Scholars Journal of Medical Case Reports
Abbreviated Key Title: Sch J Med Case Rep
ISSN 2347-9507 (Print) | ISSN 2347-6559 (Online)
Journal homepage: https://saspublishers.com

OPEN ACCESS

Radiology

Neuromeningeal Cryptococcosis in an HIV Patient: The contribution of MRI

Ifrah R. R[1]*, Poda Berenger[1], B. Odoulou Pea[1], S. Ben Elhend[1], S. Belassri[1], N, Hammoun[1], R. Roukhsi[1], B. Sloui, Roukhsi[1], M. Atman[1], A. Mouhsine[1]

[1]Radiology Department, Avicenne Military Hospital, Marrakech, Kingdom of Morocco

DOI: https://doi.org/10.36347/sjmcr.2026.v14i02.027 | **Received:** 12.01.2026 | **Accepted:** 18.02.2026 | **Published:** 25.02.2026

***Corresponding author:** Ifrah R. R
Radiology Department, Avicenne Military Hospital, Marrakech, Kingdom of Morocco

Abstract | **Case Report**

Neurocryptococcosis is a major opportunistic infection in immunocompromised individuals, the diagnosis of which relies on a close radiological-biological correlation. We report the case of a 71-year-old patient with AIDS presenting with fever and headaches; After a normal initial CT scan, brain MRI revealed nodular and patchy white matter abnormalities with T2/FLAIR hyperintensity and diffusion restriction, associated with vermis hypertrophy and hemorrhagic stigmata on T2*. Correlation with a bronchoalveolar lavage positive for Cryptococcus neoformans confirmed disseminated neurocryptococcosis in the form of cerebrospinal encephalitis. MRI is the gold standard for identifying the characteristic clinical features, including gelatinous pseudocysts and cryptococcomas. High-resolution MRI, combined with cerebrospinal fluid analysis, is proving to be an essential diagnostic tool for early management and improved prognosis.

Keywords: Neurocryptococcosis, HIV/AIDS, Brain MRI, Opportunistic Infections, Fungal Encephalitis, Immunosuppression.

INTRODUCTION

Neurocryptococcosis is a major opportunistic fungal infection with a high incidence in immunocompromised patients, particularly those with AIDS. This disease, associated with significant morbidity and mortality, necessitates a rapid and accurate diagnostic strategy. In this context, magnetic resonance imaging (MRI) has become an indispensable tool, not only for initial assessment of the lesions but also for therapeutic monitoring [1-6].

The objective of this article is, firstly, to describe the characteristic MRI findings of neuromeningeal involvement. Secondly, we will highlight the crucial contribution of imaging to diagnostic guidance, in close correlation with clinical data and biological analysis of cerebrospinal fluid (CSF).

CASE REPORT

A 71-year-old patient with recently diagnosed HIV infection (likely CDC stage C) was hospitalized for a febrile syndrome associated with headaches and inflammatory lower back pain in the L2-L3 region with a positive bell sign.

The initial brain CT scan did not reveal any abnormalities explaining the neurological symptoms (Figure 1). However, a thoraco-abdomino-pelvic CT scan revealed minimal diffuse alveolar pneumonia, suggesting an opportunistic etiology (cryptococcosis or CMV infection), to be confirmed by bronchoalveolar lavage (BAL).

Brain MRI revealed multiple signal abnormalities located in the supratentorial and infratentorial white matter. These lesions, appearing as nodules and patches, are isointense on T1-weighted images and hyperintense on T2/FLAIR images, with areas of diffusion restriction (Figure 2). After gadolinium injection, subtle enhancement is noted, associated with hemorrhagic lesions hypointense on T2* (or SWI) images in the cerebellum.

Furthermore, hypertrophy of the cerebellar vermis is observed as hyperintense on T2-weighted images, complicated by cerebellar tonsillar ptosis indicative of incipient herniation. These radiological signs, suggestive of cerebellar encephalopathy, were compared with the results of bronchoalveolar lavage

(BAL), which revealed cryptococcosis, thus leading to a diagnosis of neurocryptococcosis.

