BILATERAL AND SIMULTANEOUS MIDDLE CEREBRAL ARTERY INFARCT: A CASE REPORT

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Background and rationale

According to brain neuroimaging studies, multiple or bi-hemispheric lesions in the anterior circulation are reported in less than 6% of stroke patients. However, bilateral large artery occlusion is much rarer and can lead to potentially devastating clinical consequences. We report the case of a 60-year-old Caucasian woman who developed a bilateral middle cerebral artery (MCA) infarct.

Methods

Both unenhanced brain CT and brain CT angiography were performed.

Results

A 60-year-old woman with hypertension and diabetes mellitus presented with acute left sensorimotor syndrome and inattention. Baseline brain CT, performed 1 hour after symptom onset, was negative while CT angiography (figure 1) showed the complete occlusion of the right internal carotid artery, extended to the MCA M1 segment. During intravenous thrombolysis, the patient dramatically worsened and became comatose (GCS 4). IV rtPA was interrupted. A repeat brain CT (figure 2), performed 3 hours after symptom onset, did not show haemorrhagic infarction, while repeat CT angiography revealed the persistence of the right occlusion and a new left M1 and M2 occlusion. The day after, the patient was still comatose (GCS: 3/10) and a new brain CT (figure 3) revealed whole right MCA territory infarction and superficial left MCA territory infarction, involving the temporal and parietal regions. The patient was brain-dead 4 days after admission.

Discussion

Bihemispheric and acute MCA infarctions strongly suggest embolic sources from the aorta or the heart. However, more rarely, also artery-to-artery embolism can be hypothesized. In fact, an atherothrombotic carotid lesion may cause bihemispheric infarctions via intracranial cross-flow, through the anterior communicating artery. The features of the infarction may help to differentiate thrombotic from embolic etiology. Cardioembolic strokes usually present territorial infarct pattern, large size, and haemorrhagic transformation. On the contrary, small and disseminated lesions, with scattered pattern, strongly suggest artery-to-artery embolism.

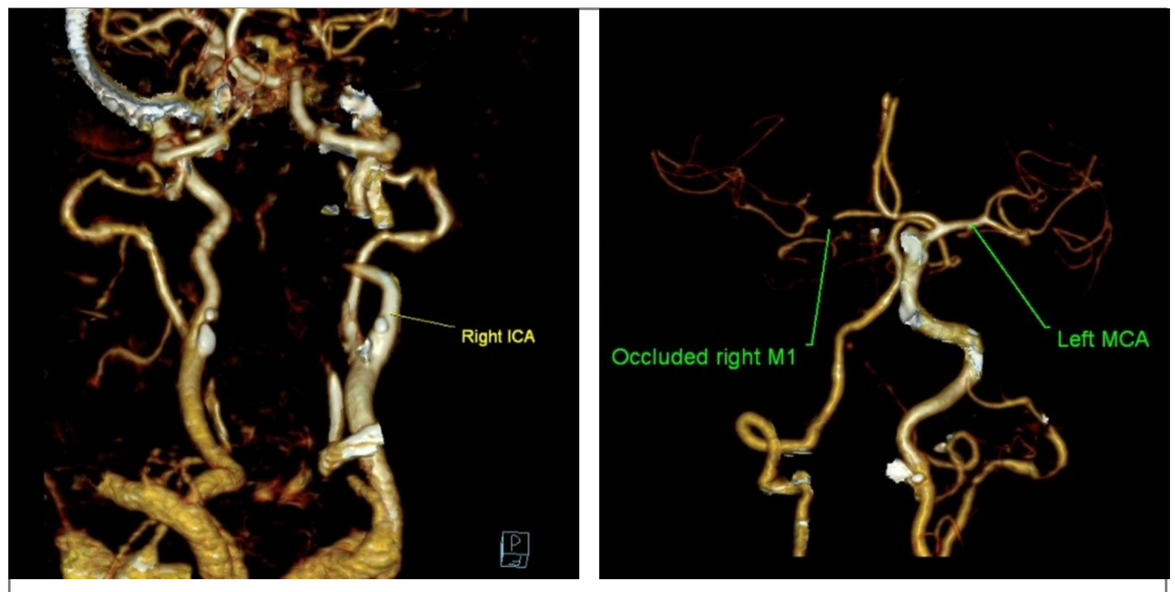

Figure 1 - Baseline CT angiography showing complete occlusion of the right internal carotid artery, extended to the MCA M1 segment

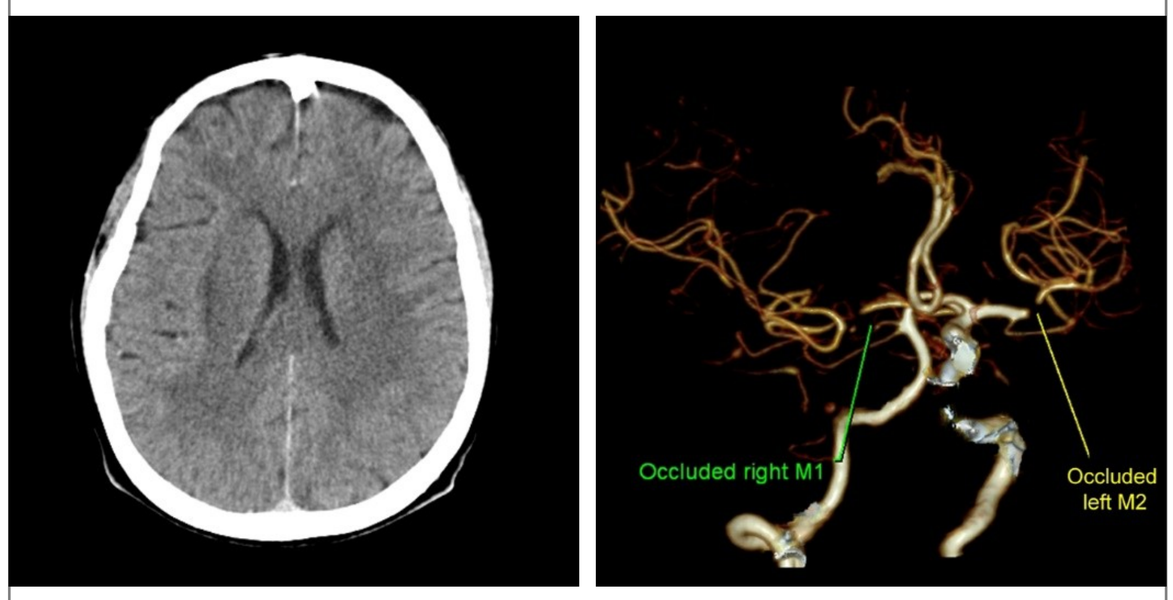

Figure 2 – Brain CT performed 3 hours after symptom onset showing the persistence of the right occlusion and a new left M1 and M2 occlusion

Figure 3 - Brain CT performed 24 hours after symptom onset showing bilateral infarction

Conclusion

We report the occurrence of a rare, bilateral and simultaneous MCA infarct. This condition is severe and mostly caused by aortic or cardiac embolism and less frequently by artery-to-artery embolism. The stroke etiology remained undetermined because of incomplete cardiac evaluation. However, the features of the infarction suggest a possible cardioembolic source.

References

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