Cat-scratch disease osteomyelitis from a dog scratch
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Osteomyelitis is a rare manifestation of cat-scratch disease in patients who do not have AIDS. The clinical presentation and non-specific subacute course of the disease make diagnosis difficult.

We present a child with osteomyelitis of a metacarpal following a dog scratch. Bartonella henselae was found to be the aetiological agent. The bone healed after treatment with antibiotics. Increased awareness and a comprehensive medical history are needed to identify patients with suspected Bartonella henselae osteomyelitis.

Received 10 February 1998; Accepted 3 March 1998

Case report
A nine-year-old boy was seen with a two-week history of pain and swelling in the dorsal aspect of the left hand. He did not recall any previous injury and denied exposure to cats or kittens. Two months earlier he had been given a Maltese puppy which frequently scratched, but did not bite his hands.

Physical examination revealed a tender swelling over the third metacarpal, with limited movement of the metacarpophalangeal joint and multiple scratches on both hands (Fig. 1). The total leucocyte count, the ESR and the C-reactive protein level were within normal limits. Plain radiographs showed a periosteal reaction along the neck and shaft of the third metacarpal (Fig. 2). A 99mTc bone scan showed increased uptake in the third metacarpal consistent with osteomyelitis. A presumptive diagnosis of haematogenous osteomyelitis was made and treatment with intravenous clindamycin started. Due to a severe allergic reaction this was changed to oral clindamycin on discharge from hospital. Review after three weeks of antibiotic therapy revealed no clinical improvement. We present a case of CSD metacarpal osteomyelitis from a dog scratch. Diagnosis was confirmed by the detection of anti-B. henselae IgG by an enzyme immunoassay (EIA).

Discussion
Osteomyelitis is a rare complication of CSD. Only 11 cases have been described in the English literature among
patients who do not have AIDS, mainly in children and young adults. The involved sites were the vertebrae in five cases, and the skull, sternum, femur, humerus, ilium and metatarsal in one case each. In contrast to the acute presentation with fever, systemic toxicity, a leucocytosis and a high ESR typically found in haematogenous pyogenic osteomyelitis in this age group, CSD osteomyelitis is characterised by a subacute presentation with mild constitutional symptoms. Radiological findings are available in only eight of the 11 previously reported cases; six had osteolytic lesions, one an osteolytic lesion with marginal sclerosis and one marginal sclerosis only.

Our case has several unique features. It is the first report of CSD osteomyelitis in the metacarpal bone, and the first showing a periosteal reaction instead of the more common osteolytic lesions. The association between dog scratches and *B. henselae* osteomyelitis in the absence of contact with a cat strongly implicates the dog as responsible for transmitting the infection. This has very rarely been reported.

While *B. henselae* has never been cultured from a dog, a new strain of *Bartonella*, *B. berkoffii*, was detected in the blood and heart valves of a dog with endocarditis. This is also the first report of the use of serum EIA to diagnosis *B. henselae* osteomyelitis.

In the 11 previously published cases the diagnosis was based on the clinical presentation, a history of contact with a cat and either a positive skin test and/or a lymph node or bone biopsy. At present, serology is the most commonly used method for the diagnosis of CSD. The IFA test is specific and sensitive, but EIA is reported to have comparable sensitivity and specificity, the latter reaching 97%. EIA technology is available in a larger number of clinical microbiology laboratories than the IFA test. It is less observer-dependent and less labour-intensive, and can be an effective alternative to the IFA test for the diagnosis of CSD.

Increased awareness and a comprehensive medical history are needed to identify patients with clinically suspected *B. henselae* osteomyelitis. Accurate diagnosis has therapeutic and prognostic implications and the currently available serological tests make confirmation of the diagnosis easier than in the past.

No benefits in any form have been received or will be received from a commercial party related directly or indirectly to the subject of this article.

References