

## A Case of Bilateral Medial Medullary Infarction Presented As Quadriplegia

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### Abstract:

Quadriplegia with bilateral medial medullary infarction is a very rare stroke syndrome. We present the case of a 56-Year-old male Hypertensive and diabetic patient admitted with sudden onset quadriplegia, dysarthria without involvement of hypoglossal nerves. He was diagnosed as bilateral upper medial medullary infarction on Diffusion-Weighted Magnetic Resonance Imaging (DW-MRI)

**Keywords :** DW – MRI, Quadriplegia, Medial Medullary Infarction

### Introduction:

Quadriplegia is usually caused by dermatomyositis, polymyositis, myasthenia gravis, hypokalemia, demyelinating polyneuropathy etc. It can also occur in cervical cord involvement due to trauma, demyelination or various infections like tuberculosis, fungal, viral etc. The classical picture of medial medullary stroke is contralateral hemiplegia, ipsilateral tongue palsy with or without pharyngeal weakness.<sup>(1,2)</sup>

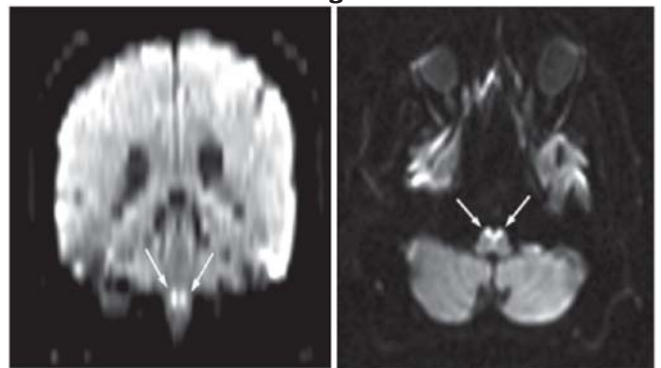
Quadriplegia because of bilateral medial medullary infarction (MMI) is very rare. Medial medullary Infarction with sparing of hypoglossal nerve is also rare. Worldwide, very few cases of bilateral medial medullary infarction associated with quadriplegia, have been reported. So here we report a case of a patient who was diagnosed with bilateral MMI presented with quadriplegia without hypoglossal nerve involvement based on clinical and MRI features.

### Case Report :

A 54-Year-old male patient with history of hypertension and diabetes since last ten years, presented with acute onset weakness of all the limbs at midnight. He started feeling tingling sensation in left upper limb and lower limb followed by weakness of all four limbs. After 10 minutes, he also developed dysarthria and was admitted to ICU. On Examination, his BP was 180/100 mmHg with pulse rate 80/min regular in rhythm. On neurological examination, his higher functions were found normal. He was dysarthric with absent gag reflex and bilateral pharyngeal weakness. His all cranial nerves were normal except bilateral ninth and tenth cranial nerves palsy. He was

having flaccid quadriparesis with power grade 3/5 in all muscle groups of all the four limbs. His all deep tendon reflexes were absent and bilateral planter response was extensors. His sensory system examination was normal. His routine biochemical investigations were normal except lipid profile was showing total cholesterol 240mg/dl, LDL 130mg/dl, HDL 40mg/dl, Triglycerides 140mg/dl. He was subjected to DWMRI-brain which was showing bilateral medial infarction of superior portion of medulla oblongata. MR angiography of neck and brain was not showing any significant abnormality. His 2D echocardiography didn't evident any embolic source. No other complications developed during his 5 days stay in ICU. After five days, the neurological findings were same as on admission & he was discharged with Ryle's tube in-situ. He was followed –up weekly on regular basis. After 4-weeks his gag reflex became normal and Ryle's tube was removed. At 12th week follow-up, patient was able to walk with support. His neurological examination at that time revealed normal higher functions, all cranial nerves & sensory system. The motor system power grade was 3/5 in all limbs & he

**Figure 1: DWMRI-brain which was showing bilateral medial infarction of superior portion of medulla oblongata**



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was having lead pipe spasticity and exaggerated deep tendon reflexes with bilateral extensor plantar response.

### **Discussion :**

Quadriplegia because of bilateral medial medullary infarction is rare and carries poor prognosis because of respiratory failure.<sup>(3,4,5)</sup> The condition may be misdiagnosed as acute idiopathic demyelinating polyneuropathy<sup>(6)</sup> or other cause of quadriplegia as mentioned earlier. Medial medullary infarct causes contralateral hemiplegia with or without ipsilateral pharyngeal or tongue weakness. Pharyngeal weakness is due to involvement of corticobulbar fibers of ninth and tenth nerve nucleus. Tongue weakness is due to involvement of hypoglossal nerve nucleus and nerve. Arterial blood supply of medulla oblongata is derived from anterior and posterior spinal arteries along with perforating and long circumferential artery from the basilar or vertebral artery.<sup>(7)</sup> Sometimes upper two third and lower one third of anterior medulla is supplied by different perforating arteries so either upper two third or lower one third of medulla may be involved.<sup>(8,9,10)</sup> Hypoglossal nerve nucleus is about 8.5 mm long craniocaudally occupying major portion of medulla superoinferiorly. As in our case, only upper part of medulla was involved and lower part of medulla was spared, hypoglossal nucleus and fibers were also spared. So hypoglossal nerve palsy did not occurred. In upper medulla, with bilateral medial infarct prognosis is good because respiratory failure usually doesn't occur. In contrast to lower bilateral medial medullary infarct, where prognosis is poor because of respiratory failure. DW-MRI is the current gold standard for the diagnosis of acute ischemic stroke of posterior brain circulation.<sup>(11)</sup>

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