

Clinical Image

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Radio-clinical histologic diagnosis of huge rhino-orbito-cerebral mycotic mass**Emmanuel Garba Sunday¹; Nasiru Raheem²; Eno-Abasi Garba Sunday^{3*}; Aminu Saad Jika²; Daniel Vahyella⁴; Yao Christian Hugues Dokponou⁵**¹Department of Surgery, Neurosurgery Unit, Modibbo Adama University Teaching Hospital, Yola, Adamawa State, Nigeria.²Department of Anatomic Pathology and Forensic Medicine, Modibbo Adama University Teaching Hospital, Yola, Adamawa State, Nigeria.³Department of Paediatrics, Haematology and Oncology Unit, University of Ilorin Teaching Hospital, Ilorin, Kwara State, Nigeria.⁴Department of Surgery, Modibbo Adama University Teaching Hospital, Yola, Adamawa State, Nigeria.⁵Department of Neurosurgery, Mohammed V University of Medicine and Pharmacy of Rabat, Morocco.***Corresponding Author: Emmanuel G Sunday**

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Keywords: Mycotic mass; Intracranial; Orbit; Sinuses; Clinical; Radiology; Histopathology.**Description**

We present a difficult diagnosis of an unusual intracranial fungal mass in a male farmer aged 50 years who is immunocompetent and right-handed. His cranial CT scan showed a left mass extending into the sphenoid sinus, with a necrotic core and calcifications. The lesion eroded the orbital roof and invaded the left maxillary sinus (Figure 1a). He had been seen for about a year by a general practitioner, a psychiatrist, and a neurologist, in that order, for behavioural changes, frontal headache, right spastic hemiparesis, and left proptosis. For this reason, he was referred to our facility. His schizophrenia was treated and when

neurological symptoms appeared, he was referred to neurology. Aside from the fact that he was a farmer and may have been exposed to the infectious organism through plants or soil, his medical history was unremarkable. Brain MRI results at presentation showed a massive left rhino-orbito-sub frontal mass of mixed intensity that destroyed the orbital roof and invaded the frontal lobe, displacing it superiorly and extending into the left maxillary sinus and sphenoid sinus (Figure 1b). We considered the clinical differentials of fibrous dysplasia and left sub frontal atypical meningioma. The patient underwent total resection of a severely fibrous tumour, recovered well from surgery, was

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able to walk on the first postoperative day, and tolerated oral drug administration. However, on the fourth postoperative day, he developed a fever with leucocytosis and neutrophilia, and the site of infection could not be identified. He was given empirical triple antibiotics, but he did not respond and died on the 8th postoperative day. The histological result was available the next day, and revealed chronic granulomatous inflammation, with epithelioid cells, fibrosis, and multinucleated giant cells (Figure 2a), suggesting rhino-orbitocerebral mycoses, most likely due to aspergillosis (Figure 2b).

Hippocrates was the first to describe candidiasis. In 1861, Zenger [4] was the first to describe intracerebral candidiasis in a dead patient. In 1897, Oppe was the first to describe rhino-orbito-cerebral aspergillosis while Gregory described detailed cases

of rhino-orbito-cerebral zygomycosis [4]. Fungal infections of the Central Nervous System (CNS) are rare diseases (only about 10-15% of identified fungi lead to systemic or CNS infection) [4], even in large agricultural societies such as India [1], are usually associated with diagnostic difficulties in the presence of immunosuppression or direct inoculation after cranial neurosurgical procedures. CNS fungal infections can cause various syndromes such as hydrocephalus, basal meningitis, and space-occupying lesions such as granulomas and brain abscesses. Although rare, it results in high morbidity and mortality compared to other CNS infections (bacterial, viral, parasitic) [1-4]. Therefore, the strategy for a good outcome is early detection and prompt initiation of surgical and medical therapy (organism-based, with triazoles (voriconazole) and echinocandins being the newest effective drugs) [1,4].

