



Cat Scratch Disease: A Review of Typical and Atypical Imaging Manifestations in the Pediatric Population

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OVERVIEW

EPIDEMIOLOGY

ETIOLOGY

SIGNS & SYMPTOMS

LABORATORY

TREATMENT

RADIOLOGY

LYMPH NODES

LIVER / SPLEEN

SKELETAL

NEUROLOGIC

QUIZ

REFERENCES

- This module is divided into 3 sections:
 - Overview
 - This section will review the basic epidemiology, etiology, presentation, workup and treatment of cat scratch disease .
 - It is presented with automated visuals that follow the narrated audio. Please be sure your audio playback device is ready and be sure to wait until playback is complete before proceeding to avoid missing visuals.
 - Radiology
 - This section will review various typical and atypical radiologic findings in cat scratch disease.
 - You will be using the animation arrows below to navigate between images.
 - Quiz
 - This section will test your knowledge on cat scratch disease.
 - You will be using the animation arrows below to review the correct answer once you have reviewed the question.
- Use the pane on the left to monitor your progress.
- Use the orange messages at the bottom of the slides to help you interact with the presentation.

PRESS THE "NEXT SLIDE" ARROW BELOW TO BEGIN MODULE

OVERVIEW

EPIDEMIOLOGY

ETIOLOGY

SIGNS &
SYMPTOMS

LABORATORY

TREATMENT

RADIOLOGY

LYMPH NODES

LIVER / SPLEEN

SKELETAL

NEUROLOGIC

QUIZ

REFERENCES

- Self limiting
- Sub acute
- Regional lymphadenitis syndrome
- Identifiable contact with cat in 90% of cases



PRESS THE "NEXT SLIDE" ARROW WHEN THE AUDIO PLAYBACK IS COMPLETE

OVERVIEW

EPIDEMIOLOGY

ETIOLOGY

SIGNS & SYMPTOMS

LABORATORY

TREATMENT

RADIOLOGY

LYMPH NODES

LIVER / SPLEEN

SKELETAL

NEUROLOGIC

QUIZ

REFERENCES

- CDC reports 22,000 cases of CSD diagnosed annually
- 10 cases per 100,000 persons per year
- 437 CSD associated pediatric hospitalizations in the year 2000
- Most likely < 21 years of age, with majority < age of 10
- More frequent in fall and early winter months
- 3:2 male to female



