Brigham and Women's Hospital
Founding Member, Mass General Brigham

ID BOARD REVIEW

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Biography

- Chief of Infectious Diseases at South Shore Health
- Vice Chairman of the Dept of Medicine.
- Medical Director of the Weymouth Dept of Public Health and a regular channel 5 medical contributor. He has also been the medical technical lead for SARS, pandemic influenza H1N1, Ebola, and COVID19 at South Shore Health

Disclosures

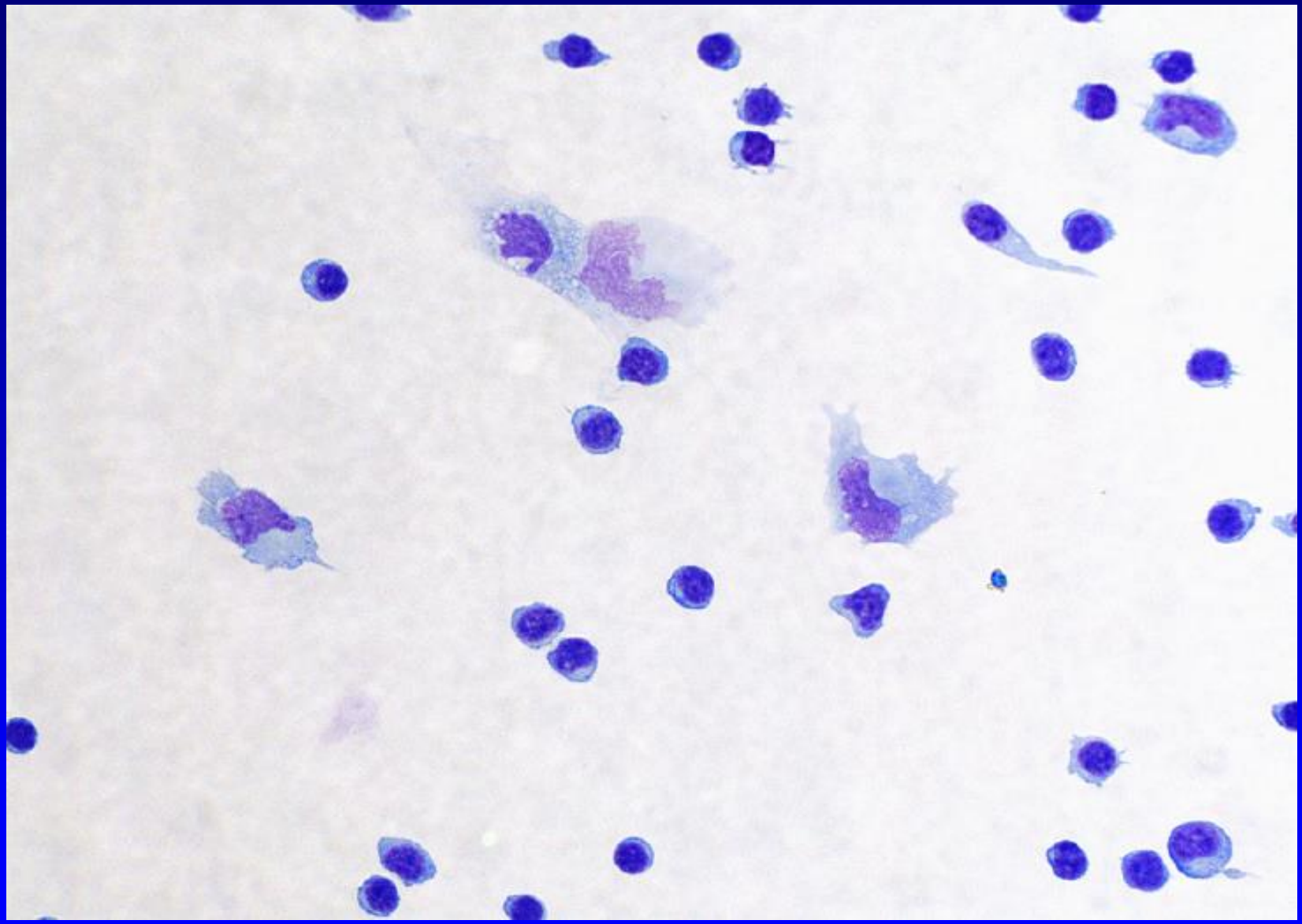
- NONE

Recurrent meningitis

- 55 yo male with past history significant for 2 episodes of aseptic meningitis over past decade presented with a 5 day history of headaches, diffuse myalgias, chills, and anorexia. No confusion
- Married with 2 children. Monogamous.
- Physical exam normal except temperature of 100.6 F and mild nuchal rigidity

Case History cont.

- Head CT w/o contrast showed no acute abnormality.
- LP demonstrated 267 WBC's (82% lymphs), 56 RBC's, protein=333 mg/dl, glucose=83 mg/dl



What is the most likely diagnosis?

- A) Recurrent enteroviral (e.g Coxsackie or Echovirus) meningitis
- B) Recurrent bacterial meningitis from parameningeal focus (e.g. sinusitis, otitis, mastoiditis, etc)
- C) Recurrent herpes simplex virus meningitis
- D) Recurrent cryptococcal meningitis

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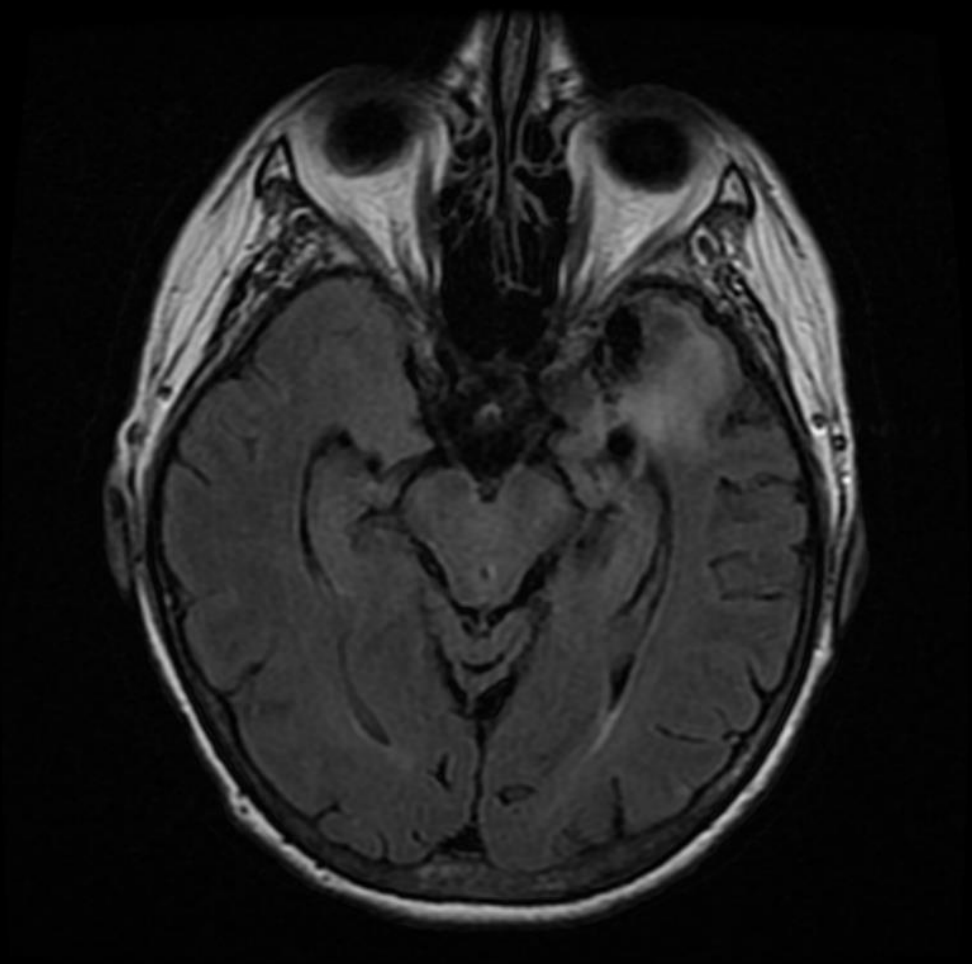
CSF Results

