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Case Report

Calcified Nodule by Cryptococcus Neoformans Presenting as an Expansive Brain Lesion in an Epileptic Man with HIV

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Abstract

We report a case of a 46-year-old HIV-positive patient who presented with recurrent tonic-clonic seizures, associated with episodes of focal seizures with impaired awareness. Based on clinical and neuroimaging findings, a presumptive diagnosis of neurotoxoplasmosis was made. However, the seizures were refractory to treatment, which lead to the decision of performing a microsurgical resection of the brain lesion. After surgery, the patient was diagnosed with a lesion encapsulated by Cryptococcus neoformans.

Keywords: Brain nodule; Cryptococcus neoformans; Histopathology; HIV

Introduction

With the increasing prevalence of people with HIV/AIDS, neuromycoses are becoming more frequent. Among the fungal pathogens, Cryptococcus is the main one that affects the central nervous system, and may present as meningitis, meningoencephalitis, cryptococcomas or gelatinous pseudocysts, which are usually located in the periventricular gray matter, as well as in the cerebral aqueduct and in the basal ganglia. The meninges can be affected through dissemination by the Cerebrospinal Fluid (CSF) to the subarachnoid space, where there is accumulation of mucinous exudate. The most affected sites are the base of the skull and around the cerebellum [1].

Case presentation

A 46-year-old HIV-positive man, recently treated for neurotoxoplasmosis, using Sulfamethoxazole with Trimethoprim, presented with a report of bilateral generalized tonic-clonic seizures, associated with episodes that suggested focal seizures with impaired awareness. The patient was using valproic acid 500mg associated with oxcarbamazepine 300mg, both twice a day. Magnetic Resonance Imaging (MRI) of the skull was performed, which identified an expansive lesion in the periphery of the left temporal lobe associated with vasogenic edema, measuring approximately 3,5 x 3,2 x 3,2 cm with lobulated annular gadolinium peripheral enhancement. Considering the immunosuppressed state of the patient, the lesion was considered as a sign of neurotoxoplasmosis (Figure 1). After the treatment

for neurotoxoplasmosis, he presented radiological regression of the lesion (Figure 2). The measures after the treatment were 1,9 x 0,8 x 1,5 cm. However, he persisted with refractory epilepsy, even after optimization of medications. It was decided to indicate microsurgery for the resection of the lesion and to diagnostic clarification. After the surgical procedure, the specimen was submitted to histopathological analysis, which showed a calcified nodule, encapsulated with multiple fungal structures compatible with Cryptococcus neoformans (Figure 3). The research for cryptococcus sp was positive by histochemical methods of PAS (peroidic acid-Schiff) and mucicarmine. The patient presented clinical improvement after the surgical procedure, with a reduction in the number of seizures.

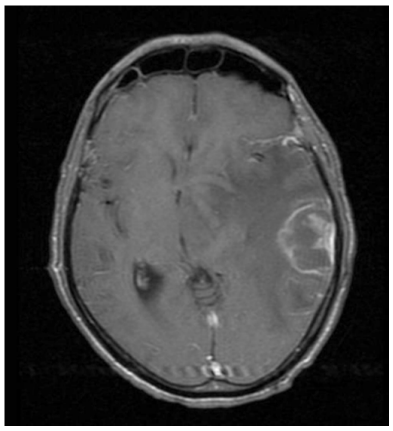

Figure 1: T1-weighted contrast-enhanced Magnetic Resonance Imaging (MRI). Brain mass measuring approximately 3.5 x 3.2 x 3.2 with lobulated margins located in the periphery of the left temporal lobe presenting with peripheral and central enhancement. There is extensive perilesional vasogenic edema and significant midline shift.

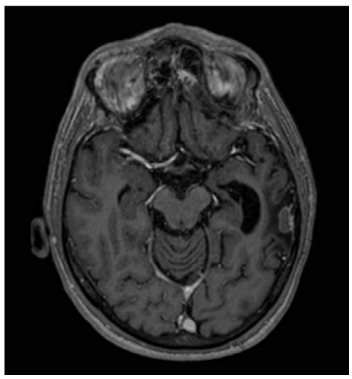

Figure 2: Posttreatment T1-weighted contrast-enhanced MRI. Expansive lesion centered on the left middle temporal gyrus presenting peripheral enhancement. Dimensions of the lesion: 1,9 x 0,8 x 1,5 cm. There are signs of perilesional encephalomalacia and gliosis.

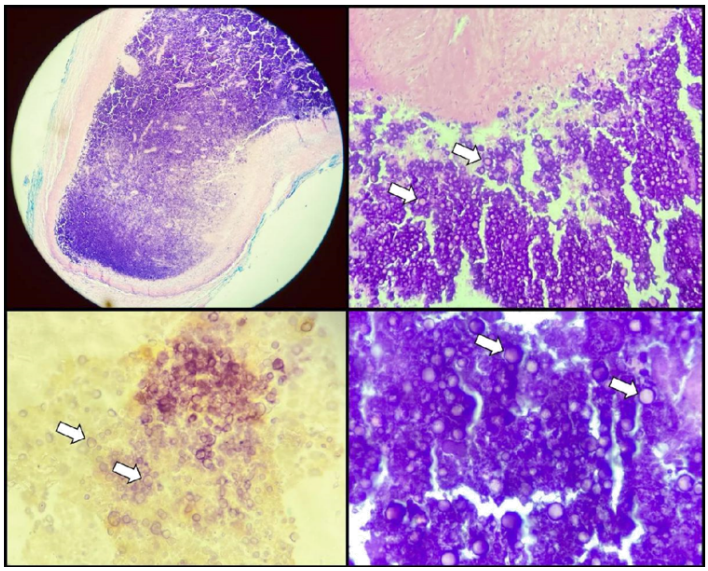

Figure 3: Calcified nodule, encapsulated with multiple fungal structures compatible with Cryptococcus neoformans (white arrows). The test for Cryptococcus neoformans was positive by the histochemical methods of Periodic acid–Schiff stain (PAS) and mucicarmine.

Discussion

Cryptococcosis occurs in men in approximately 70% of cases. In adults, mostly affects individuals between 30 and 60 years, being rare in the pediatric group. The main forms of the disease are the pulmonary and the central nervous system infections. Cryptococcal meningitis represents 70% of all cases and is responsible for 625,000 annual deaths [2]. Its onset can be sudden or insidious and the most frequent symptoms are headache, fever, vomiting, visual changes, neck stiffness, signs of meningeal irritation and intracranial hypertension, which can last for days or weeks. Furthermore, visual disturbances, such as diplopia, and mental alterations, such as confusion, personality and memory disorders, may also occur. Focal neurological signs, such as seizures, are rare [3]. The diagnosis can be made associating clinical, radiological, and CSF results. The CSF tends to presents itself with lymphomonocytic pleocytosis, increased protein levels and hypoglycorrhachia. MRI can demonstrate leptomeningeal enhancement and dilation of perivascular spaces due to the presence of mucoid material and maintained obstructive miliary nodules. Choroid plexus, ventriculitis and pachymeningeal enhancement may be noted [4].

Conclusion

Neuromycoses should be considered in immunocompetent and immunosuppressed patients. Early diagnosis and prompt

initiation of antimycotic treatment (such as amphotericin B or triazoles) and appropriate surgical management when suitable are essential to ensure a favorable outcome.

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