

FELINOSIS (CAT SCRATCH DISEASE) – DIAGNOSIS AND TREATMENT

Krasimira Kalinova
University Hospital, Stara Zagora, Bulgaria

ABSTRACT

Cat scratch disease, caused by *Bartonella henselae*, typically presents with a localized lymphadenopathy with a brief period of fever and general symptoms. We review the diagnosis and treatment of this infection in three adults and two children.

Keywords: *Bartonella henselae*; cat-scratch disease; lymphadenopathy

Felinosi or Cat-scratch disease, an infectious illness, is caused by the organism *Bartonella henselae* and is transmitted through contact with cats or kittens. It is a self-limited disorder in the general pediatric population. Here we present five cases of unsuspected cat-scratch disease in patients who presented with fever and lymphadenopathy. Eight months after treatment with a short course of azithromycin, two patients developed a recurrence of cat-scratch disease. We review the diagnosis and treatment of this infection in adults and children.

Three young women 18, 22 and 24 years old; and two children 10 and 15 year old are visited general practitioner with a painless swelling in the right groin. The symptoms are fever; abdominal pain and lymphadenopathy. They were referred to a surgeon, who aspirated the node. The aspirate contained blood and a range of lymphoid cells, suggesting a reactive lymph node. Ultrasonography confirmed numerous large lymph nodes in the right groin in three patients and another left side. Lymphadenopathy was not present elsewhere. The pelvis appeared normal on ultrasonography. Two hypoechoic lesions were found in the right lobe of the liver posteriorly, and multiple similar lesions were found in the spleen, but no para-aortic lymphadenopathy was seen.

The surgeon took a biopsy specimen of the lymph node. This showed a reactive lymph node with prominent germinal centres and focal areas in keeping with necrotising granulomata. Cultures were Gram negative. Stains for acid fast bacilli and fungi gave negative results, and there was no evidence of caseating necrosis. Sarcoidosis was suspected, and the patient was referred to a chest physician.

Patients had no symptoms of systemic disease and had a good appetite, steady weight, and no night sweats. They never did have several allergies. At initial presentation a full blood count gave normal results. The erythrocyte sedimentation rate was increased at 25 mm in the first hour.

A liver function test showed increased concentrations of alkaline phosphatase 188 u/l (normal range 25-75 u/l), aspartate aminotransferase 87 iu/l (8-39 u/l), and γ -glutamyltransferase 164 iu/l (12-43 iu/l). Serum amylase concentrations were 30 iu/l, within normal range (23-71 u/l). A monospot test for infectious mononucleosis gave a negative result. A test for Epstein-Barr nuclear antigen antibody gave a positive result, indicating past infection with the Epstein-Barr virus. Serology for *Bartonella* was performed. Although the IgM titre for *Bartonella henselae* was <20, that for IgG was >256. The IgM titre for *Bartonella quintana* <20 and for IgG was 1 in 64. These findings were consistent with a recent infection with *B henselae*.

Ultrasonography of the patient's abdomen confirmed enlarged lymph nodes in her right groin. No lymphadenopathy was detected intra-abdominally. Their liver appeared normal both before and after the addition of contrast, but some low density areas were detected in the spleen. Other organs in her upper abdomen appeared normal. The treatment performed azithromycin in 75% of the patients and in the 25% Tetracycline and Macrolides.

After five months there were still persistently increased titres of IgG to *B henselae*, and IgM had increased to >20. Interestingly, IgG to >128 and IgM to >20. This may represent cross reactivity.

The patients improved over time. They were not given antibiotics at home, and results of liver function tests returned to normal.

Discussion

LEE FOSHAY (1,2) in 1932 was first to recognize a disease entity characterized by a primary skin lesion and regional lymph node enlargement following the scratch of a cat. His observations were not published. In a communication in 1952 he said that in 1945 Rose prepared an antigen from a diseased lymph node of a person who had this disease. Later this antigen was used by Foshay as testing material on his own case. In 1950 Debre published a report on this disease in France (3, 4). Flores³ cited the work of Petzetakis of Greece who in 1935 reported on the clinical and anatomical characteristics of this disease; and since that work antedated the publication of Debre, Flores called the entity Petzetakis disease. The first report in this country was that of Greer who in 1951 described a case in a young man. Positive skin

reactions were obtained with an antigen supplied by Foshay. Since then many reports have appeared in this country (summarized in 1951, 1952 and 1954 by Daniels and MacMurray)(5, 6, 7) and in France, South Africa, Canada, Australia, England, Switzerland and Germany. The clinical epidemiologic and etiologic features are well covered in the monographs of Daniels and MacMurray(5, 6). The disease is self limited, characterized by a primary skin lesion at the site of a scratch in most instances attributed to a cat, followed by swelling of regional lymph nodes after an interval of four days to a month. A fever of moderate degree may develop with malaise and loss of appetite. The nodes are tender and the skin may be reddened. The degree of enlargement varies, the nodes at times reaching 6 to 8 cm in diameter. One or more regional nodes may be involved. Suppuration and sinus formation may occur although in milder forms the nodes may slowly involute without breaking down. The enlargement may persist for many months. A history of cat-scratch is obtained in the majority of cases. In a small proportion of cases there is no history of skin injury. Complications are rare. Subcutaneous lesions suggestive of in the groin about a month before she became unwell.