- CSF HSV-2 PCR +
- HSV 1/2 type-specific ELISA of serum showed no evidence of prior HSV-1 infection (<0.90) but strongly positive HSV-2 IgG index (>6.00)
- Recurrent HSV-2 meningitis=Mollaret syndrome

Mollaret's syndrome Fast Facts

- Benign, recurrent aseptic meningitis which resolves w/o treatment but most treat with antiherpetic
- Pts rarely report a h/o HSV-2/genital herpes but pts are uniformly + for HSV-2
- Need to remind pts that although the meningitis is not contagious, they may be able to transmit HSV-2 to susceptible partners
- Chronic suppression with valacyclovir has not been proven to reduce recurrent meningitis

Recurrent Meningitis in Adults Up to Date March 2024



50 yo female with 5 days of fevers, increasing confusion, and personality changes. LP with 350 WBCs (90% lymphocytes), glucose normal, CSF gram stain and cultures negative

HSV-1 Encephalitis Fast Facts

- Neurologic/ID emergency
- Low threshold for LP and early high dose IV acyclovir critical to improved outcomes
  - 10 mg/kg IV q8h (neonates 20 mg/kg)
- Dx via CSF HSV-1 PCR
- MRI often with temporal lobe increased signal or enhancement
- EEG may show temporal lobe discharges

HSV-1 Encephalits Up to Date July 2024

Fever, HA, and Blurred Vision

- 20 yo male previously healthy p/w 2 wks fevers,HA, increasing neck stiffness, and double vision
- Immigrated from India 9 months ago, lives in Austin,TX visiting family in Massachusetts
- Given BCG as child
- No sick contacts, exposure to animals/birds, recent travel, monogamous with wife, business consultant
- Exam reveals temps (99-101F) and b/l CN 6th palsies
- Labs normal except Na 127

Results

- Head CT w/o contrast normal
- Lumbar puncture:
  - 775 WBCs/mm^3 (56% lymphocytes, 37% polys)
  - Protein 169 mg/dl
  - Glucose 19 mg/dl
  - OP elevated 280 mm water (nl<200)

What is the most likely cause of subacute lymphocytic meningitis with low glucose?

- A) Purulent bacterial meningitis
- B) Viral meningitis
- C) Tuberculous or fungal meningitis
- D) Listeria monocytogenes meningitis

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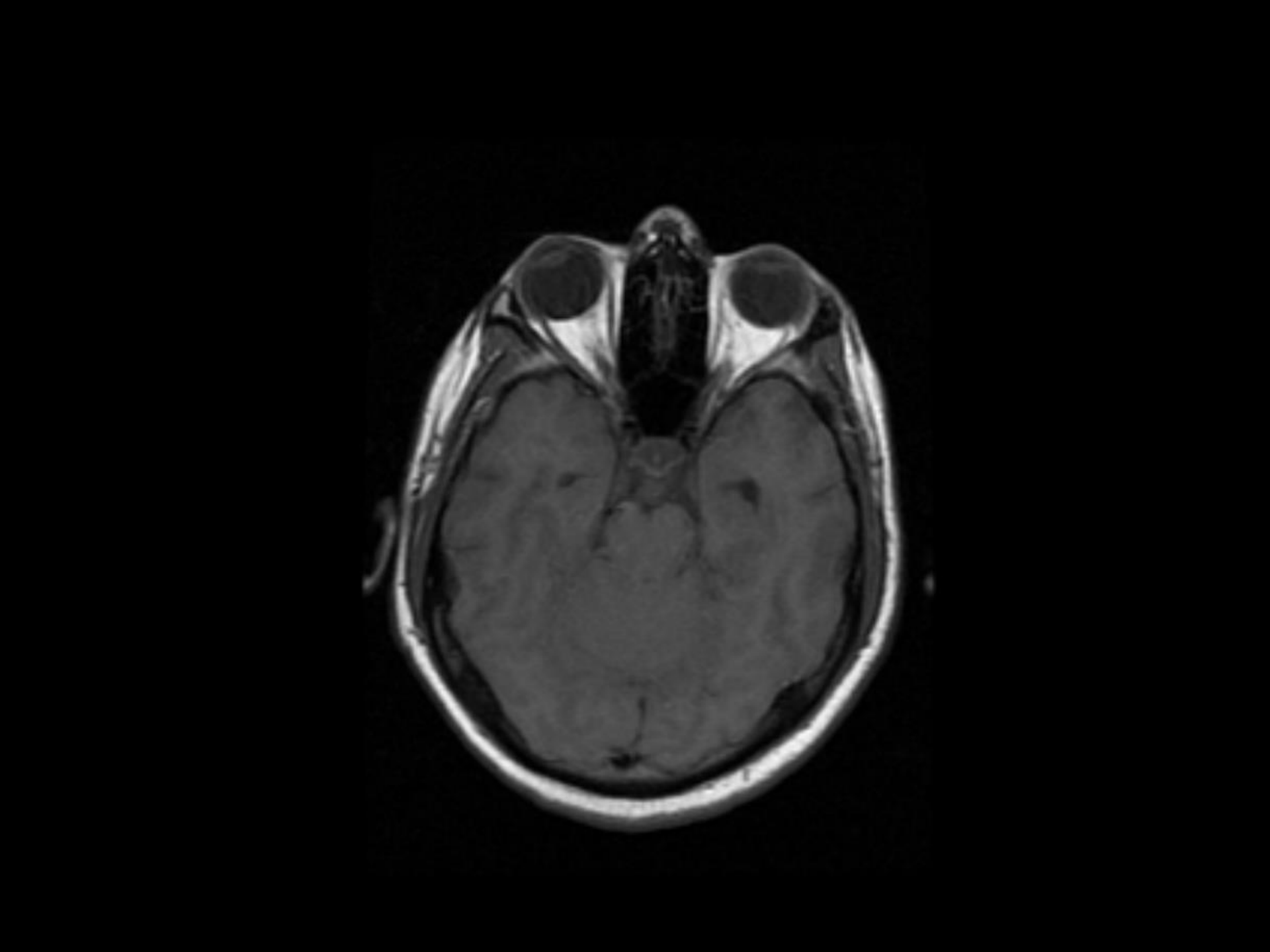

