Listeria Abscess in Occipital Lobe Mimicking Stroke

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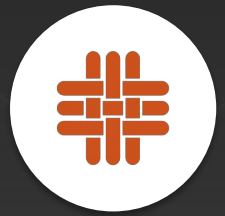

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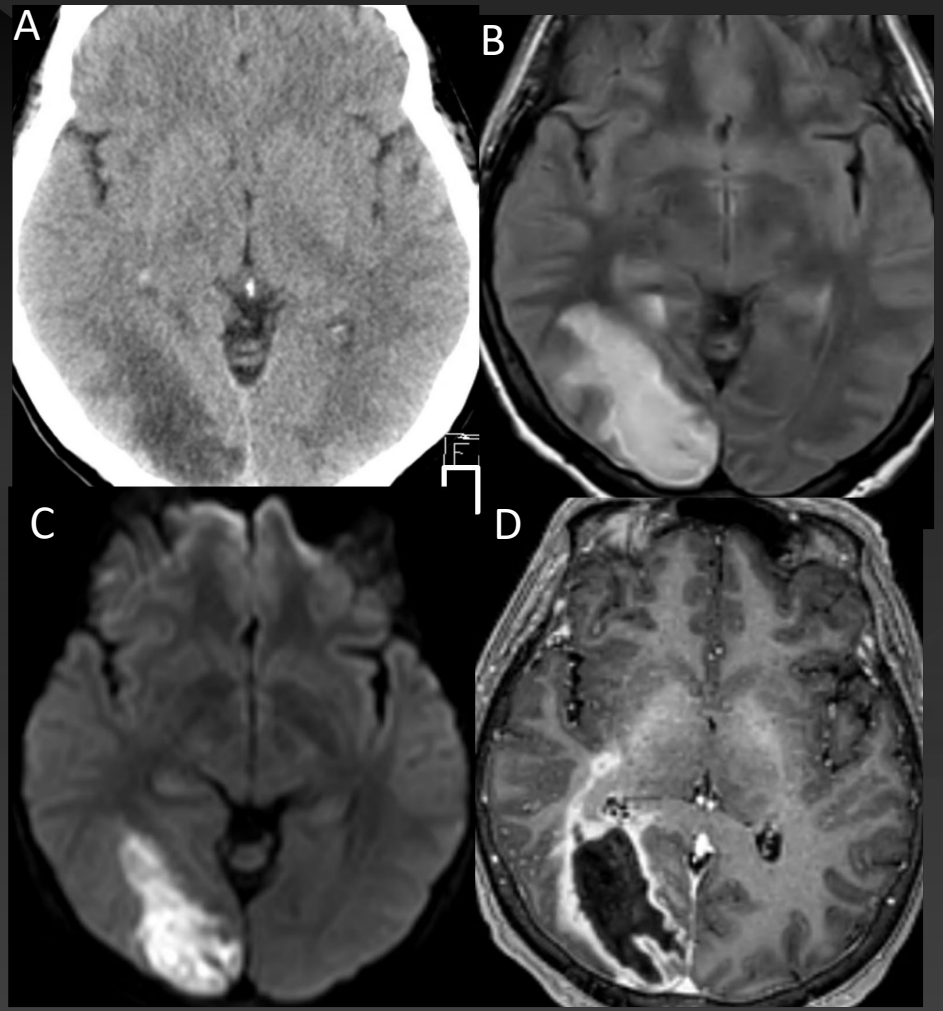
Disclosures

Nothing to disclose

Clinical History

- **Patient:** 63-year-old female
- **Chief Complaints:** One week history of progressive headache, dizziness, loss of balance, fever, blurred vision, nausea, photophobia (worsening with activity), and left homonymous hemianopia
- **Initial Diagnosis:** CT showed hypodensity in the right occipital lobe, consistent with stroke
- **Critical Finding:** Blood cultures grew positive for *Listeria monocytogenes*
- **Follow-up MRI:** Subsequent MRI 2 days later showed rim enhancement of the right occipital lobe lesion, suggestive of an abscess
- **Risk Factor:** Recent consumption of queso fresco, likely source of infection



Imaging

- Axial view of head CT scan shows hypodensity in the right occipital lobe that mimics ischemic infarct (A)
- Axial Brain MRI shows T2/FLAIR hyperintensity on the FLAIR sequence (B) The DWI sequence shows internal diffusion restriction in the same region (C), mimicking evolving ischemic infarct.
- However, the Axial Brain MRI reveals rim enhancement of the lesion on the T1 post-contrast sequence, which is suggestive of abscess formation (D) as opposed to Ischemic infarct that would show gyriform enhancement in the subacute phase.

Management & Outcome

- 2 days after the Brain MRI, the patient underwent craniotomy and drainage of presumed abscess. The patient underwent a continuous infusion of IV ampicillin and Gentamicin for the following 6 weeks.

- One month later, a CSF Culture with Gram Stain, Fungal CSF Culture with India Ink, Catheter Tip Culture, and Blood Culture all came back negative. The patient had improved clinically.

Listeria monocytogenes

- Gram positive facultative intracellular pathogen
- Causes severe infections upon ingestion of contaminated food (i.e., meat, dairy products, pre-packaged sandwiches, cold smoked fish)
- Risk groups: pregnant women, elderly, immunocompromised patients
- 3 main clinical forms
  1. Pregnancy associated and neonatal listeriosis
  2. Bacteremia or septicemic listeriosis
  3. CNS infection (meningitis or meningoencephalitis)
- Commonly treated with penicillin, aminopenicillins, ampicillin or amoxicillin as first line treatment

Listeria Presentation in the CNS

- Triad of fever, neck stiffness, altered mental status (only complete triad 41-51% of the time)
- Intracranial hypertension
- High leukocyte count, high protein concentration, decreased glucose
- Most commonly manifests as leptomeningitis followed by meningoencephalitis, rhombencephalitis and brain abscesses are rare

Discussion

- Typically, patients with brain abscesses present with a slow progressive headache, alternating levels of consciousness, and neurological deficits.
- However, patients can rarely present with stroke-like symptoms such as dizziness. Therefore, it is important to keep abscess in the differential in order to prevent progression to permanent damage of this very serious condition.

Discussion

- Macroscopic abscesses are uncommon, occurring in only 10% of Listeria CNS infections. Most CNS infections caused by Listeria manifest as leptomeningitis or meningoencephalitis.

- Bacteremia symptoms suggest that the primary route for developing a Listeria brain abscess is through hematogenous spread of the bacteria.

Discussion

- Diagnosing stroke versus brain abscess
  - Pay attention to anatomical localization of lesions based on neurological exam
  - Brain abscess imaging can change quickly overtime, follow up MRI necessary to monitor progression and/or treatment
  - Cerebral abscesses are typically associated with vasogenic edema whereas strokes are not

Conclusions

- Stroke-like presentations can mask underlying infections such as *Listeria.* Maintaining a broad differential diagnosis is critical.

- Timely follow-up imaging and consideration of rare CNS infections are essential in high-risk patients to avoid misdiagnosis and prevent permanent neurological damage.

- This case shows the importance of recognizing atypical presentations of infections, particularly in elderly and immunocompromised patients, to guide timely intervention.

References

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