosis of bilateral MMI. The most common stroke mechanisms in both unilateral and bilateral MMI are large artery atherosclerosis. The mortality and morbidity of bilateral MMI is usually poor.[4-6]

Progressive supranuclear palsy (PSP) is a neurodegenerative condition. "Hummingbird" sign in magnetic resonance imaging is a classical finding of progressive supranuclear palsy. Hummingbird sign denotes atrophy of midbrain with sparing of pons.[7] Magnetic resonance parkinsonism index is useful in diagnosis of PSP. It is defined as the ratio of midbrain area to pons area.[8]

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