

Intervertebral Disc Disease (IVDD)

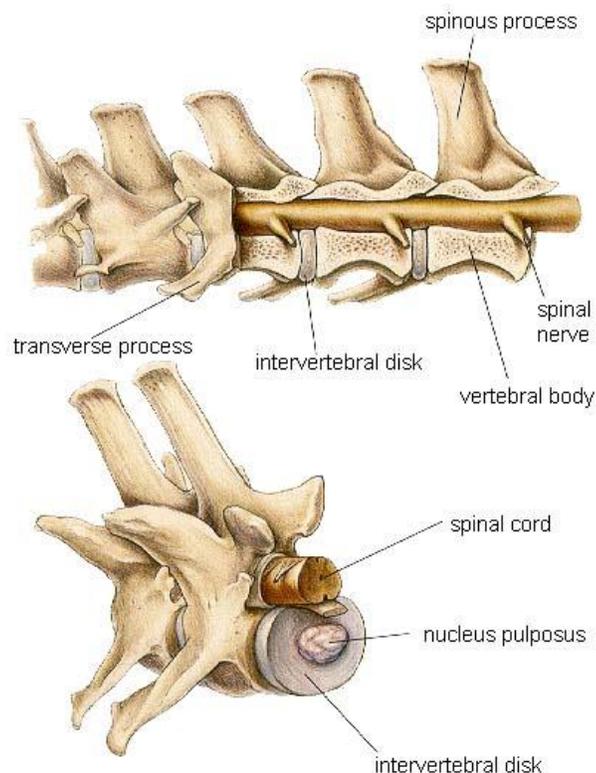
Spinal anatomy in relation to IVDD

The spine or spinal column is made up of adjacently interconnected bones called vertebrae. Intervertebral discs are situated between the bottom portions or bodies of adjacent vertebrae. The intervertebral discs provide cushion and a point of attachment between adjacent vertebral bodies. The spinal cord travels through the spinal canal just above the vertebral bodies and intervertebral discs. Normal discs can be compared to the sole of a gel running shoe in that they have a gelatinous inner portion (nucleus pulposus) contained within a strong, fibrous outer layer (annulus fibrosus). IVDD is the degeneration and bulging or herniation of an intervertebral disc up into the spinal canal, thereby compressing the spinal cord.

The most common type of IVDD (Type I) is where the inner nucleus leaks or erupts into the spinal canal causing compression and / or concussion of the spinal cord. The severity of signs ranges from back pain to complete paralysis depending upon the degree of spinal cord compression and / or concussion. The larger and more superficial nerve tracks within the spinal cord are much more sensitive to compression compared to the smaller, inner tracks (see diagram on page 2). Therefore neurological function is lost and recovers in a very predictable fashion depending on which tracks have been injured. By determining the degree of neurological dysfunction during a physical exam, an accurate estimation of post-operative outcome can be made prior to spinal imaging.

Type I IVDD is most commonly diagnosed in chondrodystrophic breeds (Dachshund, Bassett hound, Beagle, Cocker spaniel), but can occur in any breed.

A second type of IVDD (Type II) is where the outer annulus bulges upward into the spinal canal without rupturing. Clinical signs usually occur over a longer period of time with chronic pain being a hallmark. However if spinal cord compression becomes significant, patients will display a similar loss of function as those with Type I IVDD. Type II IVDD usually occurs in older larger breeds, but can occur in any breed.



Diagnosis

A presumptive diagnosis of IVDD is based on patient history, breed and neurological exam findings. A definitive diagnosis can be made utilizing a number of different imaging studies including myelogram, MRI or CT scan. A myelogram study is a series of x-rays taken of the spine after a liquid contrast agent that shows up on x-rays is injected into the spinal fluid, which surrounds the spinal cord. The contrast agent outlines compressive spinal cord lesions such as a herniated intervertebral disc or a tumor.

Treatment

If a patient has pain and / or mild neurological deficits, medical management can be effective in resolving IVDD. These patients must be strictly cage rested for 4 to 6 weeks and given medication(s) to reduce inflammation and decrease discomfort. If a patient is unable to walk, this indicates a significant spinal cord compression and surgical decompression is recommended. The surgical procedure (hemilaminectomy or dorsal laminectomy in the lower back or ventral slot in the neck) involves burring away part of two adjacent vertebrae allowing access to the spinal canal to remove the herniated or bulging disc material thereby relieving the spinal cord compression. Prognosis is directly related to the pre-surgical neurological exam findings and duration of clinical signs. Acute cases with mild deficits have an excellent prognosis where more chronic cases with severe deficits have a poorer prognosis.