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OVERVIEW

EPIDEMIOLOGY

ETIOLOGY

SIGNS & SYMPTOMS

LABORATORY

TREATMENT

RADIOLOGY

LYMPH NODES

LIVER / SPLEEN

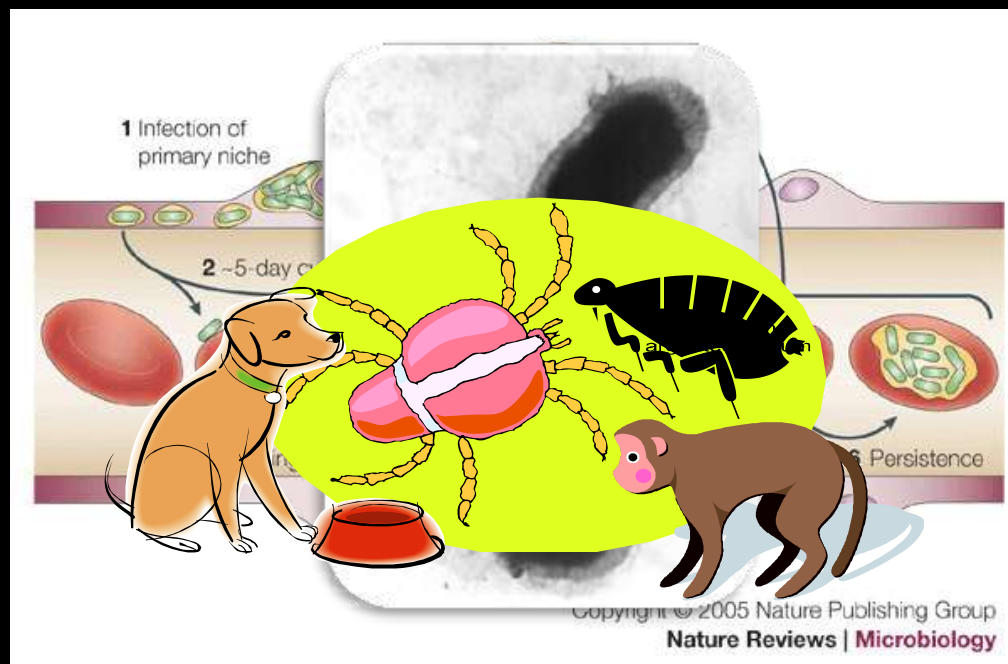
SKELETAL

NEUROLOGIC

QUIZ

REFERENCES

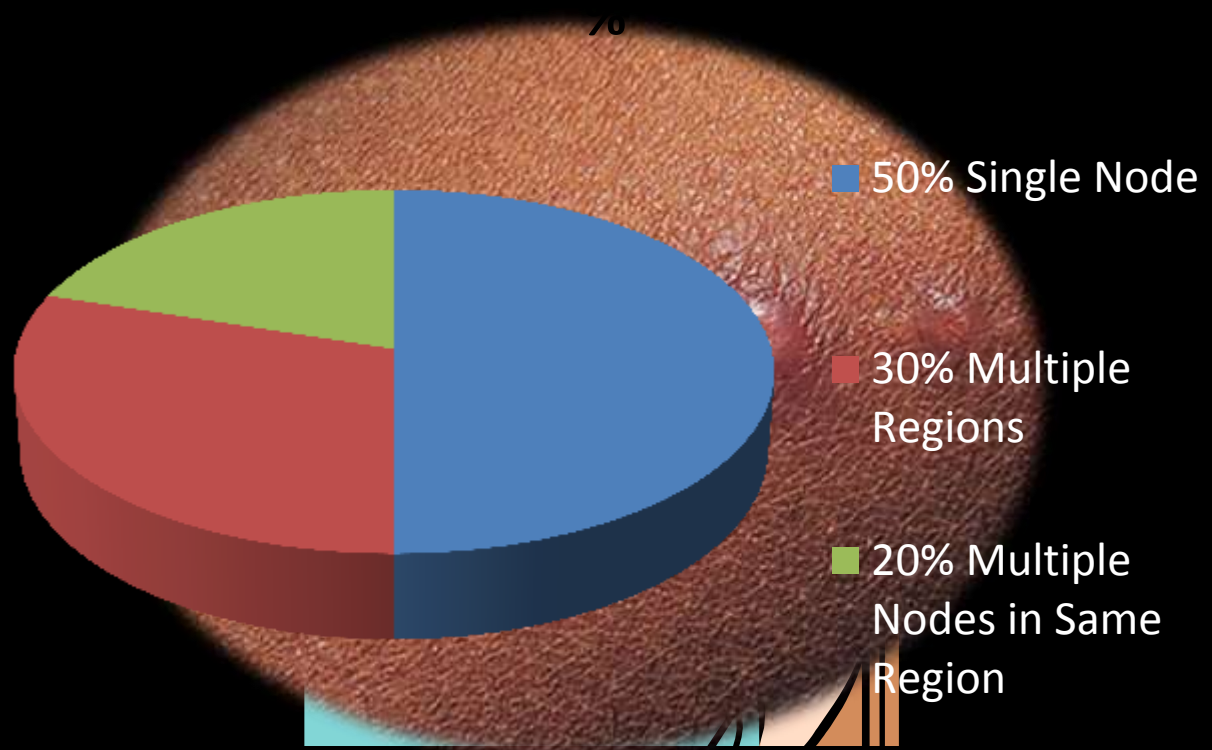
- *Bartonella henselae* nearly exclusively responsible for CSD
 - Gram negative, curved, pleomorphic bacillus
- *Afipia felis* and *Bartonella clarridgeiae* also implicated
- *Bartonella* species use erythrocytes of felines as their natural reservoir, resulting in an intraerythrocytic bacteremia that can persist for a year or longer in some cats
- Other suspected sources are dogs, monkeys, ticks and fleas
- Not contagious from person to person.



PRESS THE "NEXT SLIDE" ARROW WHEN THE AUDIO PLAYBACK IS COMPLETE

- OVERVIEW
- EPIDEMIOLOGY
- ETIOLOGY
- SIGNS & SYMPTOMS**
- LABORATORY
- TREATMENT
- RADIOLOGY
- LYMPH NODES
- LIVER / SPLEEN
- SKELETAL
- NEUROLOGIC
- QUIZ
- REFERENCES

- Tender erythematous papule at inoculation site 3 to 12 days after initial injury that may progress to a vesicular or crusty stage
- >90% have tender unilateral lymphadenopathy within 1 to 3 weeks
- 30 to 60% have low-grade fever and other generalized symptoms
- 5% have transient truncal maculopapular rash



