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What Is Your Diagnosis?

Figure 1—Oblique lateral (A) and ventrodorsal (B) radiographic views of the thoracolumbar portion of the vertebral column of an 11-month-old Pekingese evaluated for pelvic limb paralysis of 4 days' duration.

History

An 11-month-old sexually intact female Pekingese was evaluated for paralysis of 4 days' duration. The dog had had signs of lumbar pain for 4 months and had developed signs of pelvic limb weakness 10 days prior to referral. The owner had been administering aspirin, which resulted in partial improvement in clinical signs. During the 48 hours prior to admission, the dog had received dexamethasone via injection, and prednisone had been administered orally. Intermittent vomiting and frequent urination had been detected for several weeks before admission. There was no history of trauma or travel outside of Florida. On physical examination, the dog's mentation was dull and palpation of the thoracolumbar junction elicited signs of pain; crepitus was detected. Neurologic examination revealed nonambulatory paraparesis. Proprioceptive deficits were detected in both pelvic limbs. Patellar and withdrawal reflexes were considered normal. The cutaneous trunci reflex was absent caudal to the second lumbar vertebra. Deep pain sensation was detected. The neurologic findings and signs of focal pain were consistent with a T3-L3 myelopathy. Mild anemia (PCV, 34.7%; reference range, 36% to 60%) was detected on CBC. Abnormalities detected on serum biochemical analyses included high urea nitrogen concentration (54 mg/dL; reference range, 7 to 27 mg/dL), high alkaline phosphatase activity (223 U/L; reference range, 23 to 212 U/L), hypoalbuminemia (1.99 g/dL; reference range, 2.7 to 3.8 g/dL), and hyperphosphatemia (8.74 mg/dL; reference range, 2.5 to 6.8 mg/dL). Urinalysis revealed hematuria and bacteriuria; the urine specific gravity was 1.027. Survey radiographs of the thoracolumbar portion of the vertebral column were obtained (**Figure 1**).

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

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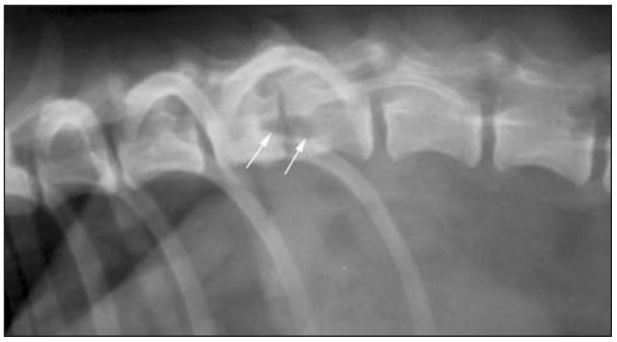

Figure 2—Same lateral radiographic view as in Figure 1. Focal end-plate lysis (arrows) affecting contiguous end plates, indicative of diskospondylitis, is evident.

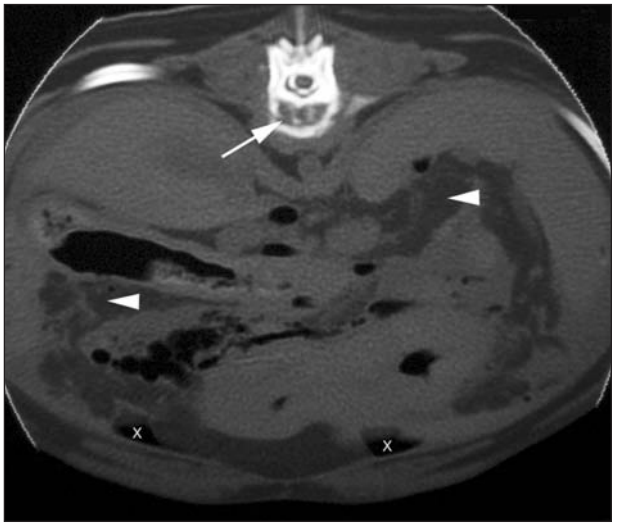

Figure 3—Transverse computed tomography myelogram at the level of T12 in the dog in Figure 1. End-plate lysis, characterized by areas of hypoattenuation (arrow), is evident. Free abdominal gas (X), characterized by irregular areas of hypoattenuation not associated with the intestines, can be seen in the ventral portion of the abdomen. Streaks of soft tissue density (arrowheads) in the mesentery, indicating the presence of free abdominal fluid or peritonitis, can be seen. The dog is in dorsal recumbency. The image has been electronically rotated 180°. The window level is 240 Hounsfield units, and the width is 1,250 Hounsfield units.

Radiographic Findings and Interpretation

Focal lysis of the caudal end plate of T12 and the cranial end plate of T13 with narrowing of the T12-13 intervertebral disk space is evident (**Figure 2**). These findings are most compatible with diskospondylitis.

Comments

Diskospondylitis typically affects medium- to large-breed dogs and was initially considered as a less likely differential diagnosis in the dog reported here. Survey radiography of the vertebral column is frequently diagnostic for diskospondylitis, in which the first radiographic sign is subtle irregularity of the vertebral end plates.[1] The intervertebral disk space may initially be narrow, which is attributable to collapse of the disk; however, as end-plate destruction progresses, the disk space widens.[2] With chronicity, the disk space again narrows as the inflammation resolves. Computed tomography (CT) with myelography was performed to further characterize end-plate destruction and to examine the appearance of the spinal cord (**Figure 3**). Findings confirmed end-plate destruction, characterized by adjacent areas of osteolysis in the caudal end plate of T12 and the cranial end plate of T13, that extended into the adjacent vertebral bodies. The spinal cord was mildly displaced dorsally and to the left, with mild attenuation of the ventral subarachnoid contrast. Streaks of soft tissue density in the mesentery indicated the presence of free abdominal fluid or peritonitis. Irregular areas of gas not associated with gastrointestinal tract organs are apparent in the abdomen. Diskospondylitis and pneumoperitoneum with peritoneal effusion were diagnosed on the basis of diagnostic imaging results.

In humans, CT myelography is more accurate than survey radiography or myelography when evaluating the spinal cord.[3] Hematogenous spread of bacteria is considered the most common cause of diskospondylitis. The infection may originate from many sites, with the urinary tract being the most common source. Organisms frequently involved in diskospondylitis include *Staphylococcus* spp, *Streptococcus* spp, *Brucella* spp, and *Escherichia coli*.[4] A nonhemolytic *Streptococcus* sp was detected on bacteriologic culture of urine from the dog reported here.

Free gas in the peritoneal cavity was apparent on the CT image, but not on survey radiographs of the vertebral column. However, the entire abdomen was not included in the radiographs because of collimation, and the free gas may have been detected outside of the collimated field. Differential diagnoses for free gas in the peritoneal cavity include intestinal perforation, gas-producing organisms, penetrating trauma, and iatrogenic causes.

Gastroduodenal perforation is often associated with concurrent administration of nonsteroidal antiinflammatory drugs and corticosteroid use.[5] In the dog reported here, emergency celiotomy was performed because of the concern for intestinal perforation. During surgery, a 1-cm perforation in the gastroduodenal region, just orad to the primary duodenal papilla, was found and repaired. Nonhemolytic *Streptococcus* spp and *Pseudomonas* spp were detected on bacteriologic culture of peritoneal fluid. On the basis of results of susceptibility testing, the dog was treated with enrofloxacin (10 mg/kg [4.55 mg/lb], IV, once; then 5 mg/kg [2.27 mg/lb], PO, q 12 h) for 2 months. Two months after surgery, the dog was walking, and according to the owner, the dog appeared normal 4 months after surgery.

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