Cat scratch disease mainly affects children and young adults (80% of those affected are under 21). Most patients develop regional lymphadenopathy, preceded by an erythematous papule at the site of inoculation. Systemic disease is more common in immunocompromised patients and can include fever, malaise, anorexia, headache, and splenomegaly. Complications of systemic infection include pneumonia, encephalitis, and hepatitis.

Members of the genus *Bartonella* have recently become associated with an increasing spectrum of diseases. Five *Bartonella* species are associated with diseases in humans, of which *B. henselae* causes the widest spectrum of disease, including diseases with granulomatous features (cat scratch disease), vascular proliferation (bacillary angiomatosis-peliosis), and a combination of bacteraemia and

endocarditis. Bacteraemia may cause lesions of most organs, including the heart, liver, spleen, bone marrow, lymphatics, and central nervous system.

B. henselae is endemic in the United States, Europe, Africa, Australia, and Japan. Cats are the principal reservoir, particularly during the kitten stage, and the main vector to cats is the flea. Patients with cat scratch disease are likely to own a cat aged 12 months or younger, to have been scratched or bitten by a kitten, and to have at least one kitten infested with fleas. In a small percentage of patients with cat scratch disease there is no history of contact with animals.

About 24,000 people have cat scratch disease each year in the United States, 80% of whom are children, with a peak incidence between ages 2 and 14. The disease is seasonal in temperate zones, with peaks in autumn and winter. This may be explained by the breeding pattern of cats and the acquisition of pet cats.

Serological testing for *B. henselae* is both sensitive and specific for cat scratch disease. Such testing precludes surgical intervention. Several antibiotics have been advocated for systemic illness associated with cat scratch disease, including gentamicin, rifampicin, and ciprofloxacin. The use of antibiotics in cat scratch disease with lymphadenopathy and no systemic symptoms remains controversial, although some benefit in the reduction of lymph node size has been shown with Azithromycin(8).

Cat scratch disease should be considered in patients with chronic (>3 weeks) lymphadenopathy. The history taking should include contact with animals, especially scratches from mammals. Cat scratch disease may be more prevalent than realised, and an unnecessary biopsy may be avoided on the basis of serology results. Conversely, when a child has a prolonged fever of unknown origin, possibility of cat scratch disease should be considered, and a search for underlying systemic complications is recommended for prompt diagnosis and appropriate treatment.

REFERENCES

1. Margileth A. M. Cat scratch disease. *Adv Paedr Infect Dis.* 1993;8:1-21.
2. Relman D A. Are all *Bartonella* strains created equal? *Clin Infect Dis.* 1998;26:1300-1301.
3. Brenner D. J, O'Connor S. P., Winkler H. H. Proposals to unify the genera *Bartonella* and *Rochalimaea* with descriptions of *Bartonella henselae* comb.nov. *Int J Syst Bacteriol.* 1993; 43:777-786
4. Koehler J. E, Glasser C. A, Tappero J. W. *Rochalimaea henselae* infection. A new zoonosis with the domestic cat as reservoir. *JAMA.* 1994;271:531-535
5. Zangwill K. M., Hamilton D. H., Perkins B. A, Regnery R. L, Plikaytis B. D., Hadler J. L., et al. Cat scratch disease in Connecticut. Epidemiology, risk factors, and evaluation of a new diagnostic test. *N Engl J Med.* 1996;329:8-13.
6. Carithers H. A., Carithers C. M., Edwards RO. Cat scratch disease: its natural history. *JAMA.* 1969;207:312-316.
7. Daniels W. B., MacMurray F. G. Cat scratch disease: report of one hundred and sixty cases. *JAMA.* 1954;154:1247-1251.
8. Bass J. W., Freitas B. C., Freitas A. D., Sisier C. L., Chan D. S., Vincent J. M., et al. Prospective randomised double blind placebo controlled evaluation of azithromycin for treatment of cat scratch disease. *Paedr Infect Dis J.* 1998;17:447-452.

Correspondence to:

Dr Krasimira Kalinova

E-mail: krasimirakalinova@abv.bg;

<http://www.journal-imab-bg.org>

J of IMAB, 2007, vol. 13, book 1 /