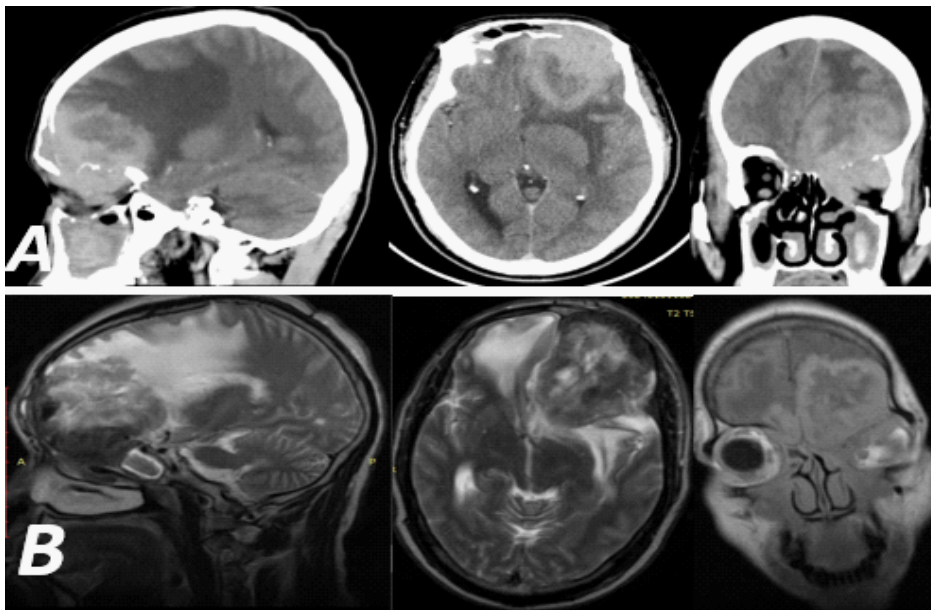


Figure 1: (a) Brain CT scan of left sub-frontal mass extending into the sphenoid sinus with necrotic core and calcifications, eroding the roof of the orbit and invading the left maxillary sinus and (b) Brain MRI showing a huge left mixed intensity rhino-orbito-sub frontal mass invading and displacing the frontal lobe superiorly with necrotic core, extending into the sphenoid sinus and left maxillary sinus and complete destruction of the orbital roof.

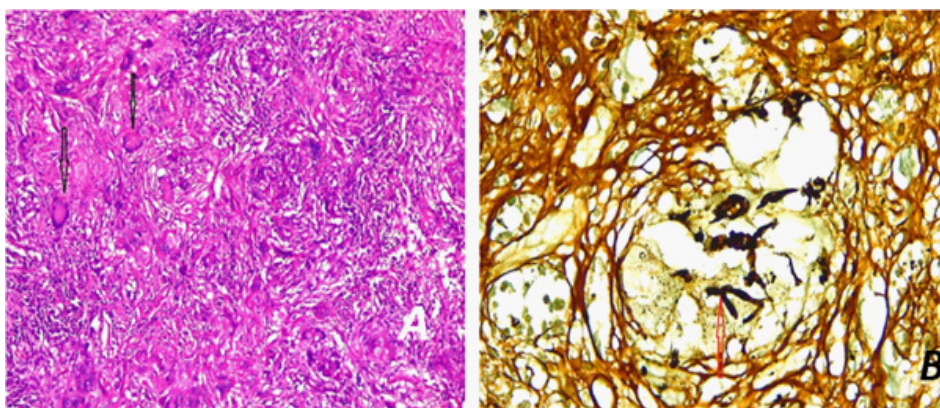


Figure 2: (a) Photomicrograph of rhino-cerebral mycoses showing chronic granulomatous inflammation with epithelioid cells, fibrosis and multinucleated giant cells (arrows). H & E X 100. (b) Photomicrograph of rhino-cerebral mycoses showing branching, septate fungal hyphae GMS X 400.

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