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OVERVIEW

EPIDEMIOLOGY

ETIOLOGY

SIGNS & SYMPTOMS

LABORATORY

TREATMENT

RADIOLOGY

LYMPH NODES

LIVER / SPLEEN

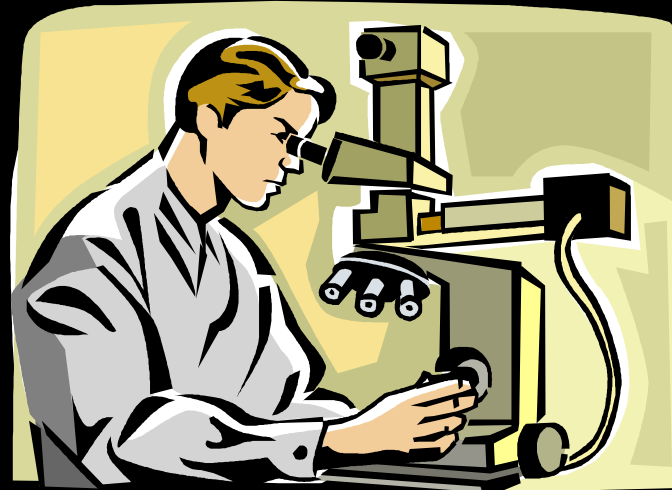
SKELETAL

NEUROLOGIC

QUIZ

REFERENCES

- Mild leukocytosis
- Elevated ESR
- Positive serologic testing & PCR from lymph node biopsy
 - Seropositivity may be noted in 3.1% - 6.6% of the general population without manifestation of cat scratch disease.
- CSF may occasionally show pleocytosis or elevated protein



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OVERVIEW

EPIDEMIOLOGY

ETIOLOGY

SIGNS & SYMPTOMS

LABORATORY

TREATMENT

RADIOLOGY

LYMPH NODES

LIVER / SPLEEN

SKELETAL

NEUROLOGIC

QUIZ

REFERENCES

- Antipyretics, analgesics, and local heat for symptomatic relief
- Aspirate tender lymph nodes to relieve pain
- While controversial, consider antibiotics for severe systemic disease and immunocompromised patients
- Resolves completely in 2 to 5 months in healthy patients while immunocompromised patients may have a life threatening course



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OVERVIEW

EPIDEMIOLOGY

ETIOLOGY

SIGNS & SYMPTOMS

LABORATORY

TREATMENT

- While cat scratch disease is generally a benign and self-limiting condition, it may imitate more serious disease due to the variability of findings and presentations it may produce throughout the body.
- Although these findings alone are nonspecific, it is important to be aware of and recognize cat scratch disease in the presence of appropriate clinical history to avoid a costly or invasive workup.
- We will now review some of these typical and atypical radiologic findings.

