



**Ettinger: Textbook of Veterinary Internal
Medicine, 7th Edition
Diskospondylitis
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What is diskospondylitis?

Diskospondylitis is an infection of one or more intervertebral disks, with concurrent inflammation of the adjacent vertebrae. This disease occurs primarily in medium or large breed dogs, with German Shepherd Dogs and Labrador Retrievers seeming to be at slightly higher risk. There is no age predilection for this disease, although males are more commonly affected than females. Diskospondylitis is rarely diagnosed in cats.

Diskospondylitis is usually caused by a bacterial infection, although fungal organisms have occasionally been involved. The initial infection is usually thought to originate elsewhere in the body, such as the skin, bladder, heart valves, or mouth. A cluster of bacteria can then break off from the primary infection and travel throughout the blood stream (this spread of bacteria is called bacteremia). Because blood flow is very sluggish throughout the vertebral blood vessels, it is very easy for bacteria to establish themselves in the intervertebral disks and surrounding tissues. Less commonly, a migrating foreign body (almost always a grass awn) can become lodged in an intervertebral disk, dragging bacteria in with it.

What are the symptoms of diskospondylitis?

The primary clinical sign of diskospondylitis is spinal pain. Dogs may have difficulty getting up, be reluctant to engage in their normal physical activities, or may resent being petted along their backs. Dogs in pain may whimper or cry, but vocalizing is never a consistent sign of discomfort. Approximately one-third of dogs with diskospondylitis will also show signs of generalized illness, such as loss of appetite, lethargy, fever, or weight loss. Some dogs may develop a secondary inflammatory disorder involving multiple joints, resulting in a stiff or stilted gait. The development of true neurological deficits - such as incoordination or dragging of the limbs - is uncommon, but can result if infected vertebrae become unstable or compress the spinal cord. The actual spread of infection to the spinal cord itself is rare, unless the underlying cause is a migrating foreign body.

On physical examination, dogs with diskospondylitis will show signs of pain when the affected disk spaces are palpated.

What tests are needed?

Radiography ("x-rays") should always be taken to confirm the diagnosis. Since it is common for diskospondylitis to affect more than one disk space, survey radiographs of the entire spine are recommended. If the dog is in extreme pain or anxious, a light

sedative may be needed to obtain high quality radiographs. Radiographic changes of diskospondylitis include erosion or destruction of vertebral end-plates, narrowed disk spaces, and increased bone production adjacent to the affected disks. In some cases, radiographic signs may lag behind clinical signs. Therefore, if radiographs are negative but there is still a high index of suspicion for diskospondylitis, an MRI may be indicated to look for more subtle signs of infection.

In addition to diagnostic imaging, other tests should be performed to try to localize the primary source of infection. Blood cultures are relatively successful in identifying any bacteria traveling through the blood stream. Since bacteremia can be an intermittent event, false-negative blood cultures can certainly occur. A urine culture should also be performed, although this test is less reliable than a blood culture. Special blood tests to look for an unusual bacteria called *Brucella canis* are always indicated, as this bacteria has the potential to infect other dogs as well as humans. A sonogram of the heart may be needed if an underlying heart valve infection is suspected. There is no definitive test for a migrating foreign body, although dogs with a grass-awn associated diskospondylitis usually have other signs of infection, such as enlarged lymph nodes, abscesses, or draining tracts in the skin.

However, despite thorough medical testing, the primary source of infection often remains unidentified.

What treatment is needed?

Treatment of diskospondylitis involves strict cage rest and antibiotic therapy. If diagnostic tests have identified the underlying bacteria, then the bacteria should be tested to see which antibiotic is most effective. If no causative agent has been identified, then broad-spectrum antibiotics should be used. In dogs with pain, but otherwise stable, oral antibiotics are appropriate. However, if dogs are clinically ill or have neurological deficits, they should be hospitalized and antibiotics administered intravenously for the first 3 days.

Most dogs will show significant clinical improvement within 5 days of starting treatment. If they do not, then the treatment plan should be re-evaluated. A different antibiotic may need to be tried, or a second antibiotic added. If initial diagnostic tests do not reveal the underlying infectious agent, a CAT-scan guided biopsy of the infected disk spaces may need to be performed. Although this test does require a general anesthesia, it can be very helpful in isolating bacteria that other tests cannot identify. An analysis of cerebrospinal fluid (the fluid that bathes the brain and spinal cord) can be used to eliminate the possibility of a secondary meningitis. If a migrating grass awn is the suspected agent, then surgical removal of the foreign body can be attempted, although this is difficult and often unsuccessful. Surgery to stabilize the affected vertebrae may be indicated if there are severe neurological deficits that do not improve with antibiotics.

In addition to antibiotic therapy, strict cage rest is absolutely essential. Limiting activity may help make dogs more comfortable and, more importantly, will help prevent

fractures or dislocations of the infected vertebrae. Pain control is also indicated, as diskospondylitis can cause extreme discomfort. Appropriate pain medications will neither mask the signs of diskospondylitis nor cause dogs to become overactive. Non-steroidal anti-inflammatory drugs such as aspirin, carprofen, or meloxicam can be given safely under a veterinarian's supervision; mild opioids can also be helpful. However, all steroids should be avoided, as they can make the infections significantly worse.

What is the prognosis?

The prognosis for diskospondylitis is cautiously optimistic for dogs with mild to moderate clinical signs; dogs with severe neurological deficits have a much more guarded prognosis. Bone infections can be very difficult to control, and long-term therapy is required. Antibiotics are indicated for at least 8 weeks, and often are necessary for an even longer period of time. During treatment, dogs should be re-evaluated clinically and radiographically every 3 weeks. With time, bony destruction of infected vertebrae will resolve, and the affected disk spaces will stabilize and fuse together. Blood cultures should be repeated 2 weeks after antibiotic therapy has ended, and new radiographs should be obtained two months later. Fortunately, unless the infection is due to a migrating grass awn, dogs rarely relapse once clinical and radiographic signs have resolved and are able to return to a normal, active lifestyle.