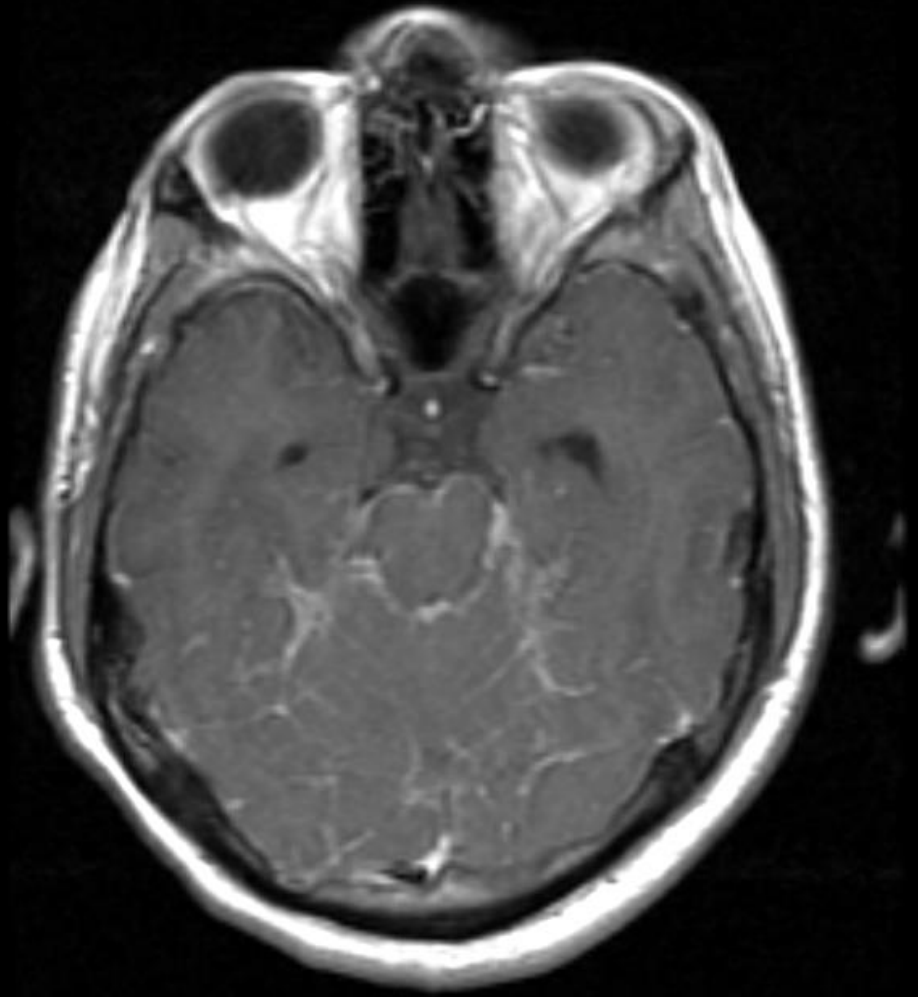

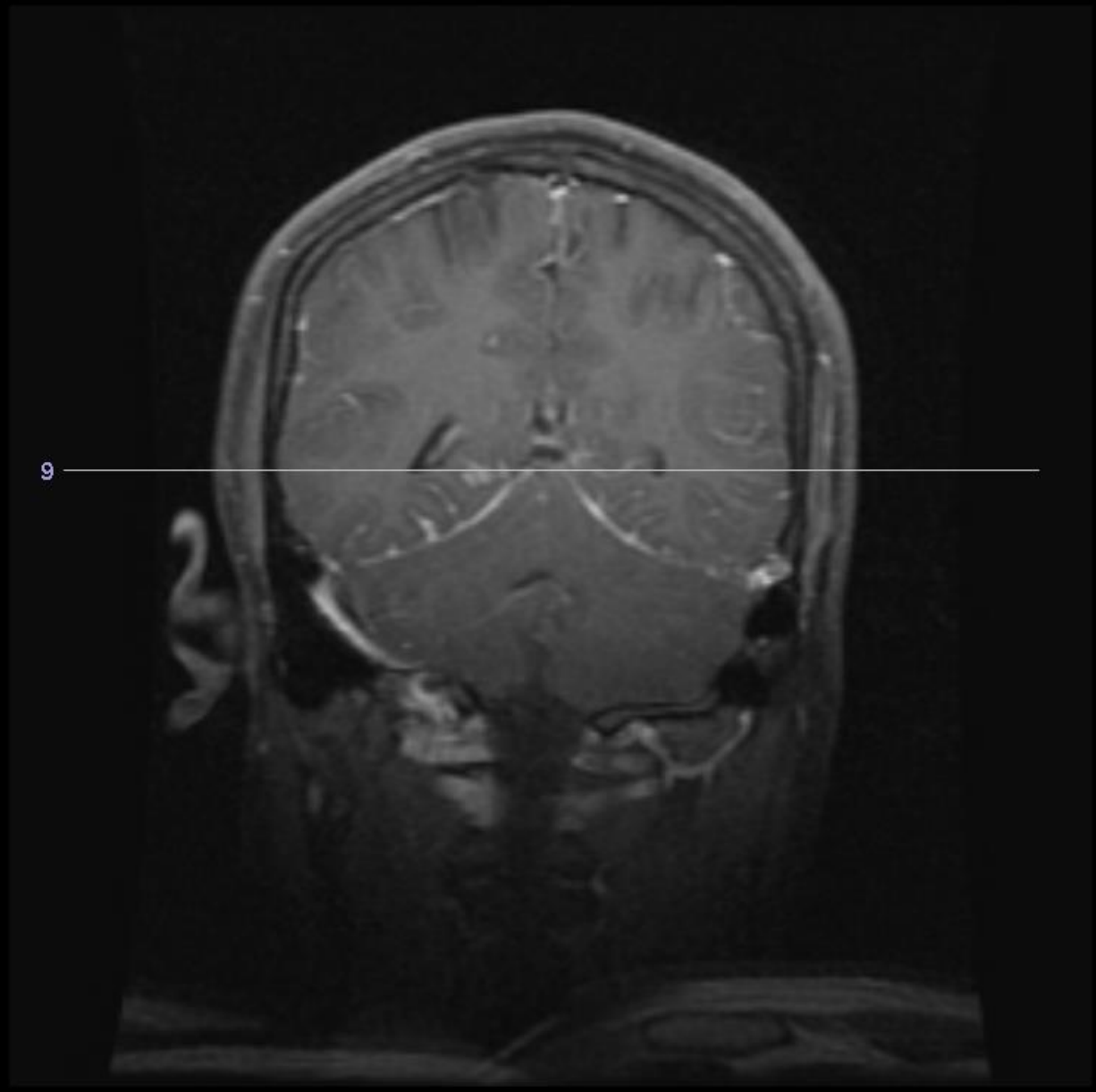
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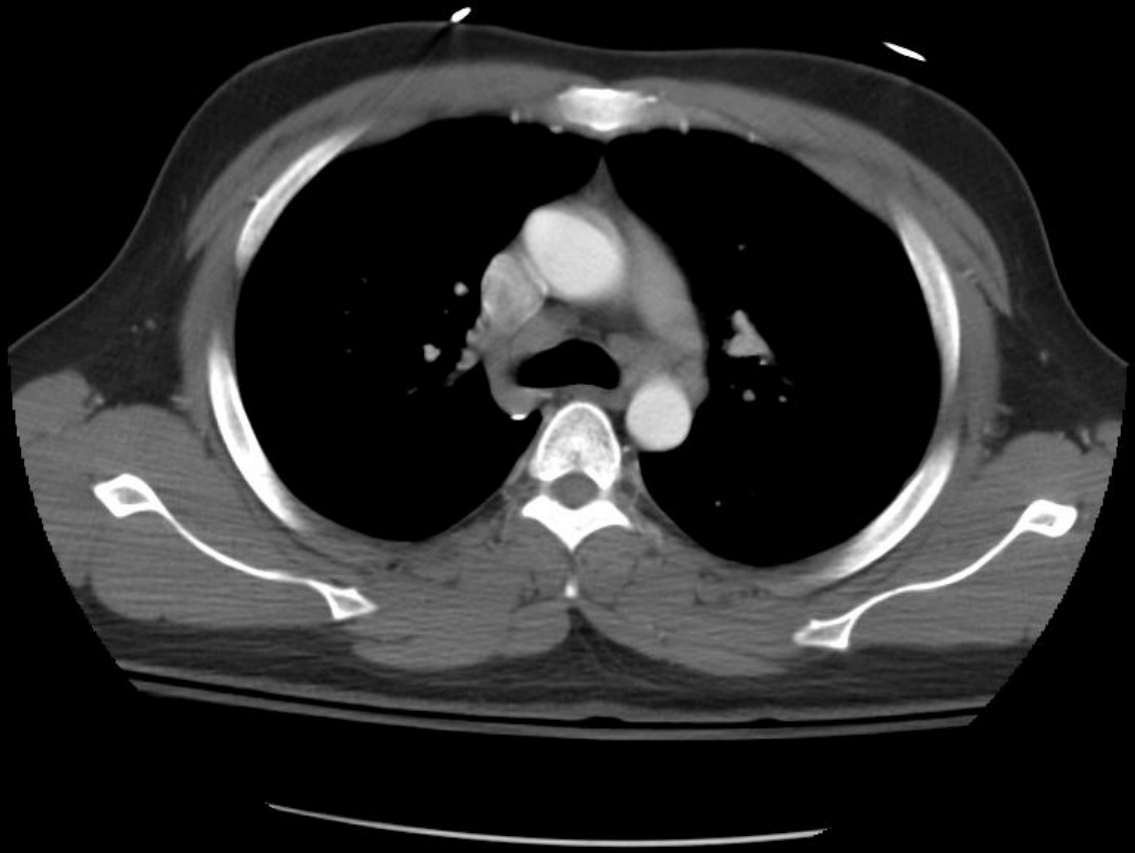
DDx of basilar meningitis?

