

CNS Mold Masquerading as Brain Metastases

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ABSTRACT

RESULTS

Background:

Histoplasmosis is known to cause CNS infection with or without disseminated disease and immunosuppression as risk factor. It can mimic brain tumor and present a diagnostic challenge.

CNS LESIONS OF HISTOPLASMA CAPSULATUM





Case:

A 64-year-old white female with myasthenia gravis on mycophenolate mofetil, history of Meniere's Disease, presented with worsening ataxia and left-sided facial weakness for 4 days. MRI revealed multiple enhancing lesions within the brainstem and supratentorial parenchyma, consistent with metastases but either too small or inaccessible for biopsy. Work up for primary cancer with CT thorax, abdomen-pelvis, transvaginal US, mammogram, bone scan, and CSF cytology were negative. The CSF BioFire PCR and culture were negative. Prednisone taper was started for brain vasogenic edema. Patient presented again two months later with worsening lethargy, vertigo, and recurrent falls. At that time the brain lesions showed continued enlargement on repeat imaging, and stereotactic biopsy was performed. Histopathology showed non-necrotizing granulomas, no evidence of malignancy, but after 12 days a mold was isolated on culture prompting Infectious Diseases consultation. Initial morphologic features were non-diagnostic and empiric voriconazole was initiated. Fungal culture evolved Histoplasma capsulatum and voriconazole was switched to liposomal amphotericin B at 5 mg/kg intravenously every 24 hours. Histoplasma serology was positive at low titer, urine histoplasma antigen was negative. An 8 weeks course of Amphotericin, followed by lifelong suppression with fluconazole, was planned. However, after 6 weeks, our patient had not improved and transitioned to comfort care.

Fig. 1: MRI brain with and without contrast reveals multiple enhancing lesions. Arrows point to some of the lesions.

- Search phrases: "histoplasmosis brain abscess" "brain histoplasmoma"
- Evaluated the identified articles for additional cited cases
- Data was extracted and detailed in **Supplemental Table 1 accessible via** the bar code below:



PUBMED SEARCH FOR HISTORIC CASES OF CNS HISTOPLASMOSIS

Number of Cases 23 patients from 23 published papers Patient Age mean: 42.9 years range: 9 - 66 years Immunosuppressed status yes: 10 no: 8 unknown: 5 Time to diagnosis mean: 11.6 months range: 12 days to 5 yeears at autopsy: 2 patients unknown: 15 patients

Treatment

Amphotericin alone: 8 Voriconazole alone: 1 Itraconazole alone: 1 Ketoconazole alone: 1 Amphotericin followed by Itraconazole: 4 treated suspected toxoplasmosis: 1 surgical excision: 7 Unknown or no treatment: 5 **Patient Outcomes** full recovery: 9 some residual neurological deficits: 7 deceased despite treatment: 2 deceased before diagnosis: 2 unknown outcome: 3

The diagnosis of our patient's brain lesions was challenging as biopsy was not an option initially. An anchoring bias likely existed as the investigations had focused on malignancy, while a more robust evaluation for opportunistic endemic fungi, such as Histoplasma, took place at a later stage.

Conclusions:

Discussion:

Brain lesions in the immunosuppressed patient can masquerade as malignancy. To ensure timely diagnosis, a multimodal investigational approach should be applied early to include imaging and laboratory evaluation for endemic opportunistic pathogens, as well as biopsy when possible.

Table 1. Previously published CNS histoplasmosis cases illustrate the common delay in diagnosis

References

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