RADIOLOGY

LYMPH NODES

LIVER / SPLEEN

SKELETAL

NEUROLOGIC

QUIZ

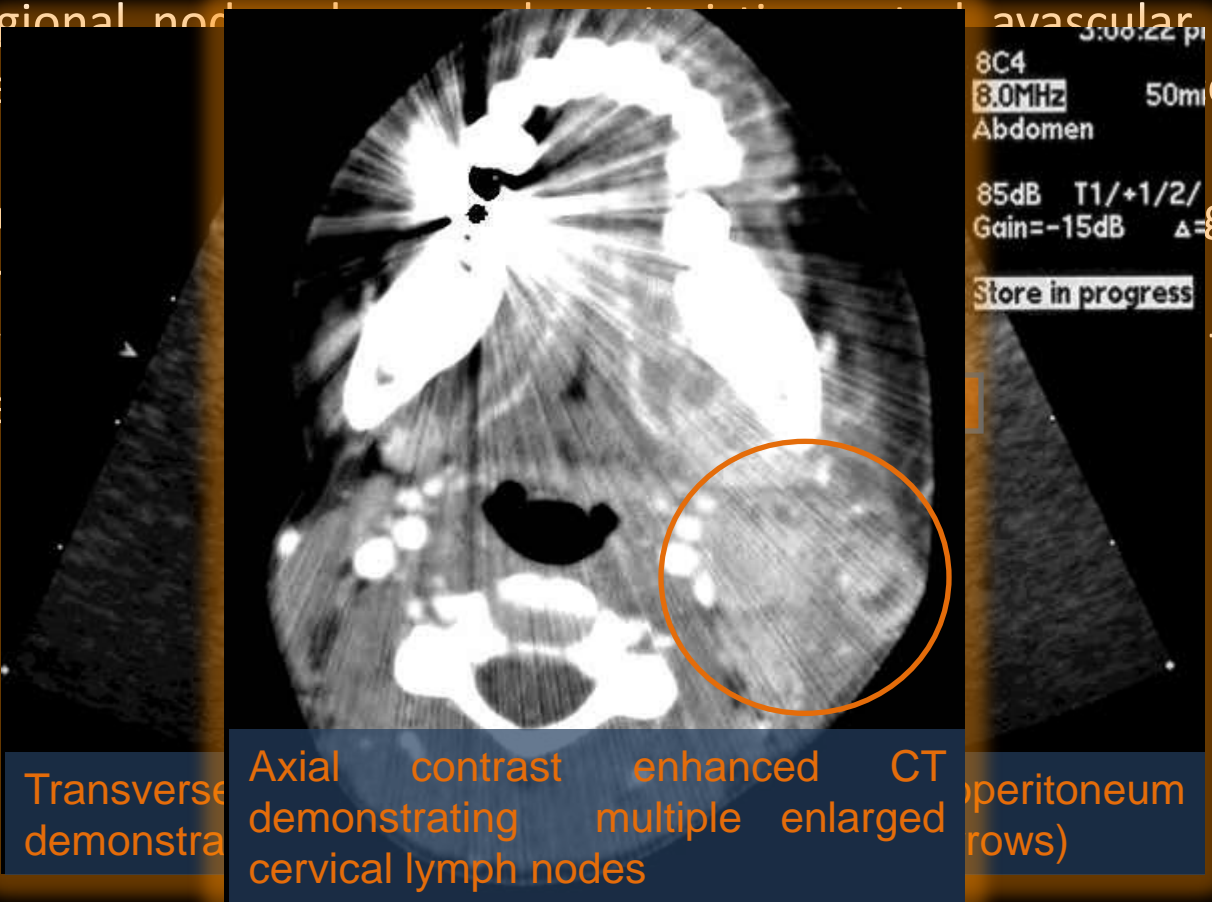
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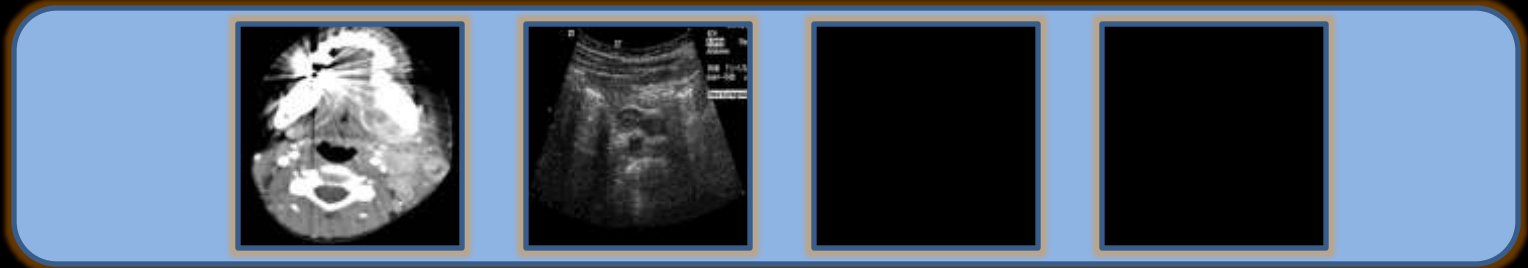
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- OVERVIEW
- EPIDEMIOLOGY
- ETIOLOGY
- SIGNS & SYMPTOMS
- LABORATORY
- TREATMENT
- RADIOLOGY
 - LYMPH NODES**
 - LIVER / SPLEEN
 - SKELETAL
 - NEUROLOGIC
- QUIZ
- REFERENCES