- Neurosarcoidosis
- Carcinomatous meningitis
- Fungal meningitis
- Tuberculous meningitis
- Listeria meninigitis

Results

- Bacterial cultures negative
- CSF cryptococcal antigen negative
- CSF fungal cultures negative
- CSF VDRL negative
- CSF HSV PCR
- CSF Tb PCR negative
- CSF AFB cultures negative x 4 wks
- CSF cytology normal
- HIV antibody negative



Results

- Bronchoscopy revealed negative AFB smears and fungal cultures
- Mediastinoscopy revealed non-necrotizing granulomas and fibrosis with special stains negative for AFB and fungi. No malignancy

What is the most likely dx?

- **A)** Tuberculous meningitis
- B) Fungal meningitis
- C) Neurosarcoidosis

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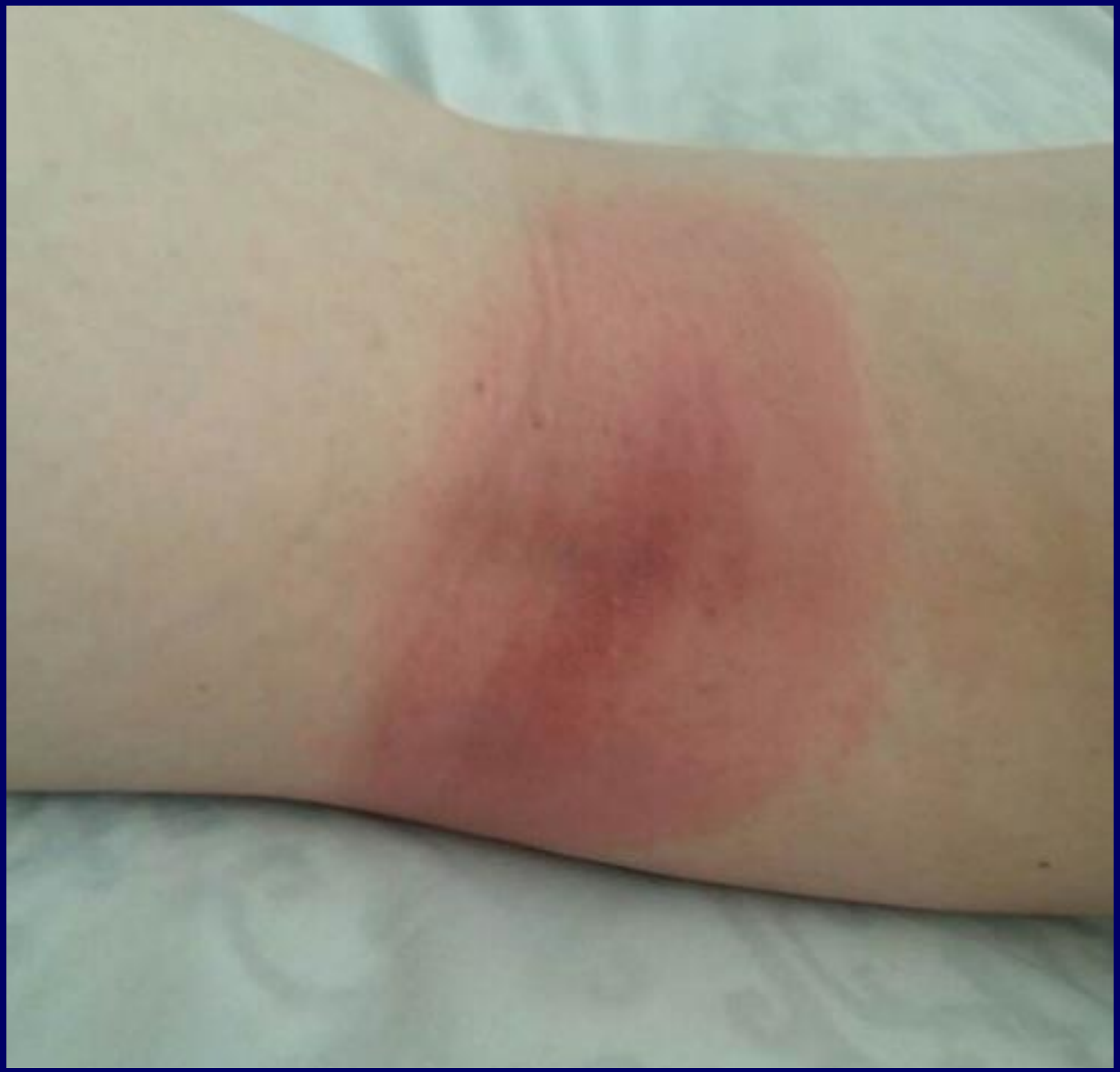
Tuberculous meningitis Fast Facts

- Common in developing countries, rare in US
- Presents as subacute fevers and HA with lymphocytic meningitis with low CSF glucose
- Paradoxical worsening of sxs after initiating therapy may signify immune reconstitution
- No single test is 100% sensitive; CSF AFB culture is gold standard but may take up to 6 wks to turn +. CSF Tb PCR insensitive!
- Treatment of Tb meningitis with 4 drug therapy x 2 months then 2 drug therapy x 10 months. Add corticosteroids if focal neurologic signs or mental status change

CNS Tuberculosis Up to Date Feb 2025

Subacute HA's

- 45 yo female notes 10 days of worsening HA and mild neck stiffness w/o photophobia
- No fevers and no sick contacts
- USOH until 4 weeks ago when she had a left popliteal fossa cellulitis treated with cephalexin which led to resolution in less than 1 week
- Achier than usual but attributes it to workouts



CSF Results

- 100 WBCs (80% lymphs)
- Protein=60 mg/dl
- Glucose= normal
- CSF gram stain negative
- CSF culture negative

What is the most likely diagnosis

- A) Partially treated Group A streptococcal meningitis
- B) Coxsackie aseptic meningitis
- C) Lyme meningitis
- D) Cryptococcal meningitis

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Lyme meningitis
Diagnosis via serology which will reveal a reactive screen and +IgM western blot
CSF lyme antibody may be +
CSF lyme PCR may be +

Lyme meningitis Fast Facts

- Most common cause of subacute (> 1 week) lymphocytic meningitis with normal CSF glucose in areas where Lyme is endemic
- Lyme serology is invariably reactive and western blot + for IgM given stage 2
- CSF Lyme antibody more sensitive than CSF Lyme PCR, but negative CSF antibody does not rule out Lyme meningitis
- New guidance currently recommends doxy 100 mg po bid as first line for meningitis x 2-3 weeks so LP may not be necessary in many cases

Up to Date Nervous System Lyme last updated 3/24

Fevers, headache, and low counts

- 65 yo female from Mass admitted last week with 7 days of chills, headache, anorexia, and extreme fatigue.
- No rash or sick contacts
- No prominent respiratory or GI sxs
- WBC count 3K (80% polys, 5% bands, 10% monocytes), HCT normal, PLTs 120K
- AST 120, ALT 100, TB normal, alk phos 250
- Blood cxs neg, UA negative, and CXR clear

If you could only ask her 1 question what would it be and what's the treatment?

