



2025

KARNATAKA RADIOLOGY EDUCATION PROGRAM

CASE PRESENTATION

CASE OF INTRACRANIAL HYDATID CYST

MENTOR: DR.PRADEEP GOUDAR

KAHER UNIVERSITY

J.N.MEDICAL COLLEGE ,BELAGAVI

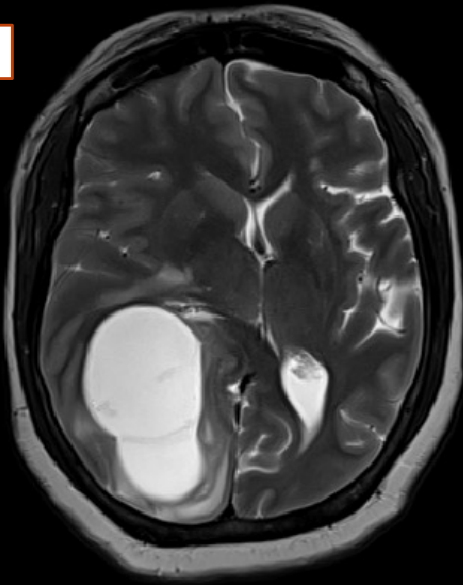
PRESENTOR: DR.SAHITHY KAKKRIENI



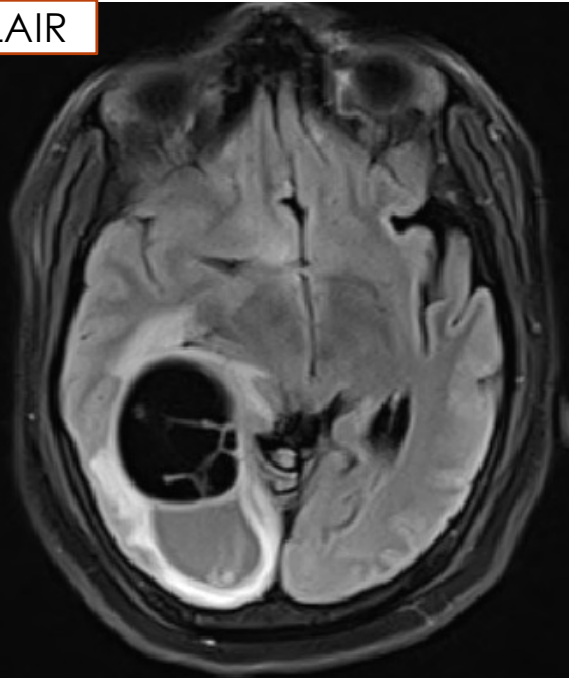
Case

- 40 year old male presented with complaints of headache and giddiness for the past 15 days
- No h/o seizures

