

• The presence of an acute noncommunicating hydrocephalus in an immunocompetent patient with listeria meningoencephalitis presents a unique clinical presentation. This patient's immunocompetent status further underscores the unusual nature of this case, reinforcing the importance of maintaining a broad differential diagnosis. Typically, hydrocephalus in the context of bacterial meningitis is more frequently associated with immunocompromised patients, emphasizing the atypical nature of this clinical presentation.

- **Listeria monocytogenes** is an uncommon but serious cause of CNS infection, primarily affecting neonates, pregnant women, older adults, and immunocompromised patients.
- While meningitis is the most recognized manifestation, **listerial meningoencephalitis** can progress rapidly and carries high morbidity and mortality without prompt diagnosis and treatment.
- **Acute hydrocephalus** is a rare complication, particularly in immunocompetent individuals, and significantly worsens outcomes if not addressed urgently.
- This case describes an **elderly male with paroxysmal atrial fibrillation, well-controlled type 2 diabetes, and centrilobular emphysema**, who developed Listeria meningoencephalitis complicated by acute hydrocephalus.

Initial Presentation

- Elderly male with fever, nausea, vomiting, and upper respiratory symptoms.
- Past medical history: paroxysmal atrial fibrillation (on Eliquis), well-controlled type 2 diabetes, centrilobular emphysema.
- At outside facility: blood cultures and CT chest negative; empiric antibiotics initiated but patient clinically declined.

Diagnostic Workup & Early Management

- Lumbar puncture: positive for *Listeria monocytogenes* (PCR and culture).
- Antibiotics narrowed to IV Ampicillin and Gentamicin.
- On transfer to KHD: A&O x1 (GCS 12), febrile, tachypneic, mild respiratory distress, impending intubation.
- Infectious Disease consulted; prior regimen discontinued, ampicillin/gentamicin continued.

Neurologic Deterioration & Intubation

- Acute decline in mentation (GCS 7, sonorous breathing) → emergent intubation after discussion with daughter.
- CT head: acute developing noncommunicating hydrocephalus.
- Stabilization measures: mannitol, hypertonic saline, protamine, MAP >75, HOB elevated.
- Emergent transfer for neurosurgical intervention.

Neurosurgical Intervention & ICU Course

- Emergent external ventricular drain (EVD) placed; admitted to SICU postoperatively.
- Continued IV Ampicillin and Gentamicin; hypertonic saline maintained.
- Keppra for seizure prophylaxis; Solu-Medrol added for COPD history.
- Mechanical ventilation with subsequent extubation to NIV on 10/12/22.
- Repeat CSF cultures (10/8 and 10/14) showed no growth; hydrocephalus improved on imaging.
- Keppra and Solu-Medrol discontinued by 10/17/22.
- EVD clamped on 10/19, removed on 10/20; stable ventricular size on repeat CT (10/21).
- Transferred out of ICU on 10/22/22.