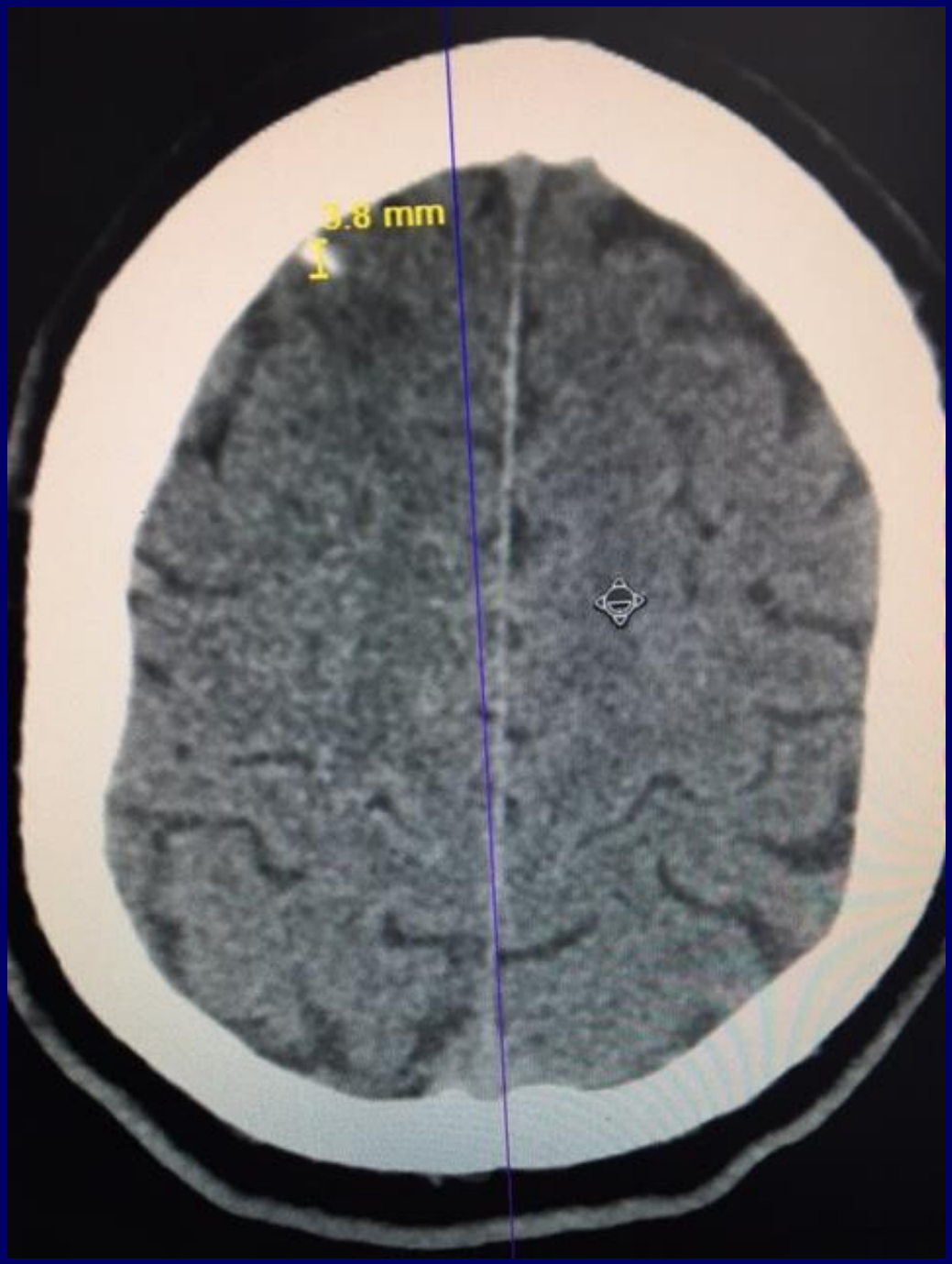
Do you spend time outdoors?
Doxycycline
Human Granulocytic Anaplasmosis

Fast Facts for Human Granulocytic Anaplasmosis (formerly Ehrlichiosis)

- Pentad of fevers, hepatitis, leukopenia, thrombocytopenia, and headache
- Need to rule out Babesiosis which may present with hemolytic anemia
- Anaplasma PCR more sensitive than antbody testing
- Rapid response to doxy can be remarkable and diagnostic clue

Unexplained seizure

- 36 yo male from Brazil lives near Boston h/o 1 seizure 20 years before had a 2nd witnessed seizure.
- Felt well before seizure
- No additional medical hx, no ETOH, no illicit meds, HIV negative
- Labs normal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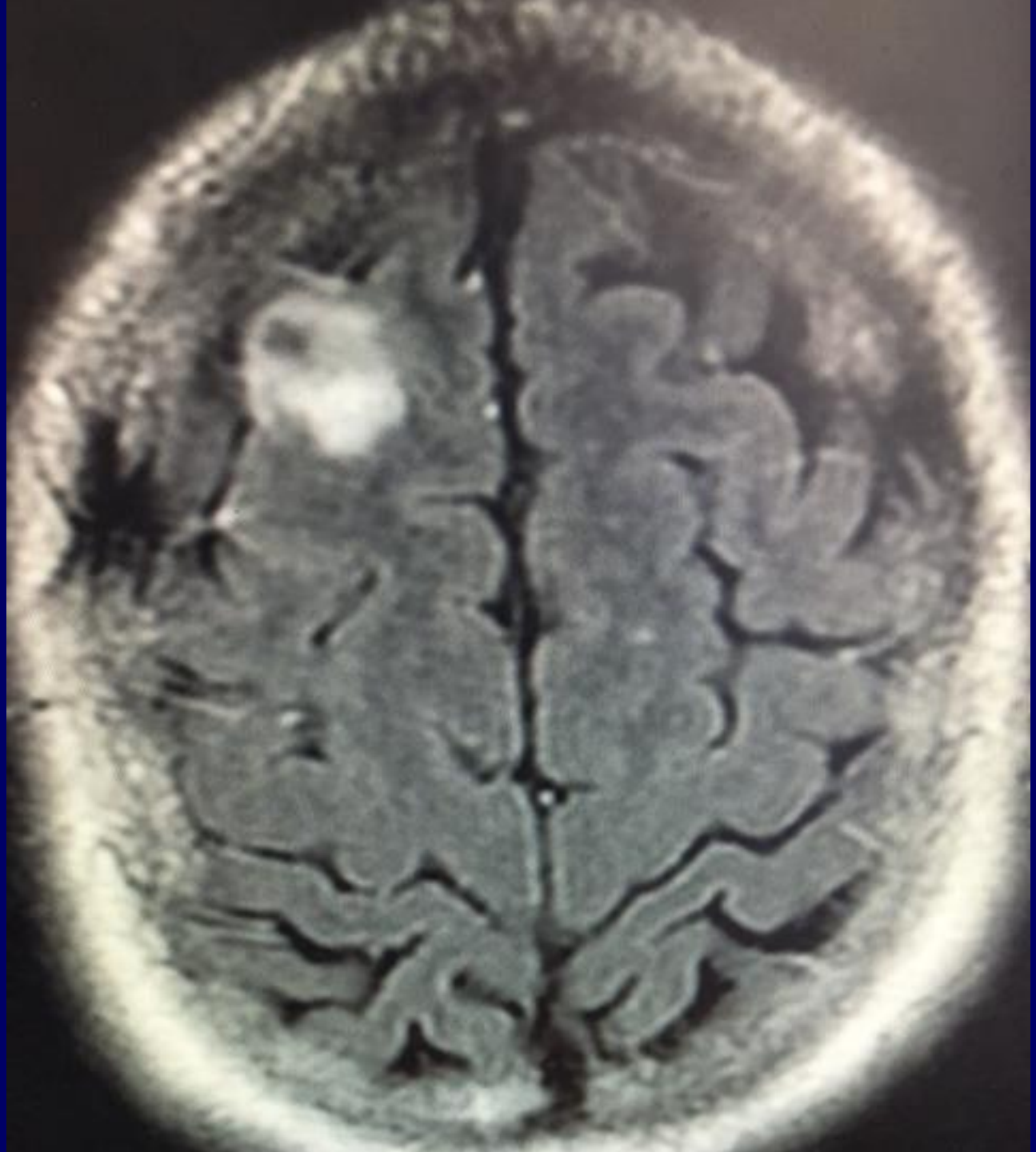

