

# Cryptococcoma of Central Nervous System in a Patient with Human Immunodeficiency Virus (HIV) Mimicking Lymphoma

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## Abstract

Central Nervous System (CNS) *Cryptococcosis* is an opportunistic fungal infection that typically occurs in immunocompromised patients, such as patients infected with HIV, patients receiving corticosteroid and immunosuppressive therapy, or patients receiving organ transplants. CNS cryptococcosis is usually revealed by meningitis and encephalitis. Cerebellar Cryptococcoma is a rare condition of infection by the *Cryptococcus neoformans*. We reported a case of a 19-year-old female adult admitted for the management of an HIV infection complicated by opportunistic infections with a cerebellar cryptococcoma mimicking lymphoma.

**Key Words:** *Cryptococcosis* • Pseudotumor cerebri • Immunocompromised patient

## Introduction

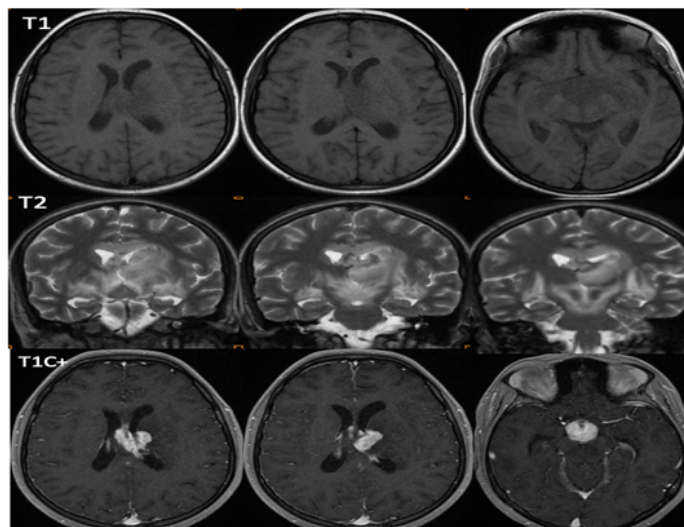
*Cryptococcus neoformans* is an opportunistic fungal pathogen because of its tendency to infect immunocompromised patients, particularly those infected with HIV. It's an environmentally encapsulated yeast, commonly found in soil enriched with avian droppings and plant material. In order of frequency, clinical manifestations of *Cryptococcus* involve the lungs and CNS, although several other sites may be involved. Contamination occurs via the respiratory tracts and infects predilection sites in CNS via hematogenous spread [1, 2].

## Case report

A 19-year-old female adult was admitted for the management of intracranial hypertension with insidious fever evolving for 2 months. On admission, she had a stiff neck, with a fever (39°C) a cerebral MRI was made objectifying the presence of dual localization brain injury sellar and hypothalamic described in low signal intensity on T1 and T2 with heterogeneous enhancement, the hypothesis of a granulomatous process type tuberculosis, histiocytosis or sarcoidosis, a tumor origin such as lymphoma were mentioned (Figure 1) [3].

The symptomatology worsened by acute onset dyspnea, an ETT and a CT lung scan were performed objectifying a moderate pericardial effusion with Cystic lung disease [4]. A *Pneumocystis jirovecii* has been detected on bronchoalveolar Lavage fluid and an HIV serology is requested to return positive as well as the cryptococcal antigen is present in the blood [5].

In conclusion, it was an HIV infection complicated by opportunistic infections, pneumocystosis and cerebellar Cryptococcoma [6]. Treatment was started based on Bactrim, Amphotericin B and Fluconazole with a good improvement. Follow-up MRI returned to normal, and the patient did not have any neurological sequelae [7-9].



**Figure 1.** Cerebral MRI: Presence of dual localization brain injury left sellar and hypothalamic in low signal intensity on T1 and T2 with heterogeneous enhancement after gadolinium injection.

## Conclusion and Discussion

*Cryptococcus neoformans* is an opportunistic fungal pathogen in infected immunocompromised patients, particularly those infected with HIV. Clinical manifestations of *Cryptococcus* often involve CNS and it manifests as meningoencephalitis. Cryptococcoma corresponds to chronic granulomatous reactions, following an invasion of the parenchyma by *Cryptococcus neoformans* and establishment of focal tissue infection often seen in immunocompetent individuals or those that have initiated antiretroviral therapy. Cryptococcoma usually occurs in the CNS and lungs.

The particularity of our observation is that our patient being HIV positive under no viral treatment and had a dual-localized cerebral cryptococcoma. The diagnosis of cryptococcosis is made by the latex agglutination test for capsular polysaccharide antigen. This antigen can be obtained from either Cerebrospinal Fluid (CSF) or serum. CSF analysis revealed hyperlymphocytosis, hyperproteinorachia, hypoglycorachia, hypochlorurachia, and direct examination shows encapsulated yeast in 60% of cases and the culture was positive in 92% of cases. The test for cryptococcal antigen is positive in the CSF in about 90% of cases and in the serum in 75% to 94% of cases

Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) are fundamental for diagnostic in immunocompromised patient and neurologic dysfunction. According to our research MRI is superior to CT in detecting abnormalities in patients with CNS cryptococcosis. On MRI, cryptococcoma shows up as focal pseudo tumoral or pseudo cystic lesion, with a low signal intensity in T1, and high signal intensity in T2 or Flair. The enhancement after gadolinium injection may be heterogeneous, in rings, or absent.

Radiological differential diagnosis of cerebral cryptococcoma can be mistaken with other infections like tuberculous granuloma, neurocysticercosis, cerebral toxoplasmosis, neurosarcoidosis, or for neoplasms such as CNS lymphoma and cerebral metastases.

The classic treatment for CNM cryptococcal disease that is common in patients with HIV infection remains the amphotericin B, irrespective of the serological status. Our patient was successfully treated with flucytosine combination. In summary, the morbidity and mortality rate in CNS *Cryptococcosis* is high particularly in HIV patients and it should be considered in the differential diagnosis of immunocompromised patients presenting cerebral dysfunction.

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