

The Cat's Out of the Bag: A Delayed Diagnosis of *Bartonella henselae*

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Introduction

- Cat Scratch Disease (CSD) is caused by the Gram negative intracellular bacteria *Bartonella henselae*.
- It typically presents with fever and regional lymphadenopathy but can progress to a disseminated infection in a small subset of patients.
- Symptoms generally begin 1-4 weeks after infection and usually resolve within 2-4 weeks.
- CSD is underrecognized in adult patients as more than 80% of infections occur in patients under the age of 21.
- The reservoir of CSD is cats who have been infected with the bacterium by fleas, which serve as the vector. Humans can become infected if they are bitten or scratched, or via infected saliva through breaks in the skin.

Case

Background:

- A 24-year-old previously healthy Honduran man presented to the ER with a six-week history of worsening left arm pain and underlying axillary lymphadenopathy.
- He had 2 prior ED visits and had been empirically treated for presumptive sinopulmonary infection with multiple courses of antibiotics including amoxicillin-clavulanate and doxycycline without improvement.

Symptoms:

- On presentation, he complained of left arm pain and swelling that limited range of motion at the shoulder joint. He also complained of neuropathic pain, numbness, tingling, and weakness in the left arm.
- In depth questioning revealed that the patient was bitten on the left index finger by his cat 3 months prior to symptom onset.
- While CSD is more common in young children, the history of a cat bite combined with the patient's localized lymphadenopathy led to strong consideration of CSD as a likely diagnosis.

References

1. Baranowski K, Huang B. Cat Scratch Disease. [Updated 2023 Jun 12]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2025 Jan.
2. Kravetz JD, Federman DG. Cat-Associated Zoonoses. Arch Intern Med. 2002;162(17):1945-1952. Doi:10.1001/archinte.162.17.1945

Results

Differential Diagnoses				
Bacterial abscess	Bacterial lymphadenitis	Tuberculous lymphadenitis	Lymphoma	Bartonella lymphadenitis
Blood cultures (-) FNA micro (-)	Blood cultures (-) FNA micro (-)	QuantIFERON Gold (-) AFB cultures (-)	FNA cytology (-) for malignant cells	PCR (-) IgM/IgG elevated

- CT with contrast obtained on admission confirmed the presence of a 4.4 x 2.8 cm mass in the left axilla.
- QuantiFERON Gold, HIV testing, and blood cultures were negative.
- Fine needle aspiration of the lymph node was performed for microbiology and pathology. Cytology was negative for malignant cells.
- Aspirate Gram stain, fungal stain, and AFB smear were negative.
- Subsequent aspirate cultures were without growth.
- *Bartonella* PCR was negative.
- Serologic testing was positive for *Bartonella* (IgM-1:400 and IgG-1:2560), confirming a diagnosis of CSD in this clinical scenario.