What's most likely dx

- A) Tuberculous meningitis
- B) Calcified meningioma
- C) Neuroschistosomiasis
- D) Cryptococcoma in immunocompetent pt
- E) Neurocysticercosis

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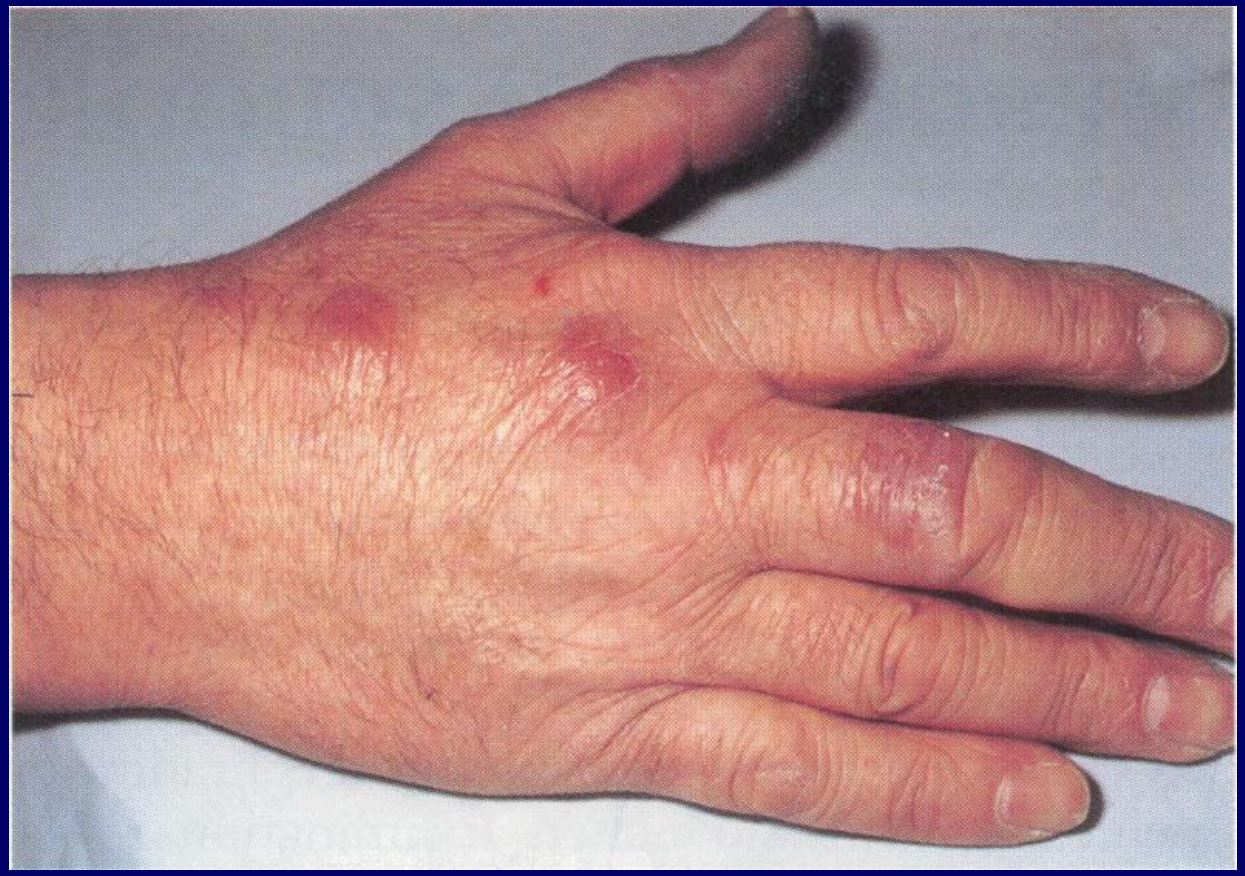
Neurocysticercosis Fast Facts

- Most common cause of seizures worldwide. Triad of seizures, Latin American country, and intracranial calcifications
- Treat calcifications with antiseizure meds
- Treat cysts live or degenerating with albendazole and steroids
- Ophthalmologic exam prior to treatment to r/o retinal lesions

Cysticercosis Up to Date 4/24

Bumpy Hand

- 55 yo male no sig PMHx slammed his hand in a drawer and developed this nodular rash a couple of weeks later. Not a gardener. Has 2 pets named sushi and bubbles. What's the dx?



Mycobacterium Marinum Fast Facts

- Major cause of nodular lymphangitis along with Sporothrix (aka sporotrichosis) and Nocardia
- Ask patient about owning fish tanks (aka fishtank granuloma)
- Antecedent trauma is a risk factor
- Treatment often with clarithromycin and ehtambutol
- Biopsy often shows necrotizing granulomas

