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Author Manuscript

Faculty of Biology and Medicine Publication

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Published in final edited form as:

Title: Isolated mediastinal necrotizing granulomatous lymphadenopathy due to cat-scratch disease.

Authors: Lovis A, Clerc O, Lazor R, Jatton K, Greub G

Journal: Infection

Year: 2014 Feb

Volume: 42

Issue: 1

Pages: 153-4

DOI: 10.1007/s15010-013-0484-1

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Isolated mediastinal necrotizing granulomatous lymphadenopathy due to cat scratch disease

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Conflict of interest: no conflict.

Abstract.

We report a patient suffering from a cat-scratch disease limited to mediastinal lymphadenitis. Although rare, cat-scratch disease should be considered in the differential diagnosis of mediastinal lymphadenitis, especially when patients were exposed to cats.

Main text.

A previously healthy 60 year-old woman presented with acute onset of malaise, fatigue, low-grade fever, night sweats, and mild dysphagia. Physical examination was unremarkable. Laboratory revealed an elevated C-reactive protein (99mg/L) without other significant abnormalities.

Patient's history was characterized by numerous travels in 39 countries during the last 10 years. She visited Ethiopia one month before becoming symptomatic. There was no history of contact with tuberculosis or other contagious diseases. The patient lived with three cats, with which she had very close contacts such as

kissing and sleeping together. She reported occasional cat scratches, without significant inflammatory reaction.

Chest computed tomography (CT) revealed enlarged subcarinal and right hilar lymph nodes without concomitant parenchymal lung disease. Positron emission tomography (PET) showed increased fluorodeoxyglucose uptake in subcarinal and right hilar lymph nodes only (Figure). Bronchoscopy with endobronchial ultrasound guided transbronchial needle aspiration (EBUS-TBNA) of mediastinal lymph nodes was performed. Histopathological examination revealed clusters of epithelioid cells with granulomas and necrosis, and no malignant cells. Polymerase chain reaction (PCR) for *Mycobacterium tuberculosis*, nontuberculous mycobacteria and *Bartonella henselae* were performed. *B. henselae*-specific PCR was positive on two independent samples, at 18'400 and 129'000 copies/ml, respectively. Mycobacterial infection was excluded by negative PCR and cultures. *B. henselae* serology was also positive with IgG >1/2048 and IgM 1/20 titers. *Bartonella* endocarditis was excluded by 2 normal transthoracic echocardiographies done 4 weeks apart, by a normal eye fundus examination, and by a negative *Bartonella*-specific PCR in blood.

Cat-scratch disease (CSD) limited to mediastinal lymphadenitis was diagnosed, and treated with rifampin 600 mg/day and doxycycline 2x100 mg/day for 6 weeks. The treatment was successful with rapid disappearance of all symptoms. Post-treatment chest CT showed a normal mediastinum (Figure). C-reactive protein level returned to normal.

The diagnosis of *Bartonella henselae* infection was based on two independent positive PCRs, a highly positive serology, and granulomatous necrotizing lymphadenopathy, a common feature in CSD. EBUS-TBNA proved useful in providing the diagnosis through both histopathology and microbiological investigations. Chest involvement is rarely reported in CSD, and mostly concerned thoracic wall infection from a skin inoculation¹. Mediastinal spread from cutaneous inoculation has exceptionally been reported². Mediastinal lymphadenitis has been described in patients with disseminated CSD³ or with *B. henselae* endocarditis.⁴ However, extrathoracic lymphadenitis and endocarditis were ruled out in our patient. We hypothesize that this unusual site may be due to a bronchial aspiration of an infected flea with consecutive infection of tracheo-bronchial mucosa, since a cutaneous inoculation is unlikely in the absence of other lymphadenopathies. Although experts recommend macrolide monotherapy for CSD with isolated lymphadenopathy⁵, a combined therapy was prescribed in this case given the unusual localization of the lesion.

Isolated mediastinal lymphadenitis is a possible (albeit rare) clinical expression of CSD. CSD should be included in the differential diagnosis of mediastinal lymph node enlargement, mainly in patients with a history of close contact with cats.

Figure. (A) Right hilar and subcarinal lymphadenopathies as seen by CT-scan at time of diagnosis; (B) Disappearance of all lymphadenopathies after a 6-week treatment; (C) positon emission tomography: increased fluorodeoxyglucose uptake in right hilar and subcarinal lymph nodes at time of diagnosis; there are no other sites of pathological tracer uptake.

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