Radiology and Pathology

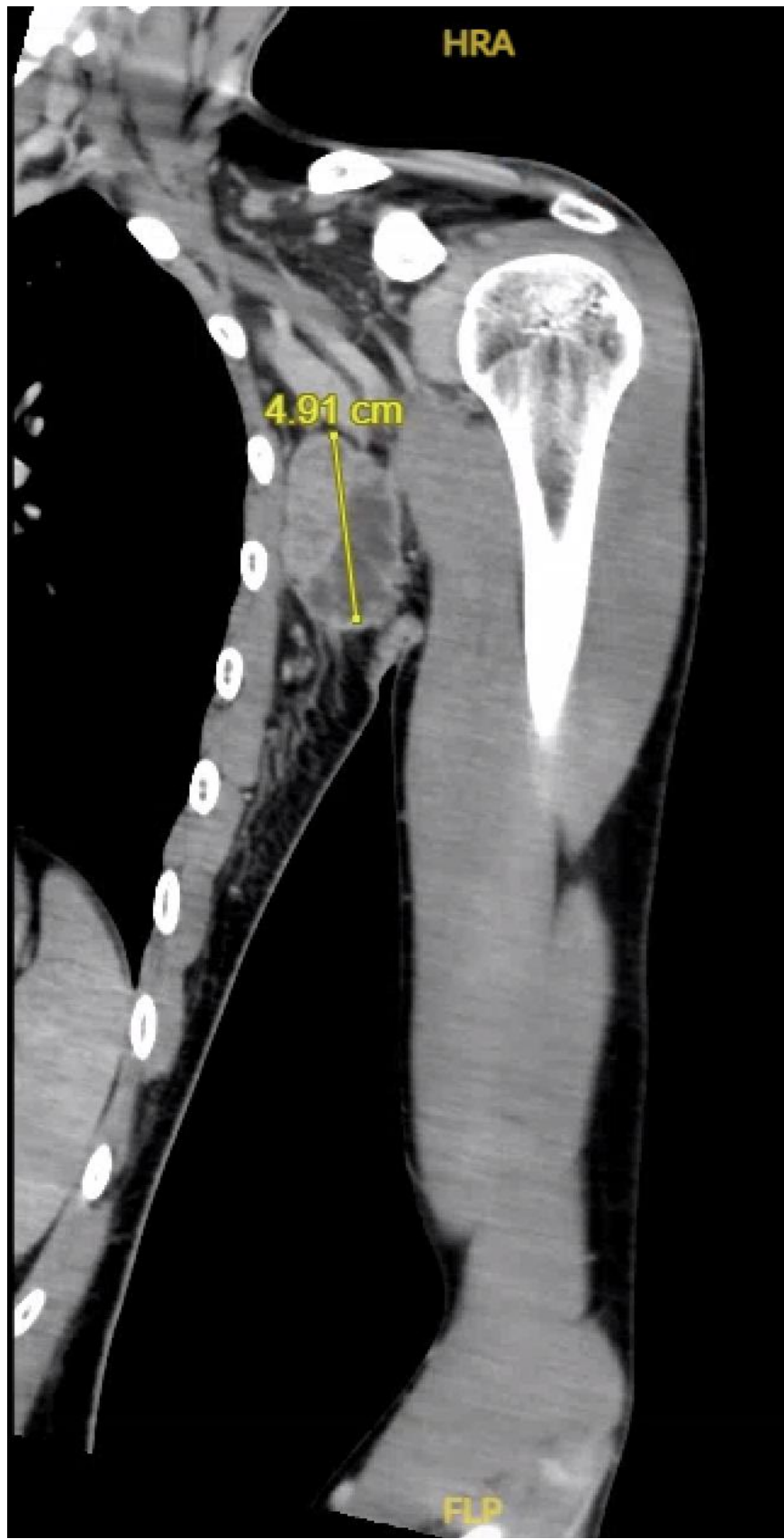


Figure 1: Computed tomography of the left axilla showing a 4.3x2.9x4.9 cm mass.