T2 W



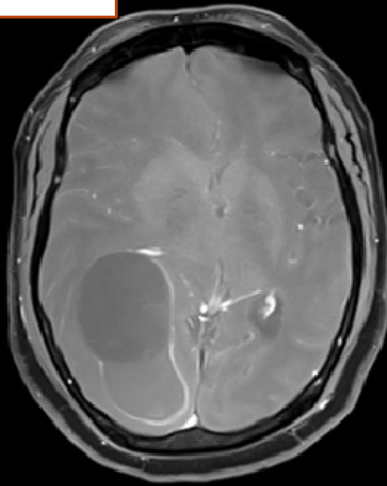
FLAIR



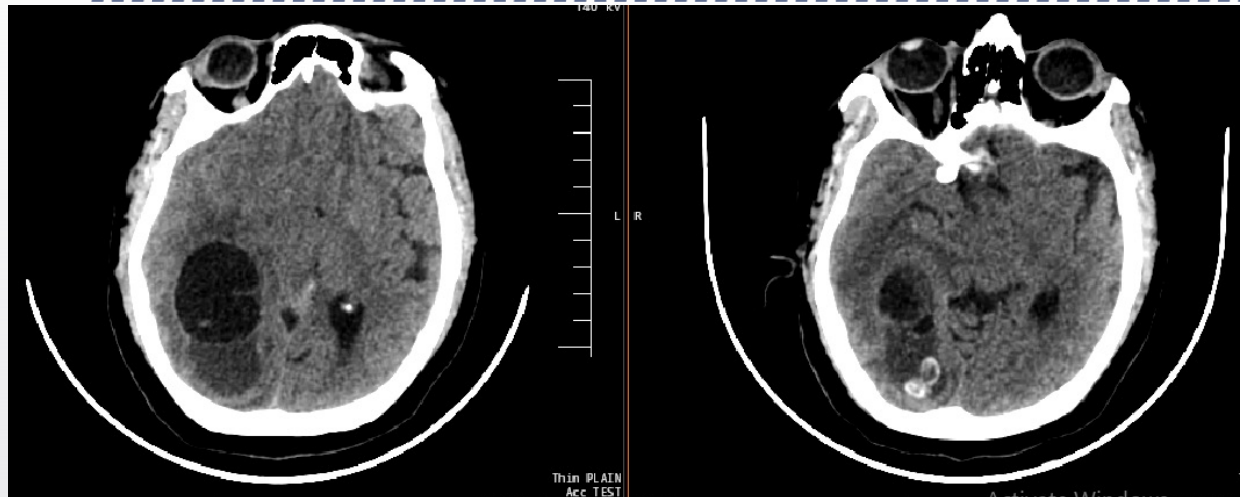
FLAIR



Post contrast
T1



Well defined T2 hyperintense and FLAIR hypointense peripherally enhancing lesion with fluid-fluid level, internal septations, non-enhancing mural component and adjacent perilesional edema noted right parieto-temporo-occipital region causing mass effect on the adjacent brain parenchyma and midbrain.



Hypodense cystic area with airfluid levels , septations and internal hyperdense mural nodule

Possibilities to be considered

Intracerebral abscess

Intracerebral hydatid cyst



Intracerebral hydatid cyst

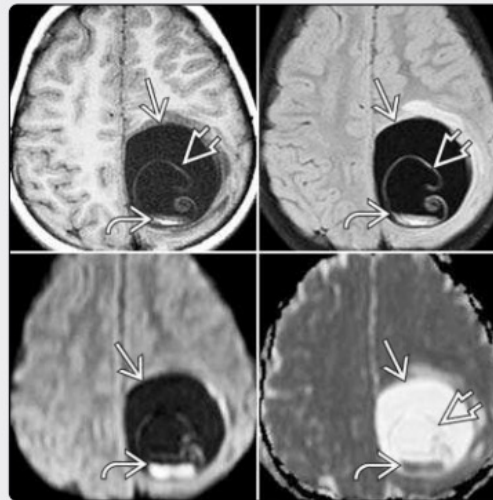
FOR	AGAINST
Large well-circumscribed cystic mass	Rare location
Absence of calcification	perilesional edema is generally absent in Hydatid cyst
non-enhancing mural component	



HYDATID CYST

- **Etiology:** Caused by Echinococcus granulosus (most commonly) or E. multilocularis.
- **Imaging Appearance:**
 - May present as large, well-circumscribed cystic masses.
 - Often have daughter cysts within the main cyst (giving a “**cyst within cyst**” appearance).
 - On MRI, the fluid is typically CSF-like, and the cyst wall may be visible.
 - No internal enhancement unless secondary infection is present.
 - Location: Though rare, they may be found in the brain, especially in endemic areas.
- **Clinical Considerations:**
 - May mimic neoplasm due to size and mass effect.
 - Often associated with mass effect, midline shift, or hydrocephalus if large or in a critical location.
 - It is difficult to distinguish it from **neuroglial cyst** (generally smaller in size).

HYDATID CYST



(13-45) CECT scan shows a multiloculated hydatid cyst that contains multiple "daughter cysts." (Courtesy S. Nagi, MD.)
(13-46) Series of axial MR scans with T1WI, FLAIR, DWI, and ADC (clockwise from top left corner) shows a hydatid cyst ➡ with detached germinal membrane ➡ and hydatid "sand" in the dependent part of the cyst ➡. Surrounding edema and mass effect are minimal.



