

## Cat-scratch disease: About an axillary presentation

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### Abstract

The cat-scratch disease is a bacterial infection caused by the inoculation of the *Bartonella henselae* a gram-negative bacterium by either cat's scratch or bite. This disease frequently affects the child. It has two forms, regional which manifests by lymphadenopathy of the upper limb, and disseminated characterized by systemic manifestations. The diagnosis is suspected in the presence of axillary or cervical lymphadenopathy with a history of cat exposure. However the resultant necrotic node may be taken for a soft tissue tumor. The cross-sectional imaging shows a mass with surrounding edema in an area of lymphatic drainage, the appearance of which on ultrasound is indicative. Afterwards serologic confirmation can be obtained. The regional form resolves spontaneously within few weeks. However in the immunocompromised patients antibiotic treatment must be started.

### Keywords

Cat-scratch; Bartonella; Lymphadenopathy; Imaging.

### Introduction

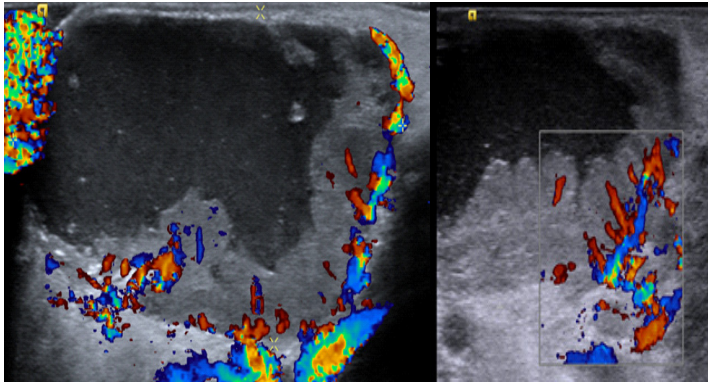
The cat-scratch disease is caused by the *Bartonella henselae* microorganism, a gram-negative bacillus, in which the cat is the principal reservoir, and transmitted to humans through saliva and claws [1,2]. The clinical presentation of the cat-scratch disease is mainly dominated by mild febrile lymphadenopathy [2]. Aside from clinical features, imaging findings are key to the diagnosis. The practitioner has a plethora of imaging techniques at his disposition, ranging from the classical ultrasound to the MRI [3]. We present a case of Cat-scratch disease in a child presenting an axillary mass.

### Case Presentation

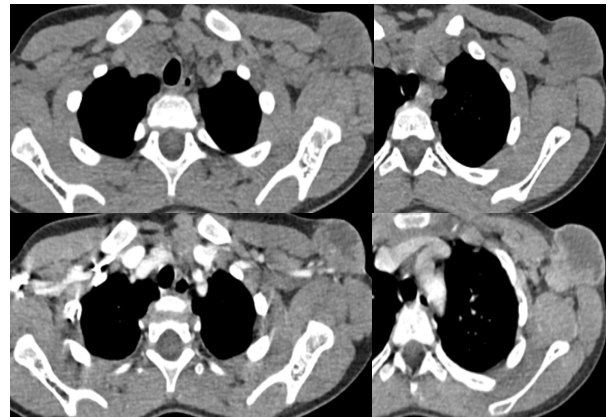
We report the case of a 5-year-old child who presented a left axillary swelling that had been evolving for few weeks, painful on palpation, associated with fever with preservation of general condition.

The ultrasound showed the presence of a voluminous left axillary lymphadenopathy, rounded in shape, with regular contours, undifferentiated, with a massively necrotic center and peripheral vascularization (Figure 1).

The exploration was completed by a CT-scan objectifying the presence of a left axillary lymphadenopathy, heterogeneously enhanced, containing a necrotic center, associated with some ipsilateral axillary enlarged lymph nodes (Figure 2).



**Figure 1:** Sonogram shows a voluminous left axillary lymphadenopathy, undifferentiated, with a massively necrotic center and peripheral vascularization.



**Figure 2:** CT-scan objectifying a left axillary lymphadenopathy, heterogeneously enhanced, containing a necrotic center, associated with some ipsilateral axillary enlarged lymph nodes.

The diagnosis was first suspected upon the clinical presentation, the cat-scratches in the child's arm, and the imaging. It was then confirmed by a serology test. Painkillers were administrated, and the child was getting better.

## Discussion

The cat-scratch disease is a bacterial infection caused by *Bartonella henselae*, an intracellular gram-negative bacillus. The disease spreads when an infected cat bites or scratches a person hard enough to break the dermis [4].

Two clinical presentations of the cat-scratch disease exist [2,3]:

- Localized regional lymphadenitis: most frequently found in the axillary and epitrochlear lymph nodes, while cat bites are usually located on the distal portion of the superior limbs. Lymphadenopathies tend to spontaneously regress in most immunocompetent people, although surgical drainage may be useful in few cases.
- Disseminated form: is a much rarer entity. It may extend to the brain (encephalopathy), to the retina (retinopathy), to the liver and spleen, and finally to bone and soft tissues.

Special and extremely rare form is the immunodeficient's prerogative. It's characterized by bacillary angiomatosis and peliosis hepatis [5].

The ultrasound findings are usually an enlarged lymph node with asymmetry and a hypoechoic hilum was characteristic of cat scratch disease. The pathological examination usually confirms the diagnosis [6]. Hepatosplenic involvement may be identified on sonography as multiple small hypoechoic lesions, which may eventually calcify [7,8].

The assessment of disseminated disease calls for CT-scan. Abdominal granulomas are typically hypodense on non-enhanced CT. Upon administration of intravenous contrast they can remain hypodense, become isodense to the surrounding tissues, or demonstrate rim enhancement [9]. Moreover the CT-scan addresses bone lesions such as osteomyelitis which may also be assessed by a scintigraphy showing an hyperfixation.

Affected lymph nodes are typically shown on MRI as hyperintense on T2 weighted sequences, with surrounding soft tissue edema, and enhancement following the administration of intravenous contrast. MRI is particularly useful in the evaluation of the rare encephalitis and meningitis cases [9,10].

Due to the nonspecific clinical presentation of cat-scratch disease and the diversity of systemic manifestations, it may be confused with other diseases especially soft tissue tumors.

Cat-scratch disease in its uncomplicated form in immunocompetent patients is self-healing in three weeks. Some authors recommend short-term antibiotic therapy [11,12]. In immunocompromised patients, erythromycin and doxycycline have shown their efficacy in the treatment of the disease. Prolonged therapy for weeks or even months is necessary in case of relapse [13].

## Conclusion

The diagnosis of the cat-scratch disease should be considered in a patient with axillary or cervical lymphadenopathy and a history of cat scratch. The Imaging will show a heterogeneous mass in an area of lymphatic drainage that may mimic a soft tissue tumor. The disease commonly resolves spontaneously in few weeks.

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