

Cat-Scratch Disease of the Upper Limb With Ulnar Nerve Involvement

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Cat-scratch disease was first described by Debre in 1950, yet the causative agent, *Bartonella* (formerly *Rochalimaea*) *henselae*, was not identified until 1992.¹ Cat-scratch disease is usually a benign chronic infection characterized by fever and regional lymphadenopathy most commonly involving the head and neck of young children and adults.² The disease typically begins with a papular skin lesion at the site of inoculation of the organism 4 to 6 days after a cat-scratch injury. Regional lymphadenopathy usually follows 1 to 7 weeks thereafter. Resolution of signs and symptoms generally occurs in weeks to several months.

About 10% of patients develop atypical manifestations of cat-scratch disease that include parotid gland involvement,³ disciform keratitis,⁴ encephalopathy, osteomyelitis, and endocarditis.⁵ Immunocompromised individuals may also develop bacillary angiomatosis,¹ pulmonary infiltrates,⁶ and "tumors" of the limbs.⁷ Despite the sometimes severe nature of the atypical cat-scratch disease, long-term morbidity is unusual, death is rare, and response to antibiotics is more favorable compared with typical cat-scratch disease.⁸

The following is a case report of a 19-year-old with histologically confirmed cat-scratch disease of the ulnar nerve, together with a brief description of its surgical treatment. This mode of presentation of cat-scratch disease to our knowledge has not been described.

Case Report

A 19-year-old woman with a history of being scratched on the left hand by a cat presented to the

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surgical outpatients clinic with a 3 × 3 cm mass superior to the medial aspect of the left elbow. The mass was not attached to the overlying skin and was mobile only in the anterior-posterior plane, but not in a proximal-distal direction. The mass was mildly tender to direct pressure but produced marked paresthesia, tingling, and pain in the ulnar distribution of the left hand when tapped. A diagnosis of ulnar nerve neurofibroma was considered.

The mass was exposed via a longitudinal skin incision and standard surgical dissection. The ulnar nerve was identified intraoperatively and was partially encased by the mass (Figure 1). The interior of the mass was necrotic and communicated via a small



Figure 1. Tumor partially encases the ulnar nerve.

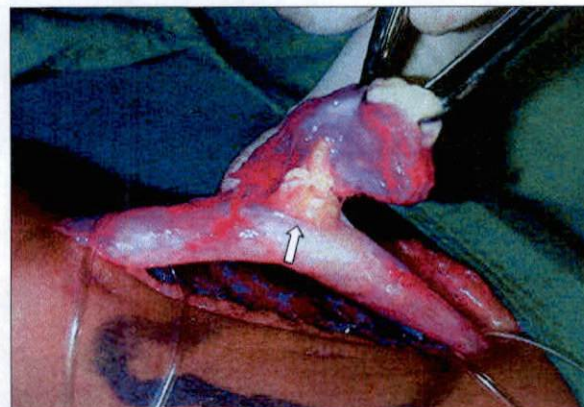


Figure 2. The necrotic contents of the mass communicate via a small hole (arrow) into the ulnar nerve.

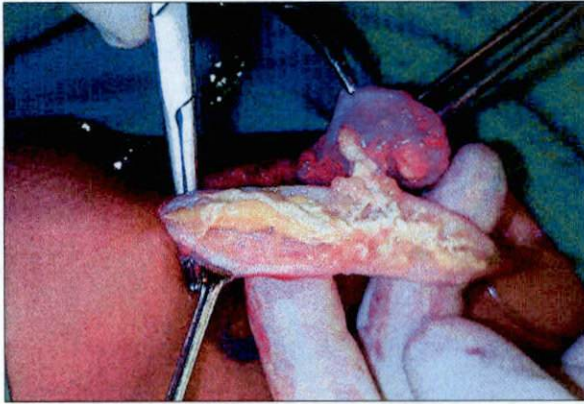


Figure 3. Necrotic material extends proximally and distally along the ulnar nerve.

opening to the interior of the ulnar nerve (Figure 2). A longitudinal incision across the small opening on the ulnar nerve showed continuation of necrotic material both proximally and distally for a short distance (Figure 3). This necrotic material was evacuated and the ulnar nerve was surgically repaired under magnification.

The patient had an uneventful recovery with no sensory or motor defects.

Hematoxylin-eosin staining of the mass revealed an abscessed lymph node with few neutrophils, gram-negative bacilli, and rounded granulomas containing central granular debris consistent with cat-scratch disease. No cultures were performed for *Bartonella*.

Discussion

Cat-scratch disease is usually a chronic, benign, self-limiting illness characterized by regional lymphadenopathy and fever lasting between 3 and 6 weeks.⁴ The host response to *Bartonella* infection depends on the patient's age, immune status, and site of inoculation of organism via saliva or flea excreta. A localized, self-limited inflammatory skin lesion develops with seeding of organisms to regional lymph nodes, producing the clinical picture of typical cat-scratch disease. In immunocompromised individuals, *B henselae* can disseminate hematogenously, producing vasoformative inflammatory lesions of the skin, bone, and central nervous system and thus producing atypical cat-scratch disease. In such atypical cases, diagnosis can be difficult and can only be confirmed by serologic tests, polymerase chain reaction-based techniques,⁴ culture of purulent material and blood, or his-

tologic examination. In our case, the diagnosis was made histologically.

Our case demonstrates that cat-scratch disease should be considered in the differential diagnosis of patients presenting with a mass involving a nerve when such a nerve is intimately associated with lymph nodes. It seems likely that initial lymph node involvement/suppurative allowed for extension of the inflammatory process into the adjacent ulnar nerve. If suspected, cat-scratch disease involving a nerve may be subjected to a trial of antibiotics without surgical intervention, for excellent response to antibiotics such as rifampicin, ciprofloxacin, and azithromycin has been documented in the literature.⁵ These agents can reduce the duration of the disease, the pain associated with lymphadenitis, and sometimes the need for surgery.^{3,9} Ciprofloxacin was prescribed for 5 days postoperatively in our case with good results.

If the patient does not respond to medical treatment and surgery is decided on, a longitudinal neurotomy should be done under magnification with nerve preservation because the morphology is such that the inflammatory process extends along the nerve fibers. Necrotic material can then be dissected easily without neural damage, and the nerve can be closed with fine sutures, leaving little residual neurological deficit.

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This paper will be judged for the Resident Writer's Award.