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OVERVIEW

EPIDEMIOLOGY

ETIOLOGY

SIGNS & SYMPTOMS

LABORATORY

TREATMENT

RADIOLOGY

LYMPH NODES

LIVER / SPLEEN

SKELETAL

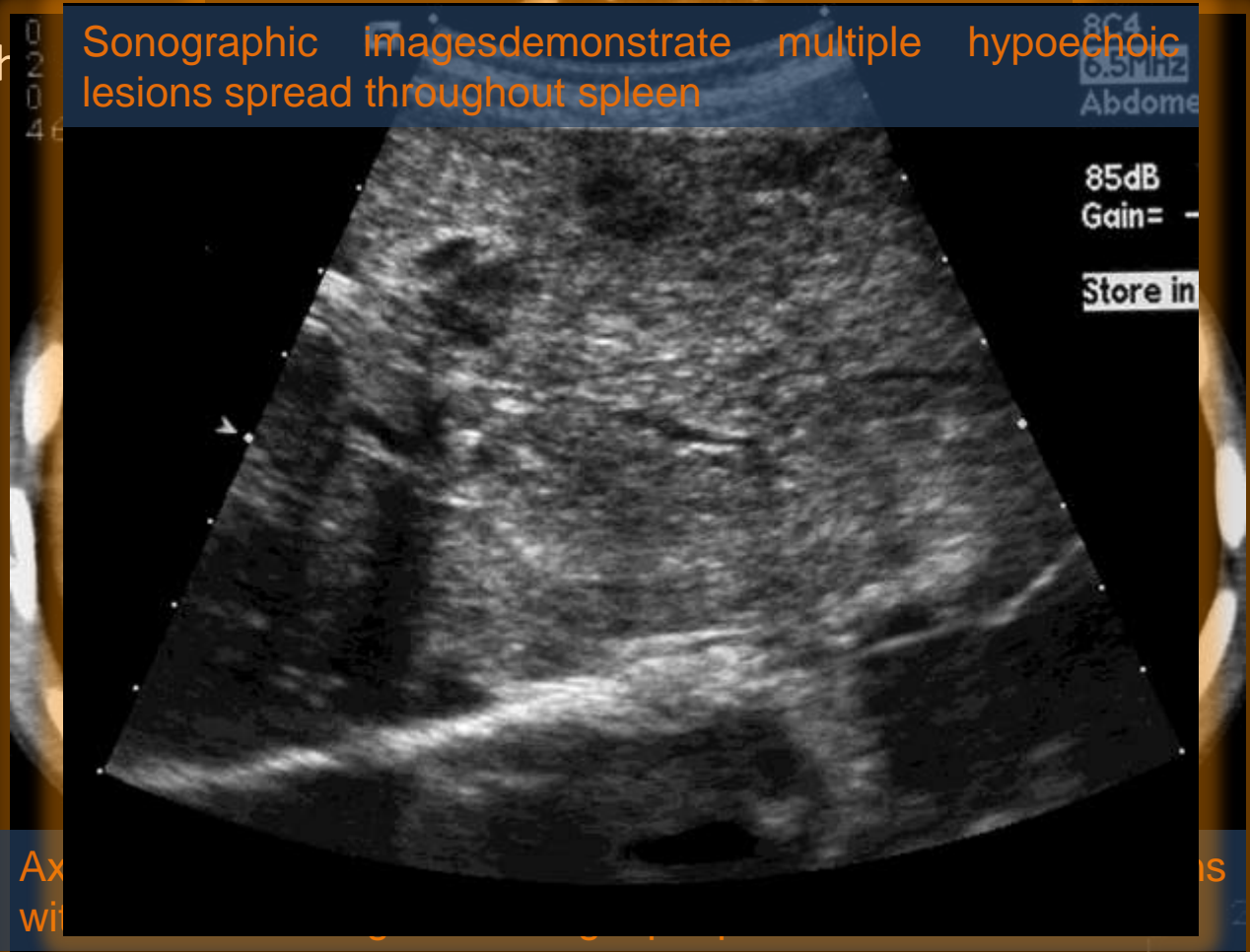
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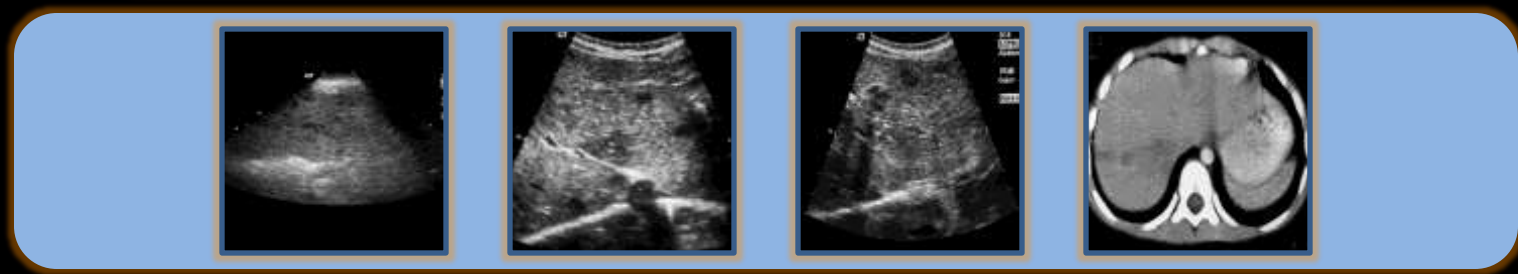
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Sonographic images demonstrate multiple hypoechoic lesions spread throughout spleen



