

Fluorescence of *Cladophialophora bantiana* mimicking glioma after administration of 5-aminolevulinic acid

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Introduction:

Cerebral phaeohyphomycosis caused by *Cladophialophora bantiana* is a rare and often fatal fungal infection of the central nervous system, with a reported mortality rate approaching 70%. Diagnosis is challenging due to its radiographic similarity to neoplastic processes, specifically high-grade glioma. Prompt, complete resection is associated with improved patient outcomes, with surgeons typically relying on imaging for appropriate margins of resection. 5-Aminolevulinic acid (5-ALA) has traditionally been used in patients with gliomas; however, its utility in non-neoplastic lesions remains underexplored.

Case:

We present the case of an 81-year-old immunocompetent female who presented with dizziness, gait imbalance, headache, and a left homonymous hemianopsia. MRI of the brain revealed a right occipital T1 hyperintense lesion with peripheral contrast enhancement, suggestive of a malignant process (Figure 1). Based on imaging findings and clinical presentation, the patient underwent craniotomy with intraoperative use of 5-ALA fluorescence to guide resection.

Results:

Intraoperatively, the lesion's capsule demonstrated strong 5-ALA fluorescence, allowing for complete resection (Figure 2). Histopathologic examination revealed pigmented septate hyphae consistent with *Cladophialophora bantiana* (Figure 3). Infectious disease consultation was obtained, and the patient was initiated on targeted antifungal therapy. Postoperative imaging confirmed resolution of the lesion with no evidence of recurrence or reported complications.

Conclusion:

This case illustrates the critical role of radiologic imaging in the assessment of atypical cerebral lesions, guiding surgical intervention. It also emphasizes the current challenges in diagnostic radiology while additionally demonstrating a novel application of 5-ALA fluorescence in the resection of a fungal abscess mimicking glioma. The adjunctive use of 5-ALA in such cases may facilitate more complete resections and improved clinical outcomes.

Figure 1: Axial T1 MRI post contrast, before abscess resection showing an irregular, enhancing intra-axial mass in the right parasagittal occipital lobe measuring 2.2 x 1.6 x 1.9 cm.

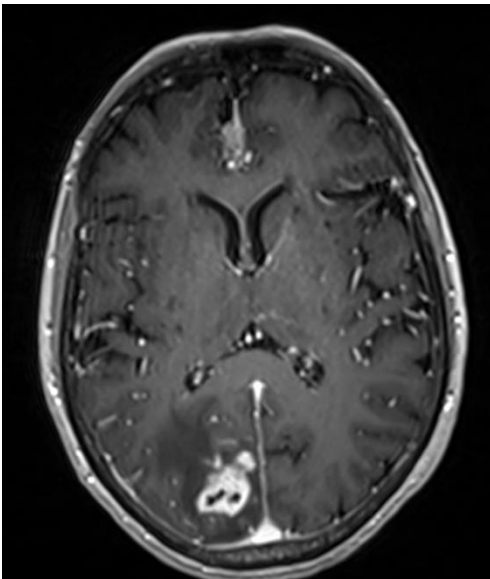


Figure 4: Intraoperative mass enhanced with 5-Aminolevulinic acid fluorescence.

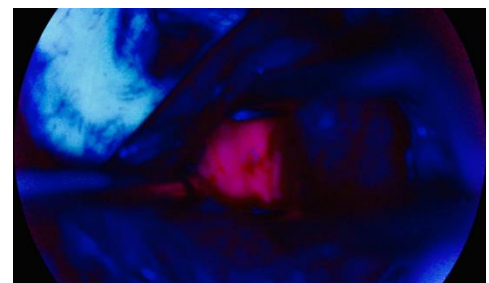


Figure 5: A hematoxylin and eosin-stained permanent section demonstrating one of numerous abscess cavities (A); as well as a higher power, hematoxylin and eosin-stained permanent section demonstrating brown-pigmented, dematiaceous fungal hyphae (B), proven to be *Cladophialophora bantiana*.