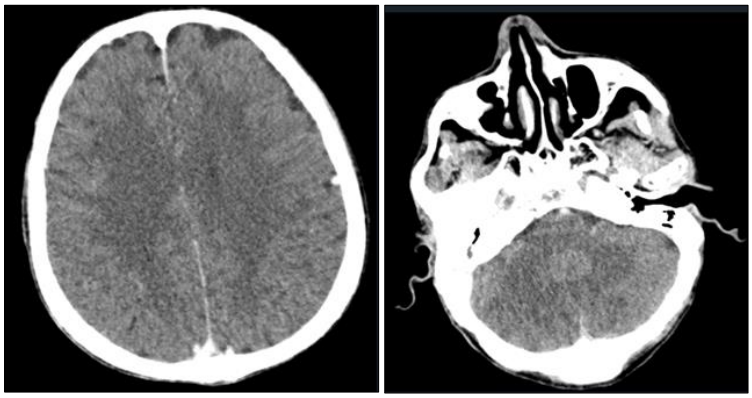


Figure 1: Axial brain CT scan with contrast injection showing no significant abnormalities

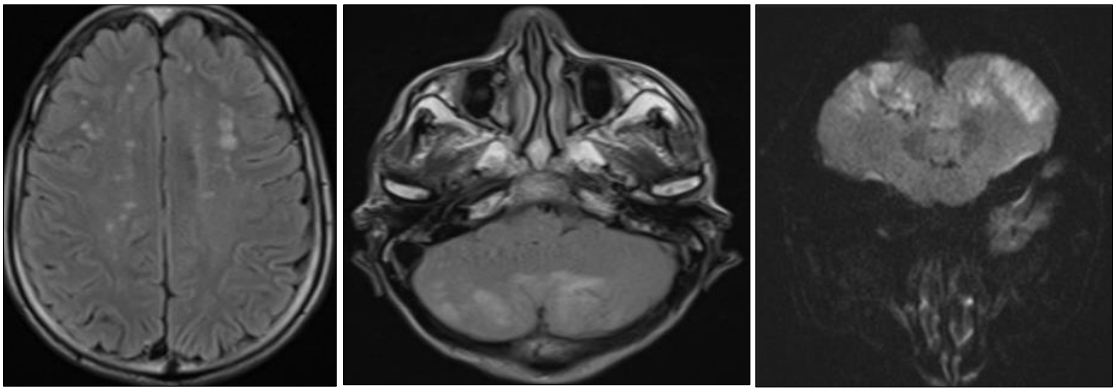
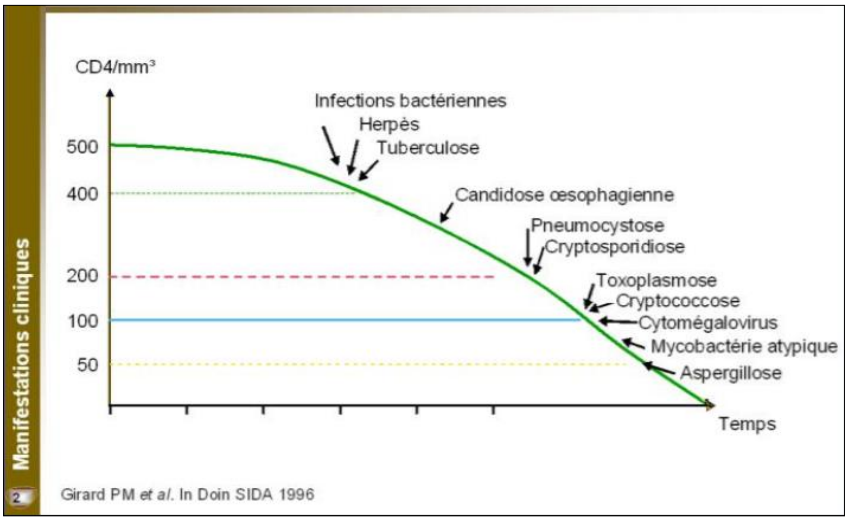


Figure 2: Axial section brain MRI in FLAIR, Diffusion sequence, objective nodular signal abnormalities and area of the supra- and infratentorial white matter, isosignal T1, hypersignal T2, FLAIR and diffusion, with restriction of the ADC in places

DISCUSSION

➢ **Epidemiological and Clinical Context**

Neurocryptococcosis accounts for 15 to 35% of the initial manifestations of AIDS in Africa [4]. It should be systematically considered in the differential diagnosis of a febrile neurological syndrome in an immunocompromised patient with a CD4 lymphocyte count < 100/mm³. The clinical presentation, often initially subtle, includes fever and headache in 70% of cases, while meningeal signs are present in only 40% of patients [3].