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PRESS THE "NEXT ANIMATION" ARROW BELOW TO VIEW THE THUMBNAI

OVERVIEW

EPIDEMIOLOGY

ETIOLOGY

SIGNS & SYMPTOMS

LABORATORY

TREATMENT

RADIOLOGY

LYMPH NODES

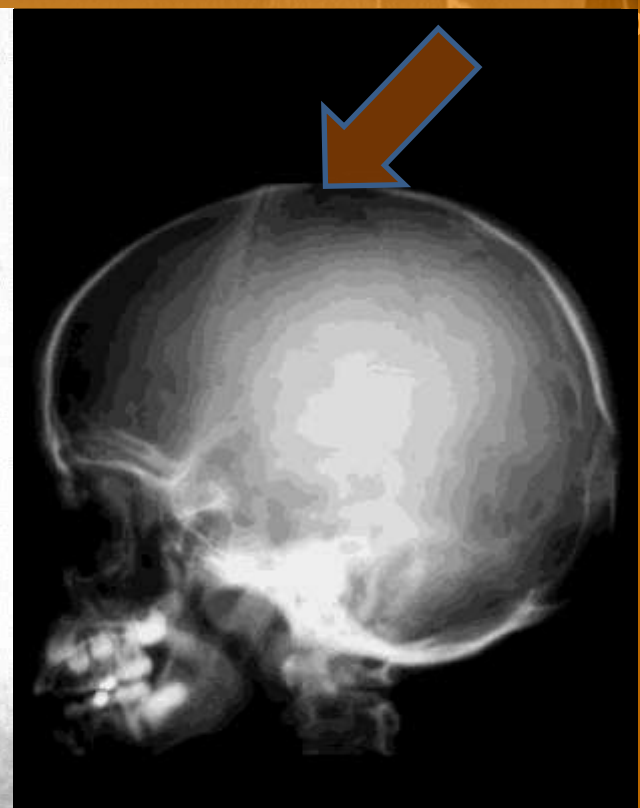
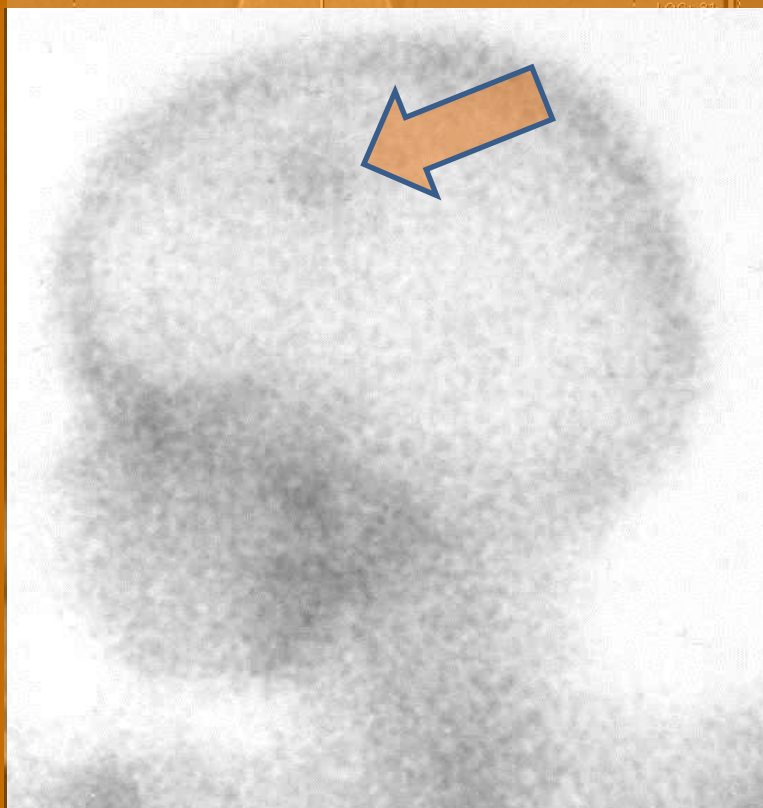
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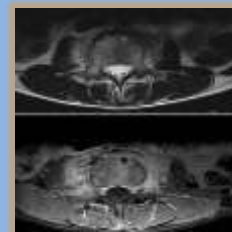
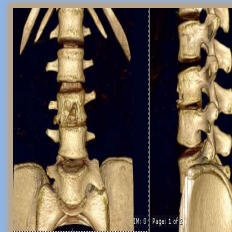
NEUROLOGIC

QUIZ

REFERENCES



Bone scintigraphy demonstrates focally increased uptake in parietal bone. Lateral radiograph of skull demonstrates correlating lucency.

