



## **Bilateral Middle Cerebral Artery Occlusion (A Case Report)**

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**Abstract**

*Unilateral Malignant middle cerebral artery (MCA) infarction characterized by total occlusion of the MCA. They represent 8–15% of all cerebrovascular strokes. But bilateral Malignant MCA infarction is something unique.*

*We reported here a case of left MCA infarction managed surgically and patient improved then to be followed after 4 months with a new attack of MCA infarction of the right side which was managed conservatively.*

**Keywords:** *Middle cerebral artery MCA infarction, unilateral, bilateral.*

**The case**

This patient was a male of 72-years old, woke with right-sided weakness and found to have a left middle cerebral artery stroke on arrival to the emergency unit

He had no past history of transient ischemic attacks or stroke. He had no other cardiovascular risk factors or past medical apart from controlled hypertension with diet and medication and he was well before bed at midnight.

On examination: unconscious with responding to deep painful stimuli with flexion and eye opening to painful stimuli with right sided hemiplegia.

The CT brain, performed on arrival and showed acute left -sided distal MCA occlusion with a small core and large surrounding penumbra (Fig. 1.). The cause was thought to be cardioembolic in nature.

CT Angio-gram reported as: left MCA M1 is not opacified by contrast with minimal opacification of M2 and distal branches that consisted with acute left MCA M1 thrombosis

The patient first underwent emergent mechanical thrombectomy but was of no benefit where repeated Head CT showed more infarction area with midline shift more than 5mm, so an urgent operation done as

decompressive craniectomy with removal of the bone flap and embedded in the abdominal wall for further cranioplasty after a while.

The patient then shifted to the intensive care unit ICU for further management.

In the ICU and after few days, he was weaned from ventilator with tracheostomy at room air.

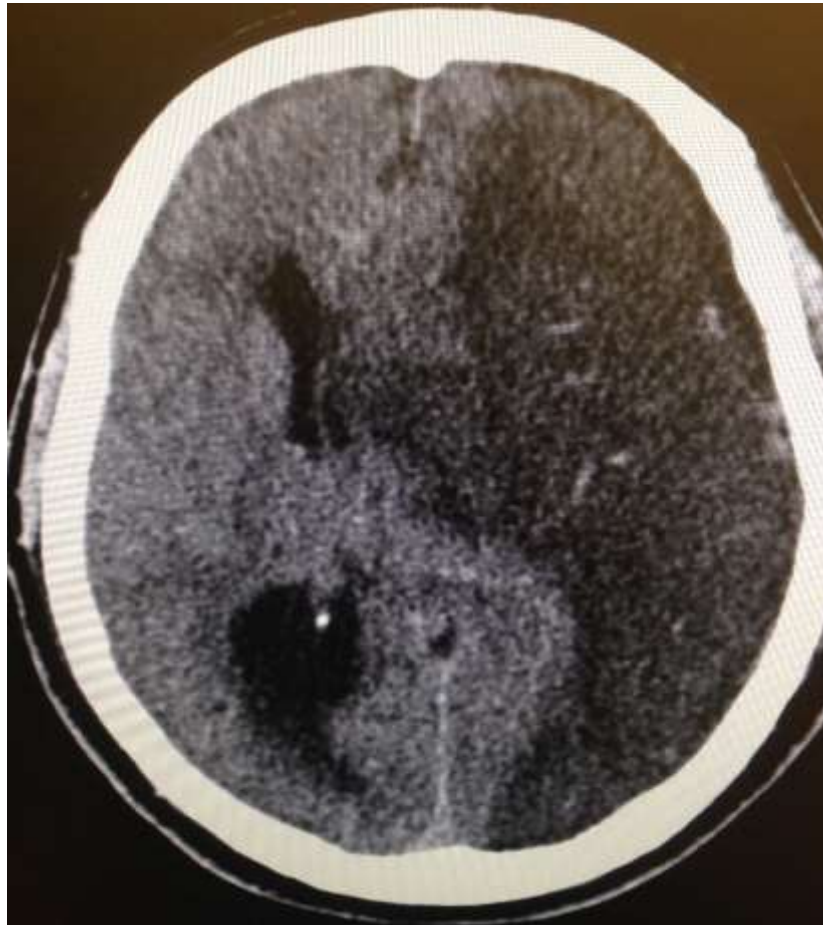


Fig. 1. Computer generated map showing a left -sided MCA infarction with midline shift of about 8 mm.



Fig 2: Decompressive craniectomy

Then he was shifted to the neurosurgical ward for further management.

He stayed in the ward for a while then discharged on advice for intensive physiotherapy

The patient was improved, whereafter 3 months he got cranioplasty (as replacement of the bone flap which was embedded in the abdominal wall) and replaced to close the cranial defect of the previous decompressive craniectomy.