- **Medical Imaging Methods/ Typical Appearance of Neuromeninge Cryptococcosis On Mri**
- **Cerebral Computed Tomography (CT):** Although often normal in the early stages, it is the first-line investigation in emergencies (altered mental status, coma) or when MRI is contraindicated.
- **Magnetic Resonance Imaging (MRI):** This is the gold standard for diagnosis, staging, and monitoring disease progression. Its sensitivity is superior for detecting complications. [1,6]

❖ **MRI Semiology of Neurocryptococcosis**

A. Gelatinous Pseudocysts

A near-pathognomonic feature, these result from the dilation of the perivascular spaces of Virchow-Robin by the capsular polysaccharides of the fungus.

- Appearance: Multiple punctate lesions resembling "soap bubbles" or "wormholes."
- Location: Predominantly located in the basal ganglia (ganglio-capsular region) and thalamus.
- Signal: T2 hyperintensity, isointensity to CSF, with a usual absence of enhancement after gadolinium injection. [5,6]

B. Cryptococcomas

More focal parenchymal lesions corresponding to inflammatory granulomas.

- Morphology: Well-defined nodules, hypointense or isointense on T1-weighted images and hyperintense on T2-weighted/FLAIR images.
- Contrast enhancement: Variable enhancement, often homogeneous nodular or ring-like (indicating an underlying immune response) [6].

C. Meningeal Involvement (Leptomeningitis)

This manifests as diffuse or focal leptomeningeal thickening and enhancement after gadolinium injection, although imaging may remain normal despite clinically confirmed meningitis [1].

D. Indirect Signs and Complications

- Non-obstructive hydrocephalus: A frequent complication related to the obstruction of arachnoid villi by yeast, particularly in chronic forms.
- Diffuse cerebral edema: Less specific, visible as areas of T2/FLAIR hyperintensity within the white matter [2-5].

CONCLUSION

Neurocryptococcosis remains one of the most severe opportunistic infections affecting patients living with HIV who are severely immunocompromised. Its prognosis depends closely on the promptness of therapeutic intervention.

In this diagnostic arsenal, brain MRI plays a central role. Its high spatial resolution allows for the identification of suggestive semiological markers, such as gelatinous pseudocysts or cryptococcomas, often even before certain cultures are positive [1-6]. In synergy with biological data from cerebrospinal fluid (CSF), imaging is proving to be an indispensable tool for differentiating this pathology from other opportunistic encephalitides, enabling rapid guidance for clinicians and optimizing patient outcomes.

REFERENCES

1. Fendri H, *et al.,* Contribution of MRI to the diagnostic approach of cerebral infections in HIV. Journal of Neuroradiology. 2020;47(2):124-125.
2. Kalata N, *et al.,* Neurological deterioration in a patient with HIV-associated cryptococcal meningitis initially improving on antifungal treatment: a case report. BMC Infect Dis. 2021;21(1):724.
3. Hogan D, *et al.,* Cerebellitis associated with cryptococcal-immune reconstitution inflammatory syndrome. IDCases. 2023; 33:e01790.
4. Loyse A, *et al.,* Cryptococcal meningitis: a review of genetic and environmental risk factors. Lancet Infect Dis. 2022.
5. Mourad A, *et al.,* Central Nervous System Cryptococcosis in HIV-Infected Patients: A Review of Clinical Manifestations and Imaging Findings. Journal of Fungi. 2021; 7(6):444.
6. Smith AB, *et al.,* From the Radiologic Archives: CNS Infections in Immunocompromised Patients. RadioGraphics. 2019; 39(4):1142-1163.