BRAIN ABSCESS

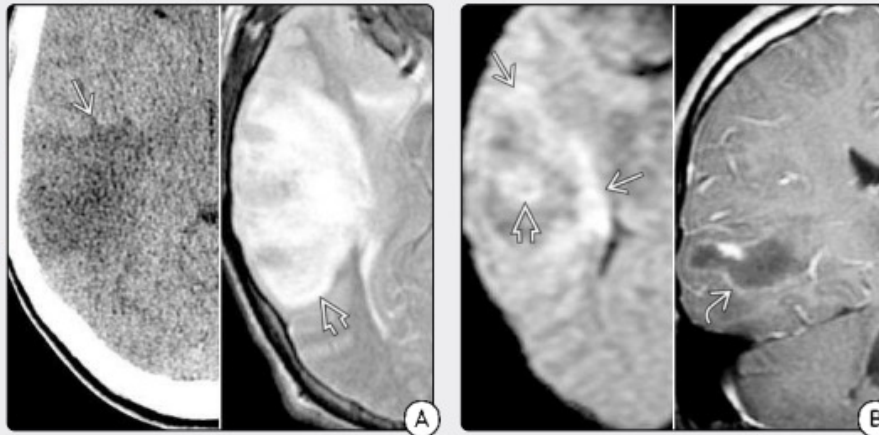
FOR	AGAINST
peripherally enhancing lesion	No evidence of diffusion restriction
Perilesional edema	Absence of double rim sign

BRAIN ABSCESS

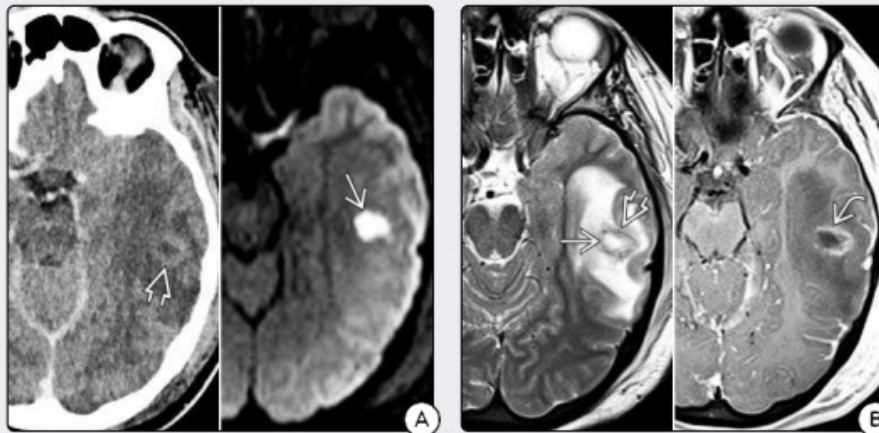


Etiology	<ul style="list-style-type: none">- Hematogenous spread (e.g., endocarditis)- Contiguous spread (sinusitis, otitis)- Penetrating trauma or neurosurgery- Pathogens: <i>Streptococcus</i>, <i>Staph. aureus</i>, <i>Pneumococcus</i>, fungi (immunocompromised)
Stages	<ol style="list-style-type: none">1. Early Cerebritis (1–2 days)2. Late Cerebritis (2–7 days)3. Early Encapsulation (5–14 days)4. Late Encapsulation (>2 weeks)
CT Findings	<p>Early: Hypodense, ill-defined</p> <ul style="list-style-type: none">- Late: Ring-enhancing lesion with surrounding hypodensity (edema)
MRI Findings	<ul style="list-style-type: none">- T2/FLAIR: Hyperintense core, perilesional edema- T1 C+: Smooth ring enhancement- DWI: Restricted diffusion (key differentiator from tumors)- Double rim sign: Inner hyperintense and outer hypointense ring on T2
MR Spectroscopy (MRS)	<ul style="list-style-type: none">- Amino acids (valine, leucine, isoleucine)- Elevated lactate, acetate, succinate- No choline or NAA peak
Perfusion (rCBV)	Low (helps distinguish from high-grade tumors like GBM)

