Shoulder pain, paralysis and fever:
Dog attack or infection?

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CASE PRESENTATION
A 22-year-old homosexual male presented to the Infectious Diseases clinic with a one-week history of fever and muscle pains. He had no significant past medical history and was on no medications except for narcotic analgesics prescribed for back pain two months earlier. At that time, a dog had jumped on his back while working at his job as an animal technician in a research laboratory, causing him to turn suddenly and experience sudden mid-back pain. He was seen by the occupational health office and prescribed short-term narcotics and bed rest. His social history was significant as he had recent unprotected anal sex with an anonymous male approximately one week before the work accident.

Over the eight weeks following the dog ‘attack’, the patient gradually developed severe fatigue, muscle aches and pains in areas not related to his back injury (ie, arms, legs), sweats and fevers up to 39.5°C. He attributed these symptoms to his back injury and to side effects of the narcotics. He presented to the clinic after two weeks of fever and myalgias because his fever persisted and he felt that his shoulder and arm pains were worse. He denied any sore throat, diarrhea, abdominal pain, headache, urinal symptoms or other problems. On examination, he complained of mid-back and bilateral shoulder pain and looked obviously ill. He was diaphoretic, but warm. His temperature was 39.0°C, his pulse was 90 beats/min and his respiratory rate was normal. The oropharynx was normal and there was no adenopathy. Chest and cardiovascular exam were both normal. Abdominal exam revealed moderate splenomegaly but no hepatomegaly and no masses or tenderness. There were no rashes. A limited neurological examination was normal but muscle tenderness was present. Laboratory studies showed mildly elevated levels of alanine aminotransferase (139 U/L), aspartate aminotransferase (83 U/L) and lactate dehydrogenase (481 U/L) with normal levels of bilirubin and creatine kinase. The hemogram showed normal red cell indices and platelets but an elevated white blood cell count of 11.5x10⁹/L and 12% atypical lymphocytes. Serological markers for hepatitis B, hepatitis A Immunoglobulin M, hepatitis C, Toxoplasma gondii, HIV and Epstein-Barr virus (EBV) (heterophile antibodies) were negative. In addition, HIV p24 antigenemia was absent. A presumptive diagnosis of mononucleosis due to either EBV or cytomegalovirus (CMV) was made and the patient was told to rest at home.

The patient returned to the clinic ten days later, complaining of severe upper arm and shoulder pain, and an inability to “move” his left arm. He attributed this problem to his back injury and had increased his analgesic intake. The physical examination was unchanged from the first visit, except that he was unable to abduct his left arm, however strength was intact in the hand and forearm. An urgent same-day neurology consultation disclosed normal symmetric reflexes in the upper extremities but the patient was unable to abduct, raise or externally rotate his left arm. There was wasting of the left deltoid, supraspinatus and infraspinatus muscles. Nerve conduction studies of the upper and lower extremities were normal. An electromyogram of the left infraspinatus, supraspinatus and deltoid muscles was remarkable for an absence of activity at rest and the inability to recruit motor units in any of these muscles, indicating dysfunction of the left axillary and suprascapular nerves consistent with acute brachial neuritis.

What is the etiology of this condition and what test(s) would you request?
Clinical Vignette

DIAGNOSIS
Repeat serology for hepatitis viruses, EBV, HIV, HIV p24 antigen and CMV were performed. All of the results were normal, except for the presence of CMV Immunoglobulin M, consistent with acute CMV infection. The patient was treated with intravenous immune globulin and corticosteroids immediately after the electromyogram results, however no improvement was seen after three weeks. At the time of writing the patient continues to undergo daily physiotherapy.

DISCUSSION
Acute brachial neuritis is a rare syndrome, most often idiopathic in nature (1). CMV as a cause of this disease is unusual (2), but general postinfectious neuritis has been described with parvovirus B19 (3), measles virus (4), Borrelia burgdorferi ('Lyme disease') (5), HIV (6), EBV (7), hepatitis A (8) and Herpes simplex (9) infections. The clinical constellation of fever, sweats, fatigue, myalgia, splenomegaly and atypical lymphocytosis in our patient strongly suggested a mononucleosis-like disease, as is usually seen due to EBV, HIV or CMV infection. Other possible etiologies of this syndrome include toxoplasmosis, a hepatitis virus, Q fever, bartonellosis, and histoplasmosis, none of which made epidemiological sense in this patient. Of these mononucleosis-causing agents, only EBV, HIV, hepatitis A and CMV have been associated with acute neuritis, and the clinical and laboratory evidence strongly suggests CMV as the cause of this man's neuritis.

CMV-induced sensory neuropathy in a normal adult (10), as well as polyneuropathy in immunocompromised patients (11) have previously been described. There is little to suggest that any therapeutic intervention can modify the course of postinfectious neuritis, and only anecdotal reports or studies involving few patients recount the effects of using anti-inflammatory drugs, immune globulin or plasmapheresis (12). In conclusion, neurological complaints coincident with, or following, a viral-like illness must be taken seriously and may be indicative of acute neuritis.

REFERENCES