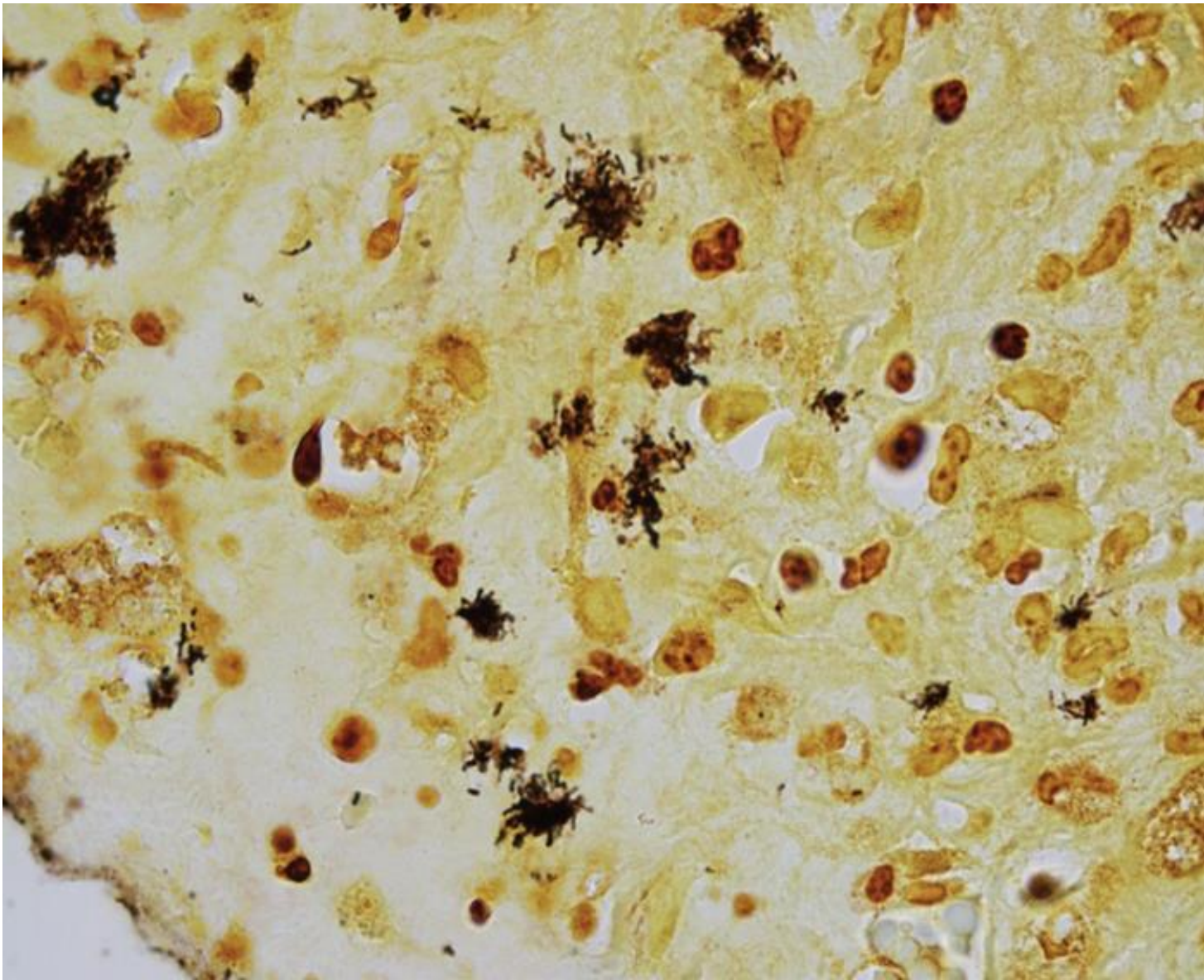


Figure 2: Light microscopy of Warthin-Starry stained *B. henselae* bacteria. The bacteria appear as small dark organisms in clusters.

Treatment

- The patient was initially treated empirically with vancomycin, piperacillin-tazobactam, and azithromycin for bacterial lymphadenitis including coverage of possible CSD.
- His pain and lymphadenopathy did not significantly improve with an initial 5-day azithromycin course.
- Therefore, he was treated with a second course of high-dose azithromycin and underwent therapeutic aspiration of fluid surrounding the lymph node.
- These interventions along with aggressive pain management led to significant pain improvement.
- He was ultimately discharged after an 11-day admission.

Update

- After discharge, the patient remained pain-free for only 3 days.
- He had multiple follow-up appointments and ED visits due to persistent axillary pain. Imaging showed decreased swelling and physical exam showed objective improvement in symptoms.
- Lingering symptoms is likely due to the chronicity of his infection before he received initial treatment.
- He was given another course of azithromycin with rifampin and adjunctive prednisone with some improvement.

Discussion

- This case highlights the importance of obtaining a comprehensive history and maintaining a wide differential in undifferentiated patients.
- This case also supports the importance of considering *Bartonella* in patients with localized and painful lymphadenopathy regardless of age.
- *Bartonella* diagnosis can be achieved by serology, PCR, histopathology, or Warthin-Starry staining.
- A positive *Bartonella* PCR is diagnostic, but a negative test should not rule out CSD as false negatives are common based on limited specimen cellularity of fine needle aspiration.
- Positive *Bartonella* serology can strongly support a diagnosis of CSD but can also indicate previously resolved infection.
- Applying serologic testing results to an individual clinical scenario is essential in making an accurate diagnosis.