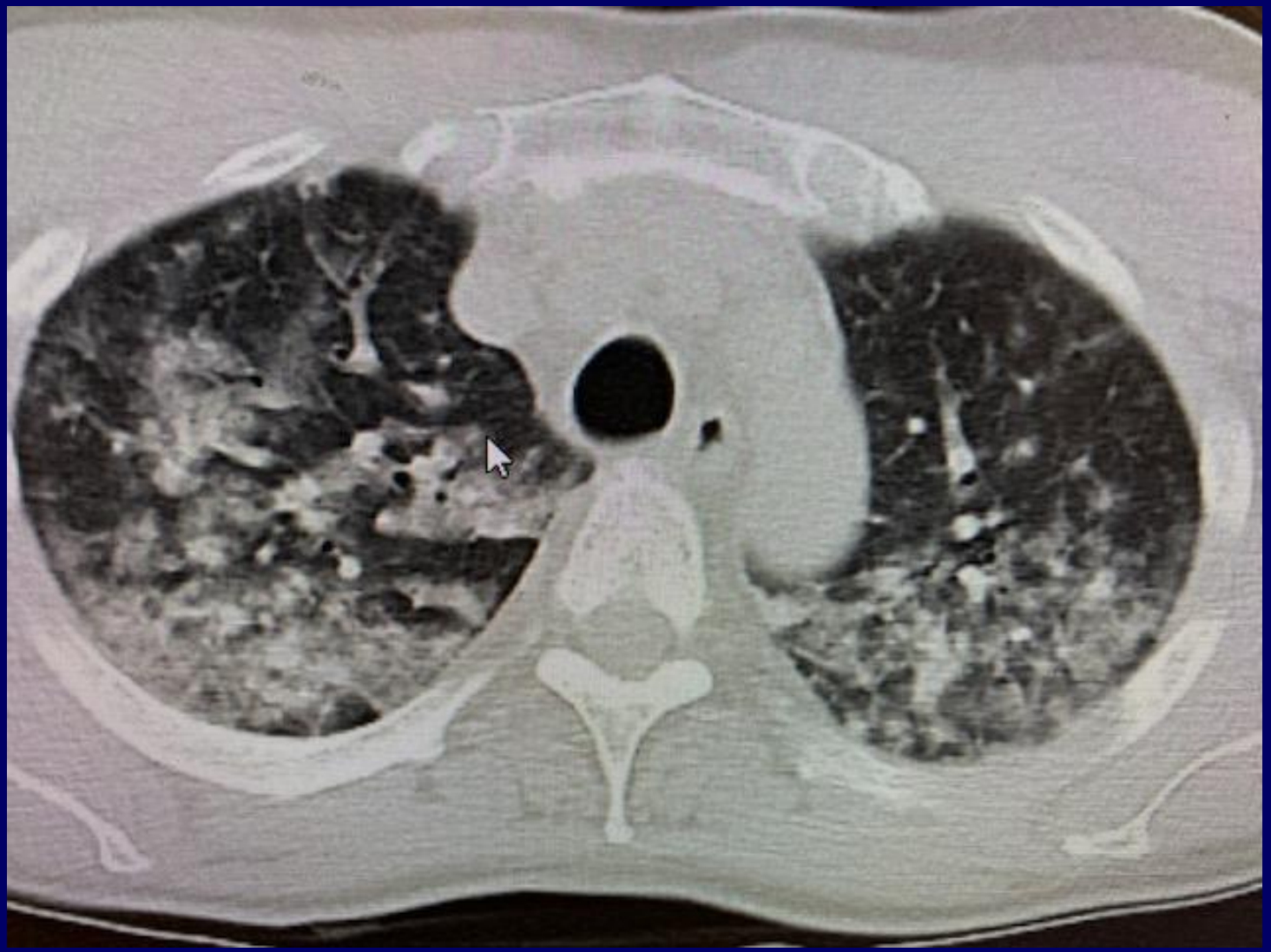
Soft Tissue Infections Following Water Exposure Up to Date 10/23

What's the dx and the cause?

Fever in a Returned Traveler

HPI

- 53 yo male no PMH went to Azores with wife 3 wks before admission and has an ecoadventure trip with a lot of freshwater exposure
- Developed sxs 1 week before admission including fevers, diffuse aches (calves!), HA, cough, diarrhea, and CP.
- No sick contacts and doesn’t recall unusual foods
- Exam: somewhat ill appearing, Temp 101.2, HR 100, RR 20. 96%2L, remainder of exam normal
- WBC count 10.2 (90%p), HCT 38.2, PLTS 102K, AST 205, ALT 187, TB 2.0, AP 263, BUN 35, Cr 3.7, Na 130, CK 1228
- UA 6-9 rbc’s, 6-9 wbc’s. 2+ protein
- PCT 1.6
- Repeat HCT following day WBC count 6K (85p, 6B, 2 atyp), HCT 32, PLT 78K



Results

- COVID PCR negative
- Blood cxs negative
- Urine cx negative
- Monospot negative
- Babesia/malaria smear negative
- Anaplasma negative
- Urine pneumococcal/Legionella antigen negative
- Resp viral panel negative

A diagnostic result was received

Faxed: 11/03/2021 / 10:16 EDT

Test Name	In Range	Out Of Range
LEPTOSPIRA DNA, QL		
REAL TIME PCR		
SOURCE:	BLOOD	
LEPTOSPIRA DNA, QL		**DETECTED**
REFERENCE RANGE: NOT DETECTED		

This test was developed and its analytical performance characteristics have been determined by Quest Diagnostics. It has not been cleared or approved by FDA. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.

PERFORMING SITE:

TXC QUEST DIAGNOSTICS INFECTIOUS DISEASE,INC, 33608 ORTEGA HIGHWAY BLD B-WEST WING, SAN JUAN CAPISTRAN
BATTERMAN,MD, CLIA: 05D0644251

Course

- Pts wife suspected Leptospirosis
- Initiated on CTX and doxy IV
- Improved on a daily basis including Fevers, LFTs, Cr, PLTs
- Discharged on HD#4 on doxy and augmentin to complete remainder of 7 days

Fast facts on Leptospirosis

- Consider in fever and travel to parts of world with freshwater ecoadventure , esp tropics
- Fevers, myalgias, HA common. Rash and conjunctival suffusion may be clues but were absent in our patient.
- Empiric tx with Ceftriaxone in severe cases or doxy in milder cases. PCN's also active. If other rickettsia on ddx, use doxy
- Diagnosis can be made via serology or blood or urine PCR
- Severe cases can present with hemorrhagic diatheses like pulm or GI hemorrhage.
- Pneumonia is atypical and can portend a worse prognosis with bleeding

Leptospirosis Up to Date 4/25

Subacute Fevers and Prosthetic AoV

- 59 yo male PMH of bovine prosthetic AoV in 2006 developed, fevers, chills, anorexia, sweats, fatigue over the past 4 weeks. He had traveled to Sydney, Australia for a meeting and then traveled to Utah before returning to Mass.
- Other sxs included b/l ankle swelling for which he has been taking NSAIDs. On admission he was found to be in septic shock with temp 102, HR 100, RR 34, and BP 90/57 and repeated 76/54.

What's the most important next diagnostic step?

Blood Culture, Peripheral #1

Collected 6/24/2024 17:39 Status: Edited Result - FINAL Visible to patient: Yes (not seen)

Specimen Information: Blood, Venous

1 Result Note

Culture

Critical Value or Critical Stain !!

Streptococcus mutans !

This is an edited result. Previous organism was Gram positive cocci isol
sensitivity to follow on 6/26/2024 at 0847 EDT.

Gram Stain

Gram positive cocci in chains
Isolated from the Aerobic & Anaerobic bottle; 2 of 2 bottles

