What Is Your Diagnosis?

History

A 2-year-old spayed female mixed-breed dog (German Shepherd Dog type) was evaluated because of lethargy and weakness in the hind limbs of approximately 1 month's duration. The dog had no travel history outside of New Jersey, and vaccinations were current. Physical examination findings included hyphema in the right eye and signs of mild pain on hip joint manipulation. Blood samples were obtained for a CBC, serum biochemical analyses, coagulation profile, and titers for *Borrelia burgdorferi, Ehrlichia canis*, and *Rickettsia rickettsii*. The abnormal findings included moderate hyperglobulinemia (5.7 g/dL; reference range, 1.6 to 3.6 g/dL) and *E canis* titer (IgG) of 1:80 (titer ≥ 1:20 is a positive result or indicates exposure). Doxycycline (5 mg/kg [2.3 mg/lb], PO, q 12 h) was administered. Five days later, the dog was hospitalized for seizure-like episodes. Neurologic examination revealed disorientation and ataxia with conscious proprioception deficits on the left side. Horizontal nystagmus with the rapid phase to the left was identified, but no head tilt was evident. The hyphema was minimally improved, but no menace reflex could be elicited in the right eye. Thoracic and abdominal radiographs were obtained (Fig 1).

Determine whether additional imaging studies are required, or make your diagnosis from Figure 1—then turn the page.
Radiographic diagnosis—Bone lysis and sclerosis of vertebral end plates and narrowing of intervertebral disk spaces T5-6, T7-8, L2-3, L3-4, and L5-6. Proliferation of new bone is evident ventral to lumbar vertebral bodies L2 (B, black arrowheads) and L3 and the L2-3 intervertebral disk space.

Comments

Radiographic findings were consistent with the diagnosis of intradiskal osteomyelitis or diskospondylitis. Diskospondylitis is infection of the intervertebral disk and osteomyelitis of the adjacent vertebral bodies. Radiographic findings are usually diagnostic; however, if results of radiography are unclear and diskospondylitis is suspected, magnetic resonance imaging, computed tomography, radionuclide imaging, or fluoroscopic-guided percutaneous needle aspiration of the intervertebral disk space may provide further information. Of these, fluoroscopic-guided needle aspiration is the only method that could be used to determine the infectious agent (ie, bacteria or fungi).

Diskospondylitis is most commonly found in large-breed middle-aged male dogs. The most important factor in the development of diskospondylitis may be immunosuppression. Immunodeficiencies have been reported in dogs with diskospondylitis, but whether these immune system abnormalities are the cause or result of the disease is not known. In German Shepherd Dogs, diskospondylitis caused by disseminated aspergillosis is most common. Immunosuppression is suspected in German Shepherd Dogs with aspergillosis; however, the specific immunologic abnormalities have not been determined.

The owners of the dog reported here opted to have the dog euthanatized. At necropsy, examination of tissue specimens of the right eye, lungs, kidneys, spleen, liver, lymph nodes, brain, and spinal cord revealed fungal invasion of vessels and tissue necrosis, consistent with disseminated fungal infection. Fungal culture of the intervertebral disk space revealed an opportunistic fungus from the Exophiala (Phialophora) spp. Opportunistic infections with other dematiaceous fungi have occurred in immunocompromised and apparently healthy humans. Disseminated Phialemonium infections have been reported in 2 German Shepherd Dogs. Both dogs had lameness and signs of bone pain, most likely caused by a fungal osteomyelitis, which progressed to multiorgan involvement. Those 2 dogs did not have evidence of diskospondylitis; the osteolytic changes were in long bones. German Shepherd Dogs may have a primary form of immunosuppression because of their apparent predisposition for infections with opportunistic fungi.


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