What Is Your Diagnosis?

History

A 4-year-old female English Setter was evaluated for reluctance to stand and walk on the hind limbs. The owner reported that 40 days earlier, the dog suddenly had hind limb weakness and was reluctant to walk after hunting. The dog partially responded to nonsteroidal anti-inflammatory medications and continued training for hunting. A few days later, the condition worsened. The referring veterinarian prescribed corticosteroids, antimicrobials, and rest. The dog's condition continued to deteriorate, and it was referred. Physical examination revealed signs of severe pain in the caudal lumbar region and reluctance to stand on the hind limbs. The dog was slightly underweight and febrile (39°C [102.2°F]). Neurologic examination revealed no neurologic deficits, except for severe hyperesthesia on palpation of the lumbosacral portion of the vertebral column. Survey radiographs of the lumbosacral region were taken (Fig 1).

Figure 1—Left lateral radiographic view of the lumbosacral portion of the vertebral column of a 4-year-old English Setter evaluated because of hind limb weakness and reluctance to stand and walk.

Determine whether additional imaging studies are required, or make your diagnosis from Figure 1— then turn the page.

This report was submitted by Luisa De Risio, DVM, PhD; Giacomo Gnudi, DVM; and Giorgio Bertoni, DVM; from the Surgery and Emergency Service (De Risio) and Diagnostic Imaging Service (Gnudi, Bertoni), Animal Health Department, Veterinary School of Parma, University of Parma, 43100 Parma, Italy.

The authors thank Dr. Karen Munana for assistance.
Address correspondence to Dr. De Risio.
Diagnosis

Radiographic diagnosis—Sclerosis of the caudal vertebral body end plate of L7 and the cranial end plate of S1 and narrowing of the L7-S1 intervertebral disk space (Fig 2). A bone fragment measuring approximately 7 X 7 mm appears to be on the dorsocaudal aspect of L7. An irregular and poorly defined fracture line with a caudal concavity appears to extend from the dorsocaudal third of the L7 vertebral body to the middle portion of the caudal end plate of L7. A radiolucent defect measuring approximately 4 X 1 mm is in the middle portion of the S1 end plate.

Comments

Differential diagnoses included diskospondylitis of the L7-S1 intervertebral disk and the adjacent end plates of the L7 and S1 vertebral bodies with a pathologic fracture of the L7 end plate, osteochondrosis of L7, or herniation of material from the L7-S1 intervertebral disk into the S1 vertebral body. The poorly defined margins of the bones and the bone sclerosis were suggestive of a chronic process. Complete blood count results were within reference ranges. Serum biochemical abnormalities included increased activities of alkaline phosphatase (209 U/L; reference range, 10 to 100 U/L) and alanine aminotransferase (51 U/L; reference range, <40 U/L). Urinalysis results were within reference range. No growth was identified on bacteriologic cultures of urine and blood.

Computed tomography (CT) was performed to better characterize the lesions and revealed multiple irregular regions of bone lysis within the end plates of L7 (Fig 3) and S1 consistent with diskospondylitis. The transverse and sagittal CT images ruled out the presence of a free bone fragment on the dorsocaudal aspect of L7. Treatment included analgesics for 1 week, a first-generation cephalosporin for 8 weeks, and cage rest for 4 weeks. The dog was gradually reintroduced to normal activity during the next 6 weeks. Improvement was noticed beginning with the first week of treatment, and the dog was clinically normal when reevaluated 2 and 16 months later.

Survey radiography is usually diagnostic for diskospondylitis. However, changes caused by diskospondylitis may not be detectable on radiographs for 2 to 4 weeks after the onset of clinical signs. Clinical signs of weakness in the hind limbs and reluctance to walk were apparent for at least 40 days before the dog was examined. However, radiographic findings were atypical for diskospondylitis and suggestive of other conditions. The lateral radiographic view revealed a questionable large bony fragment on the dorsocaudal aspect of the L7 end plate and a radiolucent defect within the cranial end plate of S1, which may have been caused by herniation of intervertebral disk material into a vertebral body. Intravertebral herniation of disk material in humans is usually associated with back pain without neurologic deficits. Herniation of disk material has been diagnosed by radiography and histopathologic examination of tissues from 5 dogs with back pain. Radiographic findings include indentation of the vertebral outline at the end plate, radiolucencies within the vertebral body with various degrees of sclerosis, and reduction of the intervertebral disk space.

Intravertebral herniation of disk material may be associated with osteochondrosis of long bones or vertebrae. Osteochondrosis of the caudal end plate of L7 and the cranial end plate of the sacrum has been reported in dogs. Computed tomography of the lumbosacral region confirmed diskospondylitis. For the dog in this report, CT was used, because it was more readily available than magnetic resonance imaging (MRI) and bone scintigraphy. However, MRI is considered the most sensitive and specific imaging method for inflammatory and infectious diseases of the human and canine vertebral column.

References