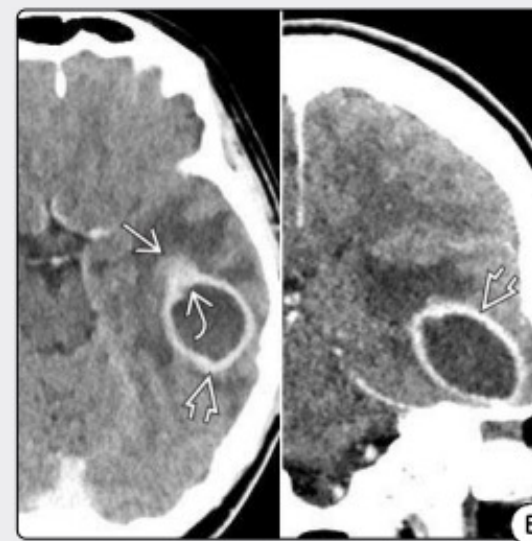
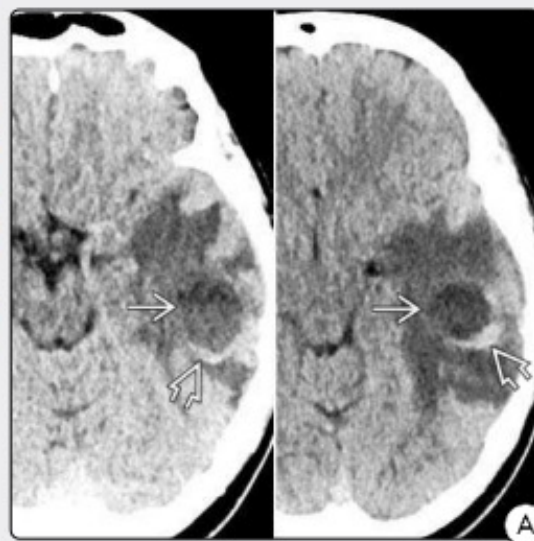
(12-32A) (L) NECT shows ill-defined hypoattenuation and mass effect within the right temporal lobe. Arterial infarction was suspected. (R) T2WI shows a hyperintense right temporal lobe mass. (12-32B) (L) DWI shows restricted diffusion at the periphery, center of the lesion. (R) Coronal T1 C+ shows a faint rim of peripheral enhancement. Early cerebritis stage of abscess formation.



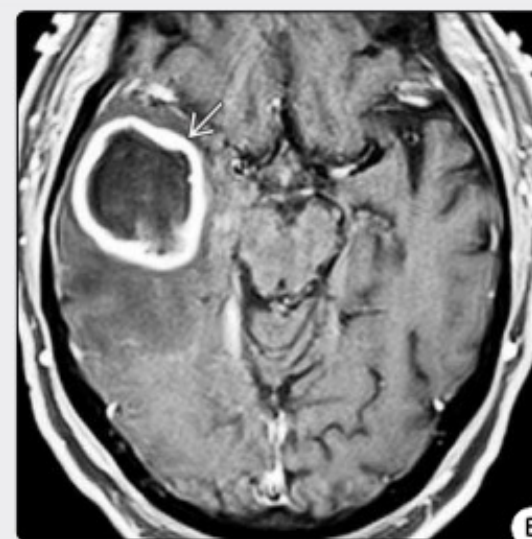
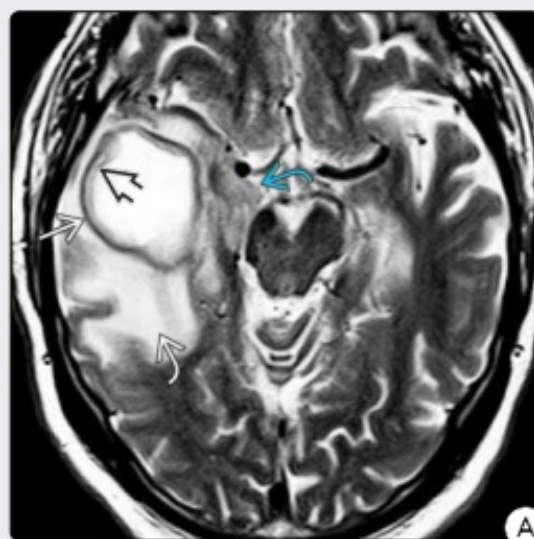
(12-33A) (L) CECT shows faint, ill-defined left temporal lobe ring enhancing lesion with peripheral edema. (R) DWI MR shows strong diffusion restriction in the center of the mass. (12-33B) (L) The mass exhibits a hyperintense center, hypointense periphery on T2WI. (R) Irregular, poorly defined enhancing rim is seen on T1 C+ FS. This is the late cerebritis stage of abscess formation.



(12-36A) (L and R) NECT scans show large, well-defined lesion with hyperdense rim [X] and a hypodense center [Y]. (12-36B) Axial (L), coronal (R) CECT scans show complete, well-delineated rim enhancement [X]. The abscess has progressed from late cerebritis to the early capsule stage. Note wall defect [Z] with adjacent area of new cerebritis [W].