Then the patient and after 4 months from the first attack he developed left sided hemiparesis.

CT showed infarction of the right side which progressed to paresis whilst on transfer to stroke unit for further management

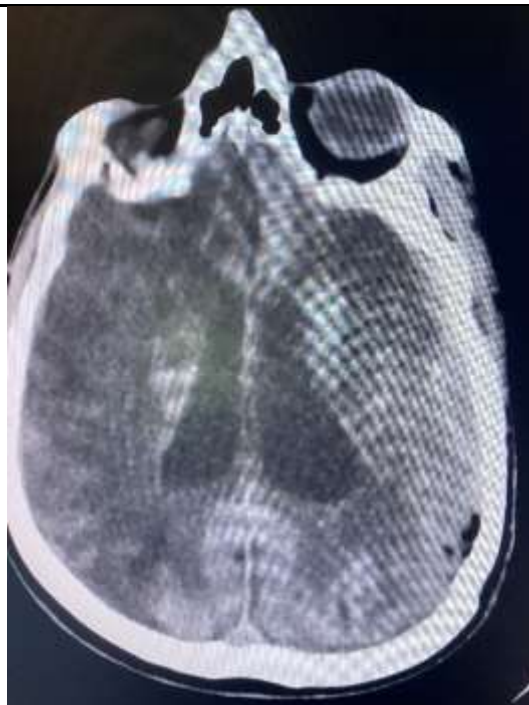


Fig 3: CT Brain showed a new right Middle cerebral artery MCA infarction.

The patient stayed in the stroke unit under neuro conservative treatment till discharge and advice for intensive physiotherapy in a specialized physiotherapy centre

The tracheostomy was closed after a while.

Frequent follow up for about 6 months and in the last visit he was conscious, on wheel chair with bilateral limb weakness (power of right side 4/5 and left sided 3/5) and his breathing at room air.

This patient with bilateral middle cerebral artery occlusions and made a recovery, first was with left sided MCA infarction which treated surgically and then after 4 months he developed another attack of MCA infarction of the other side and treated conservatively is something unique.

This case emphasises the importance of the early recognition of the middle cerebral artery occlusions and demonstrates that timely and effective treatment can have favourable outcomes for patients.

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## Discussion

In patients with an acute ischemic stroke, bilateral occlusion of the middle cerebral artery (MCA) is an extremely rare with an incidence of less than 1% (1,2,14) especially when occur at the same time but one side followed after a period of another side is also rare.

By another pathology There are few literature reports of bilateral M1 segment occlusion of the MCAs, which carries a poor prognosis often leading to coma, or death (12).

We present the case of a 72 -year-old male with acute left MCA M1 occlusion, detected on computed tomography (CT), then after a while he developed another attack of right MCA M1 occlusion on arrival from an external hospital. The patient underwent emergent endovascular mechanical thrombectomy with no benefit then urgent operation for the first attack and conservative for the second successful treatment and remarkable recovery. The purpose of this case report is to illustrate that timely management from arrival to intervention leads to favourable outcomes, and demonstrates the effectiveness of early management. (16,18)

Bilateral occlusion of both MCAs is usually due to cardiac disease, such as atrial fibrillation AF although dissection, cardiac embolism, and atherothrombosis are other possible causes (12,15)

Endovascular treatment with mechanical thrombectomy devices are usually the preferred treatment for patients with ischemic stroke, compared with thrombolytic drugs, which were previously used (6,8,13), but the last choice is for decompressive craniectomy after failure of the conservative management and if the patient deteriorates (5,7,9,10) .

## Conclusion

Although rare, bilateral MCA needs to be considered in patients presenting with unilateral stroke like symptoms that acutely worsen to bilateral symptoms. (7,9,13)

Imaging is imperative for the diagnosis and therefore radiologists need to be familiar with the diagnosis.

This case report illustrates that importance of early recognition of MCA occlusion and that immediate endovascular treatment can lead to a favourable outcome and to prepare the patient for decompressive craniectomy once failure of the endovascular treatment (3,5,7,9,10)

Without time-efficient mechanical thrombectomy, patients with bilateral occlusion of their MCAs have a

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poor prognosis with likely catastrophic consequences. (1,5,11)

Bilateral middle cerebral artery (MCA) infarction stroke is a rare entity and is usually caused by inherent vasculature anomaly with superadded traditional risk factors of stroke. (8,13,16)

The spectrum of the presentation of bilateral MCA stroke is wide, including lower limb motor weakness, urinary incontinence, transcortical aphasia, extrapyramidal symptoms and an array of frontal cognitive impairments. In this report, we report a case of bilateral MCA infarct which occur within only 4 months starting with one side and treated then to be followed by the other side which carry a heavy burden on the patient giving hint of bad prognosis but fortunately our patient here survives with acceptable life style for such a big catastrophe. (4,11,17)

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