Resulting Agency: LTT LAB

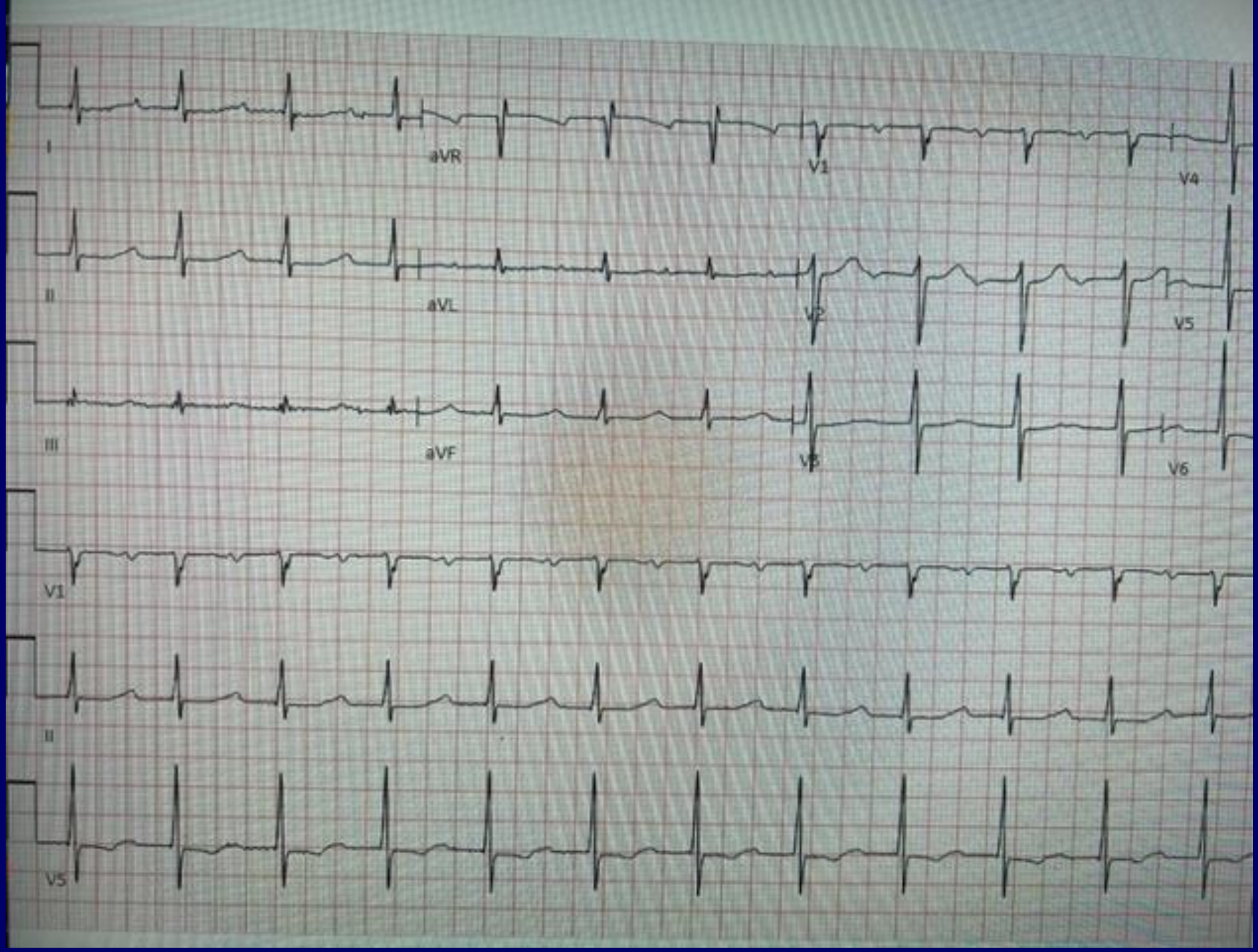
Susceptibility

	Streptococcus mutans LTT VITEK	
Ampicillin	<=0.25	Susceptible
Ceftriaxone	<=0.12	Susceptible
Clindamycin	<=0.25	Susceptible
Erythromycin	<=0.12	Susceptible
Levofloxacin	1.00	Susceptible
Penicillin G	<=0.06	Susceptible
Tetracycline	0.50	Susceptible
Vancomycin	1.00	Susceptible

Linear View

Specimen Collected: 06/24/24 17:39

Last Resulted: 07/01/24 [illegible]:32

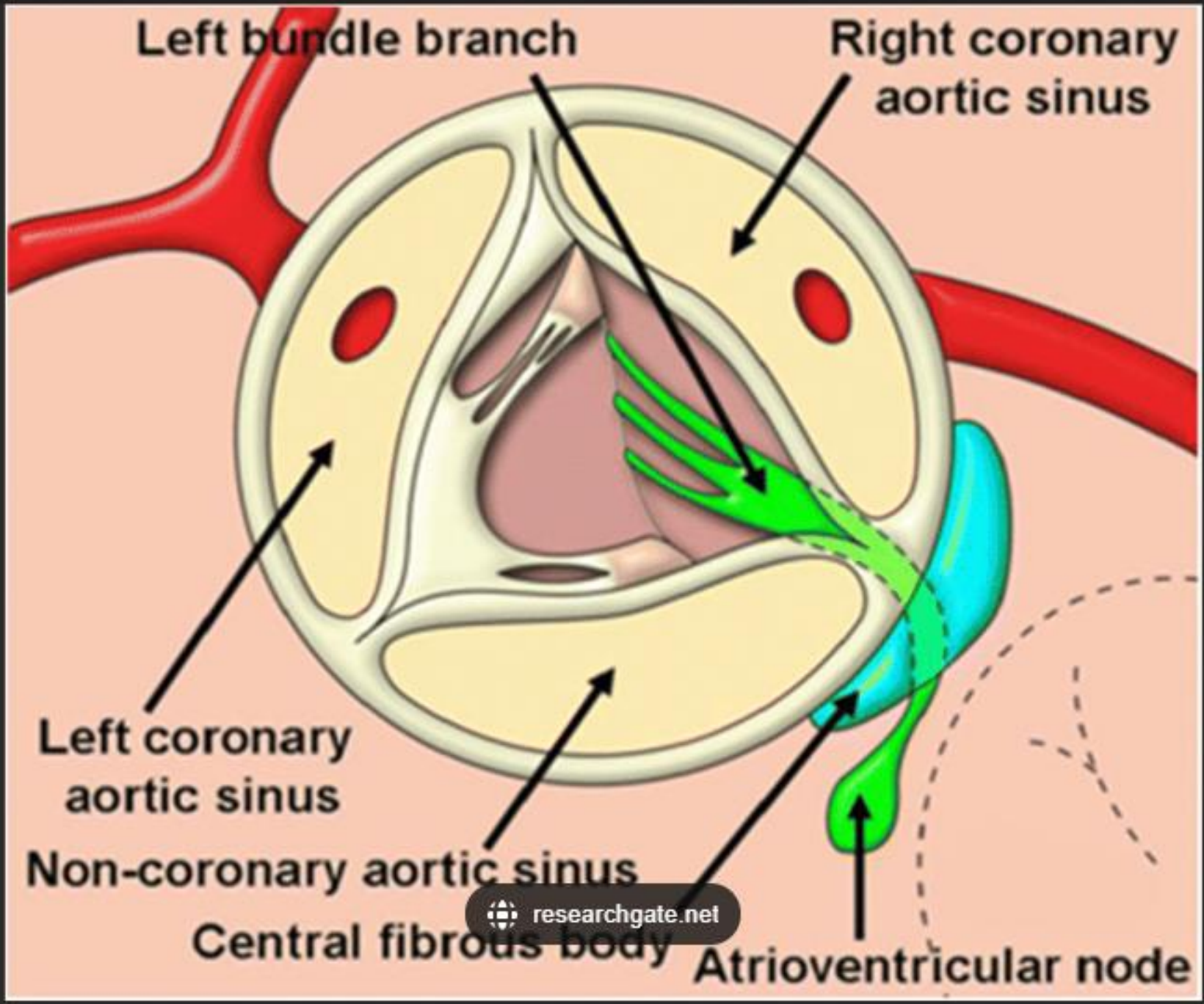


Why is this EKG important?

TEE

- Aortic Valve:

There is a definite broad-based, mobile vegetation on the posterior cusp. The aortic valve is a bioprosthesis. There is an abscess posterior and adjacent to the valve. There is associated moderate AI adjacent to the infected cusp inside the annulus of the valve.


Left bundle branch
Right coronary aortic sinus
Left coronary aortic sinus
Non-coronary aortic sinus
Central fibrous body
Atrioventricular node
researchgate.net

Key points prosthetic AoV endocarditis

- Subacute, unexplained fevers in patient with prosthetic valve is endocarditis until proved otherwise
- Most sensitive diagnostic is blood cultures
- Don’t forget the EKG- can be lifesaving
  - Prolonged PR interval suggests paravalvular abscess which is cardiac surgical emergency
- TTE insensitive compared with TEE