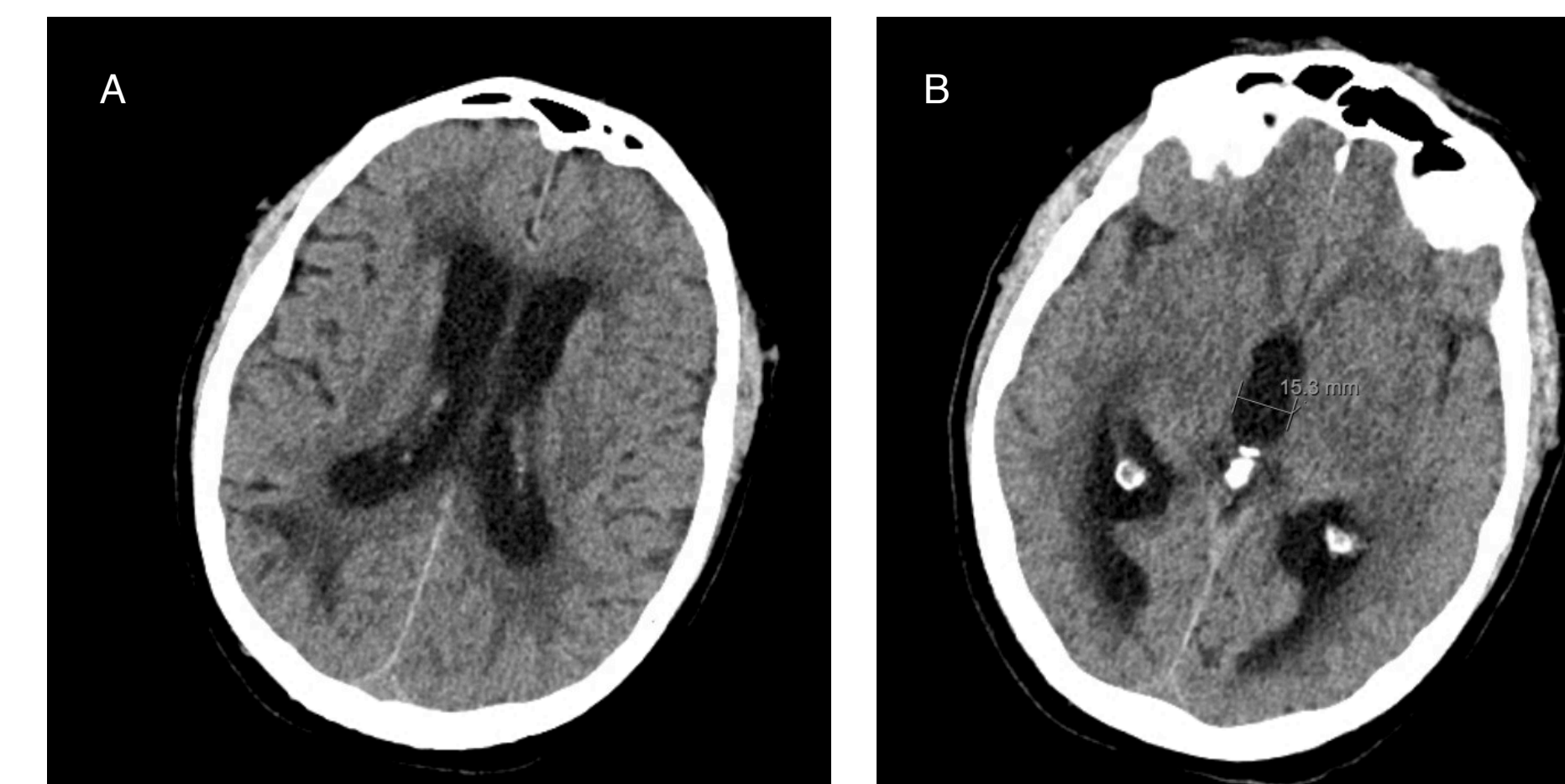


Image A: CT Head W/O contrast Axial view showcasing enlarged lateral ventricles; Image B: Axial view of third ventricle showing 15 mm transverse distance

Additional Findings & Management

- Severe oropharyngeal dysphagia post-extubation → NG tube feedings; advanced to puréed diet as status improved
- Home Eliquis (for Afib) resumed
- Incidental imaging: fusiform thoracic aortic aneurysms (5.0 cm ascending, 3.3 cm descending) → outpatient follow-up with cardiology.

Discharge Planning

- Sepsis without shock resolved.
- Gentamicin discontinued; IV Ampicillin continued for 4 weeks, with weekly CBC/CMP monitoring.
- Oxygen weaned to room air.
- Physical/occupational therapy recommended facility-based rehab.
- Social services arranged inpatient rehab placement.
- Patient discharged hemodynamically stable with outpatient follow-up (primary care, neurosurgery, infectious disease, cardiothoracic surgery).

- In adults over 50 years, *Listeria monocytogenes* accounts for 5–7% of bacterial meningitis cases, irrespective of immune status.
- Concomitant hydrocephalus occurs in only 10–15% of these cases; literature does not describe immunocompetent patients developing acute noncommunicating hydrocephalus from listeria meningoencephalitis.
- This case is unique, highlighting an immunocompetent patient with listeria meningoencephalitis complicated by acute noncommunicating hydrocephalus.
- Hydrocephalus in this setting is typically associated with immunocompromised patients, underscoring the atypical nature of this presentation.
- Clinicians should maintain a broad differential diagnosis when evaluating adults with fever, altered mentation, and neurologic symptoms.
- Awareness that *Listeria monocytogenes* can cause severe complications, including hydrocephalus in immunocompetent individuals, is essential for timely diagnosis and management.

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