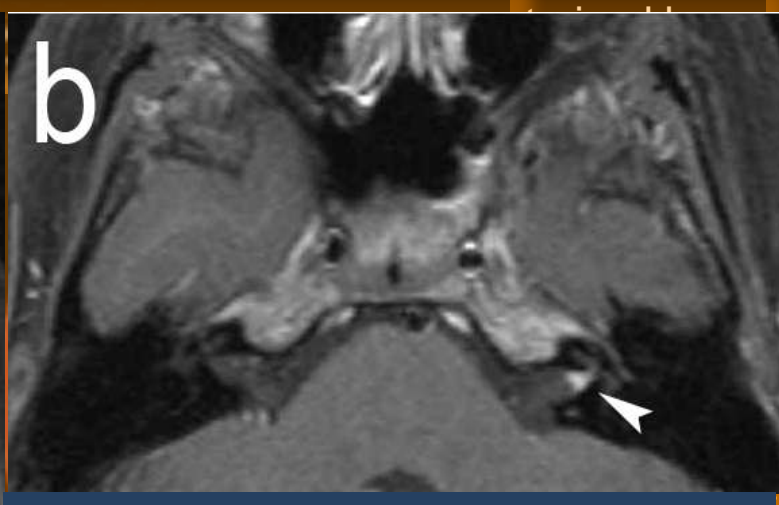


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- OVERVIEW
- EPIDEMIOLOGY
- ETIOLOGY
- SIGNS & SYMPTOMS
- LABORATORY
- TREATMENT



A. Axial T1 MR shows focal mound of enhancement indicating neuritis of optic nerve head. Enhancement of a unilateral short segment (3-4mm) of the optic nerve at the optic nerve-globe junction is highly suggestive of CSD (2). Adjacent enhancement may indicate chorioretinitis.



B. Axial T1 MR shows enhancement in fundus of left internal auditory canal indicating eighth nerve neuritis.

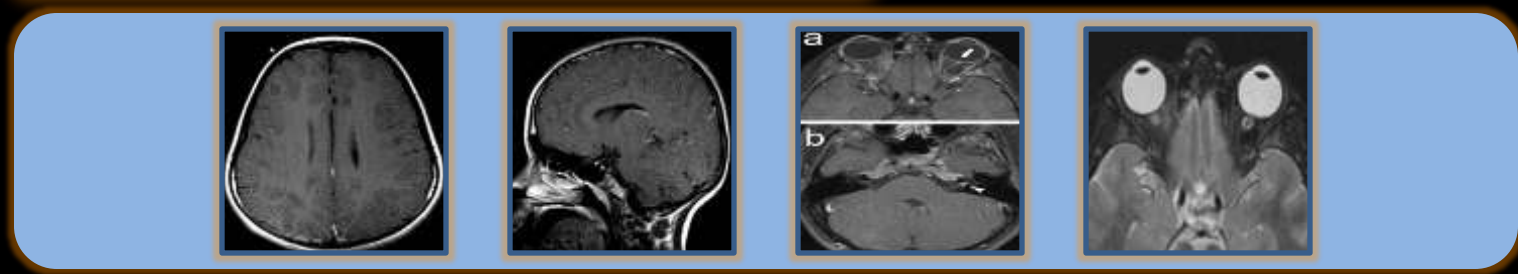
Macular edema in a star formation (arrowheads) is present around central yellow area of resolving lipid rich exudate on retina. There is also optic nerve head edema with exudates (arrow).

eningoencephalitis.

- RADIOLOGY
- LYMPH NODES
- LIVER / SPLEEN
- SKELETAL
- NEUROLOGIC**

QUIZ

REFERENCES



PRESS THE "NEXT ANIMATION" ARROW BELOW TO VIEW THE THUMBNAIIS IN DETAIL

OVERVIEW

EPIDEMIOLOGY

ETIOLOGY

**SIGNS &
SYMPTOMS**

LABORATORY

TREATMENT

RADIOLOGY

LYMPH NODES

LIVER / SPLEEN

SKELETAL

NEUROLOGIC

QUIZ

REFERENCES

- You are about to begin the quiz portion of this presentation.
- After reviewing the questions, simply press the “next animation” arrow below to review the answer.



PRESS THE “NEXT SLIDE” ARROW BELOW TO BEGIN THE QUIZ

OVERVIEW

EPIDEMIOLOGY

ETIOLOGY

SIGNS &
SYMPTOMS

LABORATORY

TREATMENT

RADIOLOGY

LYMPH NODES

LIVER / SPLEEN

SKELETAL

NEUROLOGIC

QUIZ (1/9)

REFERENCES

- What is the approximate number of cases/year of diagnosed CSD?

