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Neurology Publish Ahead of Print
DOI:10.1212/WNL.000000000207359

Teaching NeuroImage: Cryptococcal Meningoencephalitis With Cryptococcoma and Gelatinous Pseudocysts

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Neurology® Published Ahead of Print articles have been peer reviewed and accepted for publication. This manuscript will be published in its final form after copyediting, page composition, and review of proofs. Errors that could affect the content may be corrected during these processes.

Equal Author Contribution:

The authors contributed equally to this work.

Contributions:

Kelly Trinh: Drafting/revision of the manuscript for content, including medical writing for content; Major role in the acquisition of data; Study concept or design; Analysis or interpretation of data

Duc Le: Drafting/revision of the manuscript for content, including medical writing for content; Major role in the acquisition of data; Study concept or design; Analysis or interpretation of data

Anderson Kuo: Drafting/revision of the manuscript for content, including medical writing for content; Major role in the acquisition of data; Study concept or design; Analysis or interpretation of data

Figure Count:

1

Table Count:

0

Search Terms:

[119] CT, [120] MRI, [137] Encephalitis, [138] Meningitis, [140] Fungal infections

Acknowledgment:

Study Funding:

The authors report no targeted funding

Disclosures:

The authors report no disclosures relevant to the manuscript.

Preprint DOI:**Received Date:**

2022-10-30

Accepted Date:

2023-03-15

Handling Editor Statement:

Submitted and externally peer reviewed. The handling editor was Resident and Fellow Section Editor Whitley Aamodt, MD, MPH.

A 66-year-old female from Venezuela with diabetes and without immunodeficiency presented with headache, dizziness, and lower extremity weakness. Hypodense brain lesions on CT raised concern for metastases (Figure, A and E), but full body CTs failed to reveal a primary site. Brain MRI (Figure, B-D, F-I) suggested intracranial cryptococcosus with mass-like cryptococomas in the cerebelli, left basal ganglia, right temporal lobe, and right occipital lobes and gelatinous pseudocysts manifesting as new dilatation of the perivascular spaces in the left basal ganglia. The diagnosis was confirmed by CSF antigen testing.

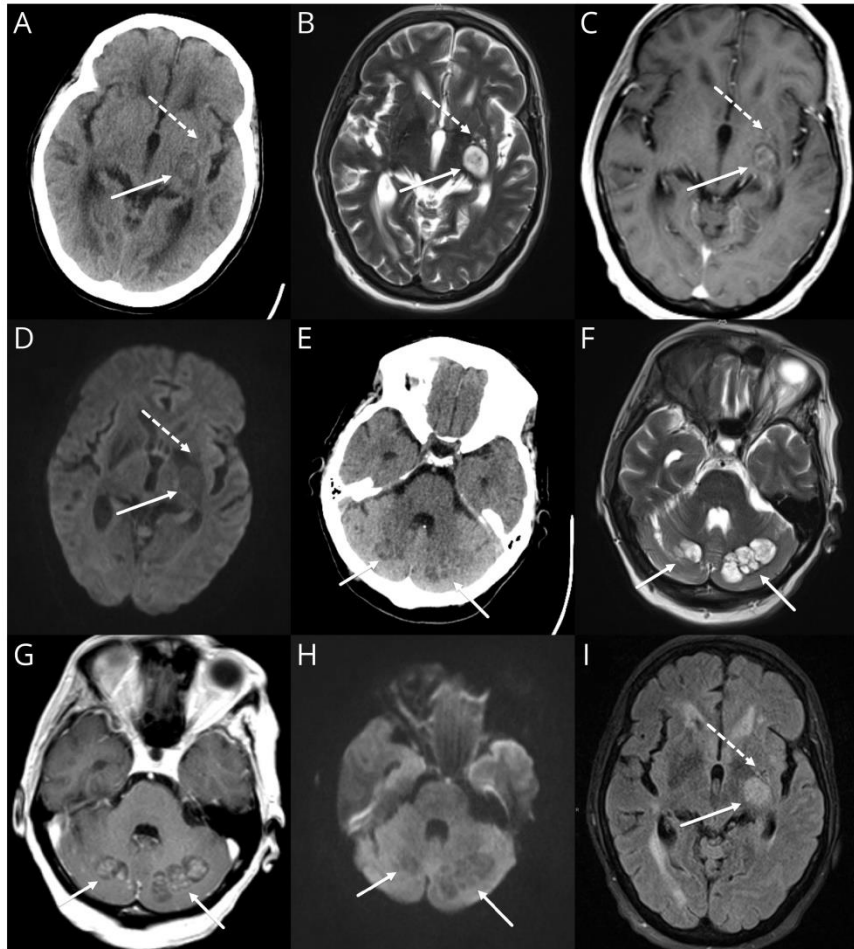
While cryptococcosis has been considered a disease of the immunocompromised, rarely immunocompetent individual can be affected (especially *Cryptococcus gattii*). On imaging, combinations of three manifestations may be seen: (a) meningeal disease evidenced by meningeal enhancement, (b)

extension of the meningeal disease into the perivascular spaces and giving rise to dilatation and cystic areas (pseudocyst formation), and (c) coalescence of the infectious material into frank parenchymal collections (cryptococcomas).¹

Figure Legend

Axial CT and MRI images of the head

Noncontrast CT (A, E), MRI T2 (B, F), post-contrast T1 (C, G), DWI (D, and H), and T2 FLAIR (I) images of the brain. Cryptococcomas (solid arrows) are consolidated areas of infection, appearing as heterogeneous hypodense lesions on CT. On MRI, a lobulated “dirty” T2 appearance with internal enhancement is classic. In contrast to a typical abscess, there is no internal restricted diffusion. Pseudocysts (dashed arrows) are poorly seen on CT, appearing as vague area of hypodensity. On MRI, they appear as newly enlarged perivascular spaces. Patchy enhancement on post-contrast images and surrounding edema on FLAIR distinguish them from normal perivascular spaces if prior imaging is not available.



WNL-2023-000219_slides --- <http://links.lww.com/WNL/C792>

Reference

1. Xia S, Li X, Li H. Imaging characterization of cryptococcal meningoencephalitis. *Radiology of Infectious Diseases*. 2016;3(4):187-191. doi:10.1016/J.JRID.2016.05.003

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Neurology published online May 2, 2023
DOI 10.1212/WNL.0000000000207359

This information is current as of May 2, 2023

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