

# Multiple subcortical strokes caused by mucormycosis in a patient with lymphoma

Múltiplos infartos subcorticales causados por mucormicose em paciente com linfoma

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Mucormycosis is caused by a saprophytic fungal infection by non-septate hyphae of the genus *Mucor*. Five classic forms are recognized: rhinocerebral, pulmonary, gastrointestinal, cutaneous, and disseminated. Rhinocerebral mucormycosis (RCM) frequently occurs in immunosuppressed patients, such as those with uncontrolled diabetes mellitus or haematological malignancy<sup>1</sup>.

## CASE REPORT

A 56-year-old man was diagnosed with follicular non-Hodgkin's lymphoma. Four months prior to admission, he presented a right headache attributed to rhinosinusitis. Biopsy showed mucormycosis. There was no affectation intracranial in the brain magnetic resonance imaging (MRI), but the patient became blind due to involvement of both central retinal arteries. He underwent debridement of the paranasal sinuses and treatment with liposomal amphotericin B for two months and posaconazole continuously.

He was admitted by recurrent episodes of nonfluent aphasia, right sensory disturbance, and motor weakness. In the last episode, the symptoms persisted and the patient had transcortical motor aphasia, right hemiparesis with dominance of the lower limb (manual muscle testing: upper limb 2/5, lower limb 1/5) and right unilateral sensory impairment, which was restricted at his perioral area and homolateral distal hand and foot.

Hemogram showed lymphopenia ( $0,3 \times 10^9/L$ ) and thrombocytopenia ( $23 \times 10^9/L$ ). Blood clotting was normal. Plasma and urine ketone bodies were absent and other laboratory studies were normal. Echocardiogram, cardiac monitoring and Duplex of the supra-aortic trunk were normal. Transcranial duplex showed 70% stenosis at the M1 segment of left middle cerebral artery (MCA) with no other significant changes. MRI brain on T1 sequences with contrast (Fig A) showed an uptake at both cavernous sinus and internal carotid wall, which

determines a 70% arterial lumen stenosis in the left side. On T2 sequences (Fig B), multiple subcortical ischemic lesions in the left MCA territory could be seen.

The patient was diagnosed from multiple subcortical strokes in the territory of left MCA secondary to infiltration of its wall caused by mucormycosis. He was again treated with liposomal amphotericin B for two months, with clinical and radiological improvement. In the six-month follow-up, no new cerebrovascular disorders have appeared.

## DISCUSSION

*Mucor* is attracted to blood vessels and invasion of their wall (particularly arterial) is the pathological trademark of the infection. The integrity of host defense mechanisms plays a key role. The presence of certain underlying diseases as lymphoma provides a favourable microenvironment for fungal growth. The disease usually spreads to the cavernous sinus, internal carotid artery and subsequently to the brain<sup>2</sup>. Vascular manifestations of mucormycosis

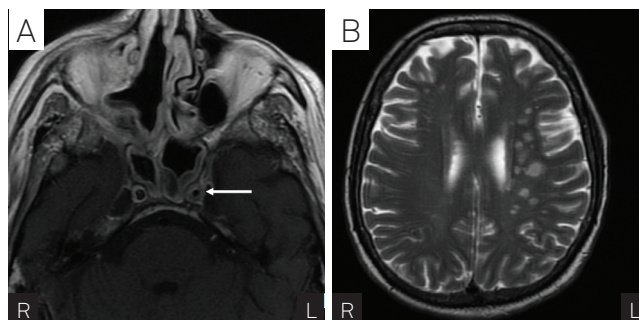


Fig. Brain magnetic resonance image. (A) Axial T1-weighted image with contrast – uptake at both cavernous sinus and internal carotid wall (arrow) that determine an arterial lumen stenosis in the left side. (B) Axial T2-weighted image shows multiple subcortical ischemic lesions in the left middle cerebral artery territory.

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include pseudoaneurysms, partial thrombosis, narrowing and arteritic irregularities of intracranial arteries. Their pathologic basis is believed to be a combination of direct endothelial injury and growth of hyphae into the lumen, with resultant distal infarcts and mycotic emboli. Vasculitis usually occurs in the supraclinoid portion of the internal carotid artery. Mycotic pseudoaneurysms, arterial dissection, or venous congestion could lead to intracranial

hemorrhages<sup>3</sup>. Rapid thickening and enhancement of the carotid artery wall on serial MRI establishes the nature of the arterial involvement by mucormycosis rather than atherosclerosis<sup>4</sup>.

The prognosis is always very poor once the carotid artery is involved. A few successful cases have been reported following extensive sinus debridement and intravenous amphotericin B therapy<sup>5</sup>.

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