

## CLINICAL VIGNETTE

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# Cat Scratch Disease

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### Case

A 71-year-old female with osteoarthritis presented to the ED with 3 days of fatigue, fever, and rigors, and 1 day of lethargy and confusion. In the ED, she was found to have T 102.7F, HR 106, BP 127/80, RR 18, 94% RA. Physical exam was notable for encephalopathy and bibasilar rales. WBC was 9.84, 70.4% PMNS. There was no pulmonary consolidation on imaging; however, two prominent right axillary lymph nodes were incidentally found on radiographs. Initial infectious work up was negative. The patient was empirically treated with levaquin for presumed atypical pneumonia given rales and mild hypoxia; however, she continued to have fevers to 102.2F.

Due to the persistent fevers, further history was obtained. The patient reported having chronic diarrhea that was similar to baseline. She had two cats at home that live outdoors and indoors. There was no indoor litter box and they do not scratch or bite. She also reported a right forearm pustule that was intermittently purulent and crusted over the past two months. She denied recent travels or sick contacts, had a normal appetite, and no weight loss or night sweats.

CT abdomen and pelvis revealed 10-15 variably sized, hypodense lesions in the liver and spleen, some with rim enhancement, and amorphous upper abdominal lymphadenopathy. Transthoracic and transesophageal echocardiograms were normal. Liver biopsy was non-diagnostic with mixed inflammation and focal necrosis with no organisms identified and negative Warthin-Starry and Steiner stains. Punch biopsy of the right arm pustule showed suppurative granulomatous inflammation with plasma cells, and negative stains.

Although initial *Bartonella* serologies and PCR were negative, given the clinical findings of fever, lymphadenopathy, hepatosplenic involvement and cat exposures at home, the patient was ultimately treated for presumptive Bartonellosis with azithromycin. She clinically improved with resolution of fevers and increased energy. Serial serologies were performed, and the *Bartonella* IgG became positive with a titer of 1:128 at 3 weeks, and increased to 1:256 at 4 weeks. The hepatosplenic lesions and lymphadenopathy decreased in size after four weeks of antibiotics. The positive convalescent serologies and clinical improvement with azithromycin confirmed the diagnosis of Cat Scratch Disease.

### Discussion

Cat Scratch Disease commonly presents in children and young adults with self-limited regional lymphadenopathy as the predominant finding.<sup>1</sup> Elderly patients are more likely to present atypically with additional findings such as endocarditis, encephalitis, and fever of unknown origin.<sup>1</sup> Due to a lower suspicion for Cat Scratch Disease in older patients and the atypical presentation, the diagnosis is often delayed in the elderly.

A diagnosis is usually made by clinical findings and a recent history of cat or flea exposure. Serological testing may be performed, however it has poor sensitivity and specificity.<sup>2</sup> A positive IgG test with titers between 1:64 and 1:128 represents possible infection and 1:256 or more strongly suggests active or recent infection.<sup>3</sup> Biopsies are not routinely performed for diagnosis, but they may show acellular necrosis with histiocytes, epithelioid cells and lymphocytes in a palisading arrangement, and the Warthin-Starry stain may reveal *B. henselae* bacilli within the areas of necrosis.<sup>4,5</sup> Patients with only lymphadenitis should be treated with a short course of azithromycin to prevent serious complications, and those with more disseminated disease should be treated with a higher dose of azithromycin or a combination of azithromycin and rifampin.<sup>6</sup>

Our patient was an elderly woman who presented atypically with vague symptoms of fevers, fatigue and delirium, and was found to have lymphadenopathy and hepatosplenic lesions. Despite negative serology and biopsy stains, the patient's clinical presentation was consistent with Cat Scratch Disease, and she was empirically treated with a prolonged course of antibiotics. The improvement in hepatosplenic lesions and the positive convalescent serologies confirmed the diagnosis of Bartonellosis. Negative serology does not exclude the diagnosis of Cat Scratch Disease and patients should be treated if there is clinical suspicion. Cat Scratch Disease should be considered in patients with unexplained fevers with known exposure to cats, even if there is no history of scratches or bites. Transmission of Cat Scratch Disease is associated with younger cats (<1 year old), who scratch or bite or have fleas.<sup>7</sup>

In summary, elderly patients often present atypically with more generalized and systemic symptoms, but Cat Scratch Disease should be considered if the patient's history includes exposures to cats at home, regardless of history of bites or lack thereof.

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