Clinical Snapshot

Laura C. Tepper, DVM
Mississippi State University

Michael A. Nawrocki, DVM, DACVS
Veterinary Emergency and Specialty Hospital of Wichita
Wichita, Kansas

CASE PRESENTATION

A 7-year-old spayed Labrador retriever presented with right hindlimb lameness. An orthopedic examination revealed moderate effusion of the right stifle with cranial tibial thrust, a cranial drawer sign, and a meniscal click. The patient was diagnosed with right cranial cruciate ligament rupture based on examination findings. The dog was anesthetized, and preservative-free morphine (0.1 mg/kg) was injected epidurally before surgery. The right stifle was stabilized using tibial plateau-leveling osteotomy. The dog recovered uneventfully from anesthesia and was able to walk on all four limbs. Seventy-two hours after surgery, the dog presented with difficulty walking in both hindlimbs, lethargy, and inappetence. Clinical signs included loss of anal tone, urinary incontinence, lower motor neuron paraparesis associated with a sciatic deficit, loss of tail motor function, and severe pain over the lumbosacral area. The dog’s temperature was 103.5°F (39.7°C).

1. What possible rule-outs could help explain this dog’s history?
2. What else should be pursued to obtain a diagnosis?
3. How would you treat this dog?
4. What are common causes of this condition?

(See page 12 for answers and explanations.)
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1. The differential diagnosis includes spinal epidural empyema, diskospondylitis, intervertebral disk disease, neoplasia, trauma, hematoma, cyst, or granuloma. Spinal epidural empyema, which is also called spinal epidural abscess, is an uncommon cause of spinal pain with or without paresis or plegia in humans and animals. Other signs may include fever, lethargy, and anorexia. In this case, because of the recent history of a spinal epidural injection with no history of previous neurologic deficits or urinary or fecal incontinence, spinal epidural empyema was high on the differential list.

2. Complete blood count, serum chemistry profile, urinalysis, survey spinal radiography plus myelogram and/or epidurogram, computed tomography, magnetic resonance imaging, and exploratory surgery of the lumbosacral region are options to consider. Other diagnostics may include cerebrospinal fluid tap, blood culture, serology for Brucella canis, and urine culture.

   The complete blood count revealed leukocytosis (20,140/µl; reference range: 5,500 to 16,900/µl). Urinalysis plus urine culture and sensitivity testing were conducted. Survey spinal films and an epidurogram showed evidence of a mass at the caudolumbar area. Dorsal laminectomy of the lumbosacral region revealed a walled-off area of purulent fluid within the vertebral canal. Abnormal epidural tissue in the vertebral canal was removed until the cauda equina was decompressed. The purulent material was submitted for culture and sensitivity testing. Pseudomonas spp were isolated from both the urine and the lumbosacral space.

3. Treatment of spinal epidural empyema remains controversial in human medicine. Most authors recommend surgical decompression, drainage, and administration of broad-spectrum antibiotics. Delayed treatment is associated with permanent neurologic disease or death. This patient was surgically decompressed and then treated with enrofloxacin for 8 weeks based on the sensitivity panel. This was followed by a recheck urinalysis, which grew a different bacterial organism that was sensitive to trimethoprim–sulfamethoxazole, and the patient was administered the drug for an additional 4 weeks. Gradual improvement occurred over several weeks. After 14 weeks, the patient had minor proprioceptive deficits but was fully ambulatory, had bowel control, had minimal lumbosacral pain, and was wagging its tail.

4. Infection of the epidural space could occur from hematogenous spread of bacteria or fungi from infected sites in other areas of the body or direct inoculation from an infected or contaminated area, such as by epidural injection, surgical intervention, plant awn migration, or extension of local infection. During spinal anesthesia, an infection could develop from equipment, drug contamination, microorganism migration from the skin through the outer surface of the catheter, or hematogenous routes. The patient may have had bacteremia or been more prone to develop it. Bacteremia coupled with a spinal procedure may lead to the development of a central nervous system infection.

REFERENCES