

What is an intervertebral disc?

The intervertebral disc is made of cartilage surrounded by a ring of fibrous tissue that acts as a cushion between the individual vertebrae that surround the spinal cord. There are intervertebral discs between all but the first two vertebrae. Intervertebral discs help provide flexibility of the spine and, in bipeds (species which walk on 2 legs), they help buffer the load to the spine during running or jumping. The disc is made up of two parts, an outer fibrous annulus fibrosus and a gelatinous center called the nucleus pulposus.

What happens in dogs with intervertebral disc disease?

There are two types of intervertebral disc disease (IVDD). The first (type 1) is characterized by rupture of the middle part of the disc (the nucleus pulposus) through tears in the outer part of the disc (the annulus fibrosus). This is also known as a “slipped” disc. This type of disc disease occurs secondary to abnormal degeneration of the nucleus pulposus, where it loses its normal water content and becomes firm or “calcified.” Calcified disc material can be seen on plain X-rays in some dogs. This type of disc disease is characterized by a more sudden inability to walk and may occur anywhere along the length of the spine. Approximately 80 percent of disc herniations occur in the middle part of the back. Type 1 disc disease occurs most commonly in small-breed dogs, such as the Dachshund, Pekingese, Shih Tzu, Toy or Miniature Poodle, Cocker Spaniel, Basset Hound, Chihuahua, and Beagle. However, it can occur in some large-breed dogs, including the Labrador Retriever, German Shepherd, Dalmatian, Pit Bull Terrier, and Rottweiler. This type of disc herniation occurs most commonly in young- to middle-aged dogs.

Type 2 disc disease is caused by chronic bulging of the outer part of the disc on the spinal cord. The condition is typically slowly progressive and may or may not be painful. It occurs most commonly in middle- to older age large-breed dogs. The chronic spinal cord compression with this type of disc disease often causes atrophy of the spinal cord.

What are the symptoms?

The various symptoms depend on the type of disc herniation (type 1 or type 2) and where it occurs.

Acute disc herniations in the neck are characterized by neck pain, holding the neck low, being unable to lift the head fully, limping on one or both front limbs, or being weak and uncoordinated in all four limbs. In severe cases, dogs can be paralyzed in all four limbs and have difficulty breathing. This is considered a surgical emergency.

Chronic disc herniations in the neck are characterized by a longer history of reluctance to move the neck. With chronic disc compression in the back part of the neck, dogs may develop

a very short strided gait in the front limbs and a wobbly, uncoordinated gait in the back limbs (so called "Wobbler's" gait).

Acute disc herniations in the back (TL spine) are the most common and are characterized by back pain, arching the back, weakness and incoordination in the hind limbs, and hind-limb lameness. Some dogs that are completely paralyzed will drag themselves around using only their front limbs. A dog that becomes suddenly unable to use its hind limbs is considered an emergency and should be evaluated as soon as possible.

Chronic disc herniations in the back are characterized by slowly progressive weakness and difficulty getting up or jumping. They may or may not be painful depending on the degree of spinal cord compression.

How is intervertebral disc disease diagnosed and treated?

If your pet experiences severe symptoms such as wobbliness or inability to walk, he should be brought to an emergency clinic immediately. If he has back pain or neck pain only, please see your veterinarian. With an acute disc herniation, time is of the essence, as waiting may allow progression of the neurologic signs and worsen the prognosis.

A neurologic exam is performed to localize the area of the spinal cord that is affected. Plain radiographs are taken of the spine prior to more advanced imaging of the spinal cord with a myelogram (+/- CT scan) or MRI.

What does surgery involve?

If back surgery is indicated, a window in the bony spinal canal (called a hemilaminectomy) is made and the disc material is removed. In some cases, the surgery is done over a wider area of bone (i.e. more than two vertebrae) to remove all the disc material. For the majority of disc herniations in the neck, the disc material is removed by drilling a hole from underneath the disc (called a ventral slot).

Surgery is successful in the majority of dogs with acute disc herniations (success rate of approximately 90 percent in dogs who still feel their toes). In most cases where the clinical signs have been going on for a long period of time (i.e. weeks to months), dogs do not make a 100 percent recovery, due to chronic spinal cord compression and atrophy (shrinking) of the spinal cord.

Most dogs take six to eight weeks to recover from spinal cord surgery and many benefit from physical therapy. Some dogs with chronic (type 2) disc disease take longer to recover.

What is the post-surgery care?

After surgery, your pet should lay low for six to eight weeks. The spinal cord recovers slowly and extra care must be taken not to allow running, jumping, stairs, playing with other dogs, or hopping on or off furniture. Physical therapy can be started right after surgery to help regain strength.

Can dogs re-injure themselves after surgery?

Some dogs can have disc herniations in other regions of the spine. Certain breeds, such as Dachshunds, are more predisposed to having other disc herniations in the future. It is difficult to prevent future disc herniations but the likelihood can be limited by avoiding activities such as jumping and explosive movements (i.e. frisbee, stairs). Dogs with back problems should be kept at a healthy weight to allow a quicker recovery from surgery and help avoid strain on the back in the future.