



Diskospondylitis

The spine of companion animals is composed of vertebrae, which are attached to each other by two joints (facets) along the top and the intervertebral disk underneath. Infection of the spine can involve the tissues surrounding the vertebrae, the vertebrae themselves (osteomyelitis or bone infection), or the intervertebral disk itself (diskitis). **Infection of the intervertebral disk and adjacent endplates of bone of the vertebral bodies is termed diskospondylitis.**

Diskospondylitis occurs more commonly in young, large-breed dogs with Great Danes, German Shepard dogs, and Golden Retrievers being overrepresented. Most commonly noted in dogs 6-24 months of age, infection may occur in any aged dog. The hallmark of diskospondylitis is spinal pain. Pain starts slowly, yet becomes severe and is unrelenting. As the infection progresses, pain, weight loss, lethargy and inactivity, and occasionally spinal cord dysfunction may be appreciated.

Causes for diskospondylitis are usually related to bacterial infections from the external or internal lining epithelial structures of the body, including the skin, gastrointestinal or urinary tract systems. Staphylococcus intermedius is a gram-positive bacteria, which is a normal inhabitant of the skin. It is the most common cause of diskospondylitis. Access to the bloodstream and infection is thought to occur through breaks of the skin, mucous membranes, and lining cells of urinary tract. Spread of the offending bacteria through the bloodstream to the endplates of the vertebrae and the disk space is felt to be responsible for the origin of most infections. Fungal infections can also be appreciated, with Aspergillus spp representing the most common agent, and German shepherd dogs most commonly affected by this agent. Other infective agents involved with diskospondylitis include Streptococcus spp, Proteus spp, E. coli, Klebsiella spp., and Brucella canis infection in breeding dogs.

The diagnosis of diskospondylitis is oftentimes difficult during the early (occult) stages of infection as the destruction and loss of infected bone is minimal. As the infection progresses, destruction of the intervertebral disk results in collapse of the disk space along with destruction of the bone endplates of the adjacent vertebrae. This results in boney lysis, which can be noted on radiographs (x-rays) of the spine. Significant infection can result in spinal stability compromise and fracture / subluxation of the spine.

The diagnosis of diskospondylitis is based upon the clinical presentation of focal or multifocal spinal pain, weight loss and radiographic evidence of disc and vertebral endplate destruction. The use of nuclear imaging and magnetic resonance imaging (MRI) has helped in the diagnosis of diskospondylitis during the occult stages where x-ray imaging findings are inconclusive.

Identification of the infectious agent is vital to a successful antibiotic or antifungal selection, and treatment. In addition to a complete blood cell count, serum chemistry and urinalysis; blood and urine cultures are recommended. Identification of the offending bacterial agent is oftentimes successful in 2/3 (blood culture) and 3/4 (urine culture) of clinical cases. Isolating the offending agent coupled with determining the antibiotic susceptibility allows for selection of the appropriate antibiotic. Serologic titers for fungal agents coupled with fungal cultures may be necessary in the case of fungal induced diskospondylitis. Brucella canis titers may be useful when there are multiple levels of disk infection caused by the organism, Brucella canis. Despite these attempts to identify the offending agent causing the infections, definitive diagnosis may require open biopsy of the infected intervertebral disk space and endplates for culture and histopathologic assessment.

Treatment for diskospondylitis is based upon defining the infective agent and its response to antibiotic or antifungal testing. This is important as treatment for bacterial induced diskospondylitis is a minimum of 12 weeks. Life long therapy for fungal induced causes of diskospondylitis is often necessary. Aspergillus spp induced diskospondylitis in the German shepherd dog are felt to be a terminal disease without ability to resolve the infection. Resolution of Brucella canis infection is difficult. Brucella canis also poses a health risk to pet owners, with bacterial exposure from infected animals occurring through reproductive fluids and membranes.

Resolution of spinal pain and weight gain is positive signs of successful treatment. Early withdrawal of antibiotic therapy often results in relapses and the need for long-term antibiotic treatment, increased complications such as pathologic fractures, excessive weight loss, and secondary diseases. Despite a long treatment period, the long-term prognosis is considered good.