PRESS THE "NEXT ANIMATION" ARROW BELOW TO REVIEW THE ANSWER

OVERVIEW

EPIDEMIOLOGY

ETIOLOGY

SIGNS & SYMPTOMS

LABORATORY

TREATMENT

RADIOLOGY

LYMPH NODES

LIVER / SPLEEN

SKELETAL

NEUROLOGIC

QUIZ (2/9)

REFERENCES

- What organism most commonly causes CSD?

PRESS THE "NEXT ANIMATION" ARROW BELOW TO REVIEW THE ANSWER

OVERVIEW

EPIDEMIOLOGY

ETIOLOGY

SIGNS & SYMPTOMS

LABORATORY

TREATMENT

RADIOLOGY

LYMPH NODES

LIVER / SPLEEN

SKELETAL

NEUROLOGIC

QUIZ (3/9)

REFERENCES

- What percentage of patients with CSD will have tender unilateral lymphadenopathy?

PRESS THE "NEXT ANIMATION" ARROW BELOW TO REVIEW THE ANSWER

OVERVIEW

EPIDEMIOLOGY

ETIOLOGY

SIGNS &
SYMPTOMS

LABORATORY

TREATMENT

RADIOLOGY

LYMPH NODES

LIVER / SPLEEN

SKELETAL

NEUROLOGIC

QUIZ (4/9)

REFERENCES

- What are some of the MSK manifestations of CSD?

PRESS THE "NEXT ANIMATION" ARROW BELOW TO REVIEW THE ANSWER

OVERVIEW

EPIDEMIOLOGY

ETIOLOGY

SIGNS &
SYMPTOMS

LABORATORY

TREATMENT

RADIOLOGY

LYMPH NODES

LIVER / SPLEEN

SKELETAL

NEUROLOGIC

QUIZ (5/9)

REFERENCES

- What is the most common neurological complication of CSD?

PRESS THE "NEXT ANIMATION" ARROW BELOW TO REVIEW THE ANSWER

OVERVIEW

EPIDEMIOLOGY

ETIOLOGY

SIGNS &
SYMPTOMS

LABORATORY

TREATMENT

RADIOLOGY

LYMPH NODES

LIVER / SPLEEN

SKELETAL

NEUROLOGIC

QUIZ (6/9)

REFERENCES

- What % of patients with neurological symptoms will have findings on a CT or MRI of the head?

PRESS THE "NEXT ANIMATION" ARROW BELOW TO REVIEW THE ANSWER

OVERVIEW

EPIDEMIOLOGY

ETIOLOGY

SIGNS &
SYMPTOMS

LABORATORY

TREATMENT

RADIOLOGY

LYMPH NODES

LIVER / SPLEEN

SKELETAL

NEUROLOGIC

QUIZ (7/9)

REFERENCES

- What type of neurological findings will have the highest incidence for long term sequela?

PRESS THE "NEXT ANIMATION" ARROW BELOW TO REVIEW THE ANSWER

OVERVIEW

EPIDEMIOLOGY

ETIOLOGY

SIGNS & SYMPTOMS

LABORATORY

TREATMENT

RADIOLOGY

LYMPH NODES

LIVER / SPLEEN

SKELETAL

NEUROLOGIC

QUIZ (8/9)

REFERENCES

- What are possible neurological manifestations of CSD?

PRESS THE "NEXT ANIMATION" ARROW BELOW TO REVIEW THE ANSWER

OVERVIEW

EPIDEMIOLOGY

ETIOLOGY

SIGNS &
SYMPTOMS

LABORATORY

TREATMENT

RADIOLOGY

LYMPH NODES

LIVER / SPLEEN

SKELETAL

NEUROLOGIC

QUIZ (9/9)

REFERENCES

- Which enhancement pattern is most suggestive of neuroretinitis?

PRESS THE "NEXT ANIMATION" ARROW BELOW TO REVIEW THE ANSWER

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|-----------------------------|
| OVERVIEW |
| EPIDEMIOLOGY |
| ETIOLOGY |
| SIGNS & SYMPTOMS |
| LABORATORY |
| TREATMENT |
| RADIOLOGY |
| LYMPH NODES |
| LIVER / SPLEEN |
| SKELETAL |
| NEUROLOGIC |
| QUIZ |
| REFERENCES |

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YOU HAVE COMPLETED THIS MODULE, THANK YOU.