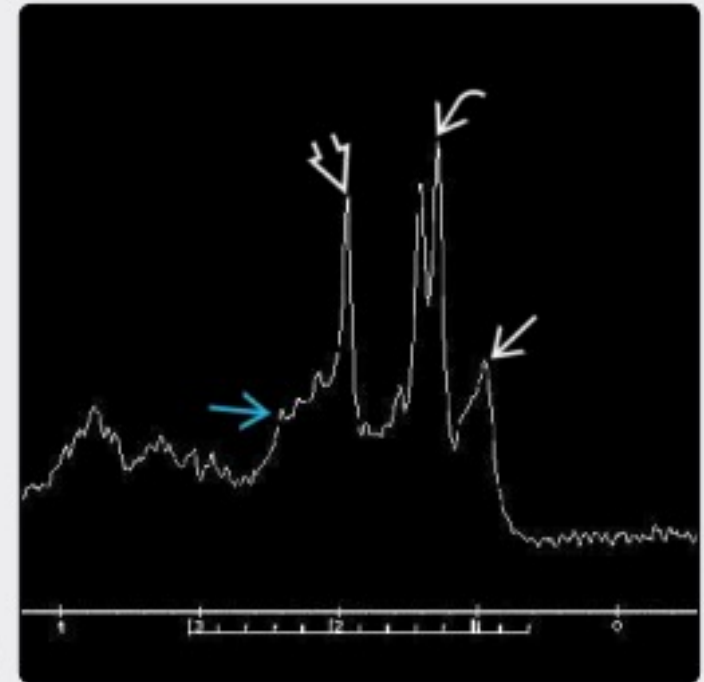
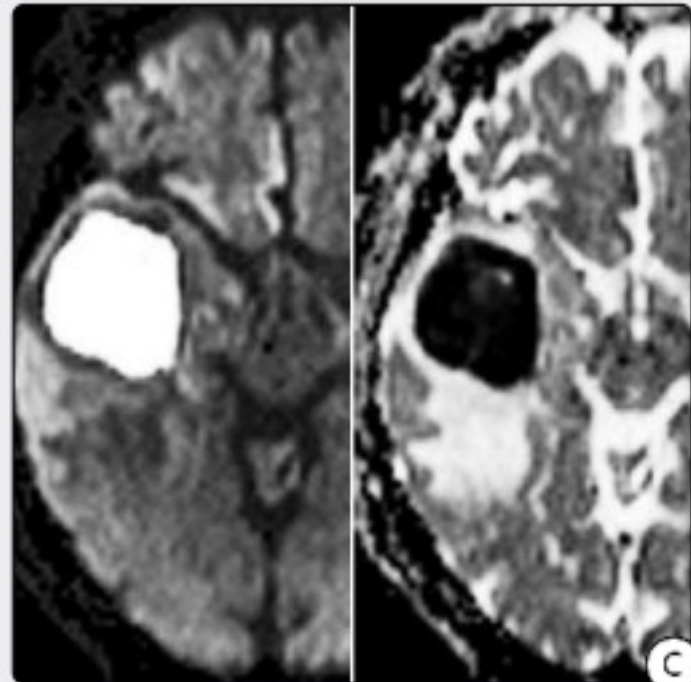


(12-37A) T2WI in early capsule stage of abscess development shows classic "double rim" sign with hypointense outer rim [X] and mildly hyperintense inner rim [Y] surrounding very hyperintense necrotic core. Note peripheral edema [Z] and mass effect (uncal herniation) [W]. (12-37B) T1 C+ FS in the same case shows intense enhancement [X] of the well-developed abscess capsule.





(12-37C) DWI (L) and ADC map (R) in the same case show that necrotic contents of the abscess cavity restrict strongly, whereas the wall of the capsule itself does not. (12-38) MRS in another late cerebritis/early capsule abscess with TR 2,000 TE 35 shows amino acids (valine, leucine, isoleucine) at 0.9 ppm ➡, acetate at 1.9 ppm ➡, lactate at 1.3 ppm ➡, and succinate at 2.4 ppm ➡.





Follow up

- Right parietal region lesion – Features suggestive of hydatid cyst



THANK YOU