



ACVIM

Neurology
Fact Sheet

ACVIM Fact Sheet: Intervertebral Disk Disease in Dogs

Overview

Intervertebral disk (IVD) disease in the dog is a common clinical disorder manifested by pain, a partial loss of limb function, paralysis, and sometimes a loss of feeling in the hind limbs. IVD disease can occur in the neck (cervical) area, the middle of the back (thoracolumbar region) or in the lower (lumbosacral) region of the back. It occurs most frequently in the dwarf (chondrodystrophic) breeds such as the Dachshund, Pekingese, Shih Tzu, Basset Hound or American Cocker Spaniel. IVD disease can also occur in other (nonchondrodystrophic) breeds such as the German Shepherd, Labrador Retriever and many others. IVD disease has been reported in cats, but it is rare.

The IVD is located between each vertebra. The normal IVD consists of a hard, fibrous outside ring (the annulus) and a soft gel like center (the nucleus pulposus). The function of the IVD is to connect the vertebrae and act as a shock absorber. Degeneration of the IVD occurs when the center (nucleus pulposus) begins to dehydrate or lose water. A dehydrated disk no longer functions as a good shock absorber. In the chondrodystrophic dog, degeneration of the IVD begins between two months and two years of age. Usually by one year of age, 75% to 100% of all IVDs have undergone degeneration in the chondrodystrophic dog. This type degeneration occurs rapidly and is frequently followed by mineralization of the IVD. A different type of IVD degeneration occurs in nonchondrodystrophic dogs; it is a slow aging process most evident between eight and 10 years of age and is rarely accompanied by mineralization.

IVD disease usually means the nucleus pulposus pushes its way into the spinal canal and presses against the spinal cord. The signs seen in an animal with an IVD protrusion, extrusion or “rupture” varies with location, the onset of the problem (sudden versus slow or gradual) and the severity of the spinal cord compression or concussion. Sometimes the nucleus pulposus explodes into the spinal canal and hits the spinal cord with a lot of force (concussion). More often it slowly pushes its way into the spinal canal causing pressure on the spinal cord (compression). And the longer the duration of the compression, the more severe are the signs because of inflammation and reduced blood supply to the spinal cord.

Signs & Symptoms

What the owner may notice in their dog will also vary with the location and the severity of the spinal injury. Some things to notice are not wanting to eat, a tight or tense abdomen, crying or yelping when moving or picked up, and a reluctance to go up or down stairs, to jump or go for a walk. Other signs can be an arched back, shaking or trembling, weak (wobbly) legs or knuckling of the paws. In the more extreme cases, the dog will lose function and only be able to drag the hind limbs. Dogs with IVD in the neck

often hold the head down when walking, have muscle spasms in the neck and will cry out in pain when moved.

Diagnosis

The diagnosis of IVD disease is made using combination of physical and neurologic examinations plus radiographs (x-rays) and other (advanced) imaging of the spine. If your dog is suspected of having IVD disease, your veterinarian will recommend radiographs of the spine and most often a CT (“CAT”) scan or an MRI. In some instances, a myelogram will be performed. A myelogram is performed by injecting a contrast material (“dye”) around the spinal cord and then making additional radiographs to demonstrate the location of the IVD problem.

After a diagnosis of IVD disease is made, treatment can be recommended. Many of the treatments can be beneficial when used properly. Medical therapy and surgical therapy or their combination seeks to alleviate the pain and any neurologic deficits associated with IVD disease. Many paralyzed patients that lose feeling in the legs can often be helped; however, when a condition termed myelomalacia develops, there is bleeding inside the spinal cord and the condition becomes hopeless. As with many diseases, an early diagnosis improves the chances for recovery.

Treatment & Aftercare

Medical treatment is indicated for initial presentations with only pain or mild loss of limb function, if the owners are unable to afford additional treatment, in patients considered high anesthetic risks and when diagnostic tests do not show pressure on the spinal cord. Methods of medical treatment should include very strict confinement (usually two to four weeks), pain relief (but not aspirin or other NSAIDs—non-steroidal anti-inflammatory drugs) and a muscle relaxer. Acupuncture therapy may also provide pain relief for some patients. If the patient cannot voluntarily urinate, it is important to learn how to express or evacuate the bladder at least three times a day. The area of confinement (usually a carrier or a small cage) should have plenty of soft, absorbent padding.

Surgical treatment is indicated when the spinal cord is compressed and when extremely severe pain is correlated with the IVD disease. Surgical treatment is highly successful in the hands of a trained veterinary neurosurgeon and its advantage over medical treatment is the completeness and rapidity of recovery. In surgery, a portion of the side or bottom of the vertebrae is removed and the extruded or ruptured nucleus pulposus is removed from inside the spinal canal. This takes the pressure off the spinal cord. The surgical incision takes about two weeks to heal and generally when the patient can control bladder and bowel function, they can go home. The average post-surgical stay in the hospital is about one week.

After surgery, or after recovery following medical treatment, physical therapy is strongly advised. This can range from simple exercises you can do at home to a program that includes massage therapy and swimming exercises at a physical therapy unit. Aftercare is managed according to your pet’s needs. Acupuncture is another form of aftercare recommended by some. In addition to helping your pet regain the ability to walk, it is

most important the aftercare treatment include managing the bladder function. Keeping the bladder empty and using certain drugs to stimulate the ability to urinate are very important.

Prognosis

Pets with minimal to no neurologic deficits and well controlled pain usually have a fair to good prognosis for recovery with medical treatment. Those with more severe signs, with a severely compressed spinal cord and with preservation of sensation in the limbs have a good to excellent prognosis for recovery with successful surgery and aftercare. The prognosis for recovery of neurologic function begins to drop with patients that experience a loss of feeling in the limbs and surgery should be performed on these patients as soon as possible to maximize the chances of recovery. IVD disease is not fatal except in those patients that develop myelomalacia (bleeding inside the spinal cord). In dogs that lose sensation in the limbs, recovery can occur up to two months after the incident. Dogs that do not recover sensation and other neurologic functions can be maintained with a high quality of life using carts and having the owners assist them with bladder expression. Earlier treatments generally result in better outcomes.

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