



Intervertebral Disc Disease

Intervertebral disc disease (IVDD) is one of the conditions most frequently seen in veterinary neurology. It is rare in cats, but it is the most common spinal cord disorder in dogs. You may have heard IVDD referred to as bulging disc, slipped disc, herniated disc, or ruptured disc.

Intervertebral discs connect spinal vertebrae and allow the spine to bend and absorb impact. They are made up of an outer fibrous ring, called the *annulus fibrosus*, and an inner jelly-like filling, known as the *nucleus pulposus*. IVDD develops when these discs degenerate, dry out, and harden, leading to bulging or rupture. This results in spinal cord compression, causing symptoms ranging from pain to paralysis.

Signs

Clinical signs depend on where the herniated disc is located and the extent to which the spinal cord is being compressed by that herniation.

Intervertebral disc disease can occur anywhere along the spine. The most common site is in the mid-back, which can cause neurological signs in the hind limbs. Disc herniations in the neck, on the other hand, can cause neurological signs in all four limbs.

While mild spinal cord compression may result in pain only, more severe compression results in weakness and incoordination. As severity worsens, your pet may lose the ability to walk and, eventually, the ability to move its legs. In the most severe cases, patients may lose all feeling in the affected limbs.

Clinical signs of IVDD include:

- **Spinal Pain:** holding the head low, arching the back, holding the ears back, panting excessively, not wanting to move, muscle spasms, shivering, or crying
- **Limited Mobility:** wobbling, incoordination, weakness, or paw knuckling when walking

- **Paralysis:** dragging limbs, unable to stand, unable to walk or use limbs, incontinent, or unable to feel toes

Causes

There are two main types of intervertebral disc disease.

Type I IVDD is attributed to body conformation. There is typically an acute onset of clinical signs in young to middle-aged dogs of predisposed breeds. This type of IVDD is mostly seen in chondrodystrophic dogs (smaller dogs with short legs), such as:

- Dachshunds
- French Bulldogs
- Shih Tzus
- Pekingese
- Beagles

Type II IVDD occurs in older dogs due to wear and tear during the normal aging process.

There is typically a gradual, chronic, progressive onset of disc degeneration signs. This type of IVDD can affect any dog, but it is more often seen in larger breeds.

Another type of intervertebral disc problem is worth mentioning. An acute non-compressive nucleus pulposus extrusion (ANNPE) does not result from disc degeneration, but from excessive force applied to a normal, healthy disc.

High-impact exercise or a fall can tear the outer annulus fibrosus, which can cause a small amount of the inner nucleus pulposus to shoot out of the disc at a high speed and strike the spinal cord. Although this does not compress the spinal cord, it can cause an injury in the form of bruising, swelling, or bleeding and similar symptoms. This is most common in young, active, high-drive medium to large dogs.

Diagnosis

If your veterinary neurologist suspects intervertebral disc disease after your pet's neurological examination, advanced imaging is generally recommended for a definitive diagnosis. MRI is considered the gold standard because it can distinguish between compression, obstruction, contusion, and tumor. It can also help predict prognosis, based on the size and severity of the damage.

Treatment

Without timely and appropriate treatment, intervertebral disc disease can cause irreversible damage. Decisions about treatment are made based on the severity and duration of clinical signs.

Medical Management

If your pet is a first-time sufferer with mild symptoms, IVDD may be managed with a combination of rest, pain medication, and anti-inflammatories. This is also an option for patients that cannot undergo MRI due to health concerns, financial reasons, or owner preference.

The most important component to nonsurgical management of IVDD is limiting activity. Rest gives cartilage a chance to scar over and heal.

A crate is typically necessary to achieve this. Your pet should remain crated at all times, only being carried or taken out with a sling or short leash to urinate, defecate, or for physical therapy when indicated.

Best practices for crate rest include:

- **Crate Type:** A metal crate with a top is recommended to allow your pet to see out and you to see in, while preventing your pet from tearing it, knocking it over, or climbing/jumping out.
- **Crate Size:** The appropriate crate size is 2-3 times the size of your pet, so that your pet can stand up, turn around, and move away from an accident; but can't run, jump, or stand on hind legs.
- **Bedding:** We recommend a foam mattress with a plastic cover for easy cleaning. You can use towels or blankets over this. Bedding should be soft, clean, and dry at all times.
- **Location:** Choose a location for the crate that best allows your pet to stay calm. Sometimes having multiple crates throughout the house is helpful.
- **Feeding:** Your pet will be eating and drinking in the crate. Raised or attachable crate bowls can be helpful. It is normal for your pet to not eat as much as usual while resting.

Surgery

Pets with more severe neurological signs or pain that is unresponsive to medical treatment are best suited for surgery. The goal of surgery is to relieve spinal cord compression.

Herniated discs in the neck are treated with a ventral slot procedure. For this surgery, we make an incision on the underside of the neck and create a window in the bottom part of the bones of the neck to retrieve any disc material that is compressing the spinal cord.

Herniated discs in the back are usually treated with a hemilaminectomy. For this surgery, we make an incision on the back and create a window on the side of the back bones to retrieve disc material that is pressing on the spinal cord.

After surgery, your pet's recovery protocol will be very similar to "Medical Management" described previously.

Prognosis

Prognosis depends on the duration and degree of symptoms and the treatment selected.

Medical Management

Pets with mild neurological signs that can still walk can have a 60-70% chance of functional recovery. Pets that are unable to walk, but can still move their legs, have about a 50-60% chance. For paralyzed pets, the prognosis is guarded, with only around 50% recovering the ability to walk with fecal and urinary continence.

While medical management can be successful, recovery time is longer, completeness of recovery is less, and recurrence of clinical signs is higher than with surgery. It will be obvious whether or not medical management is working within the first week of treatment.

Surgery

Alternatively, the same pets described above all have a 95% chance of making a full functional recovery with surgery in the hands of an experienced neurosurgeon at Southeast Veterinary Neurology.

Our highly skilled surgeons will also perform a preventative procedure during the operation to reduce the likelihood of recurrence.

However, for pets that have lost feeling in their legs, the chances of recovery are only about 50%, and surgery should be performed no more than 24-48 hours after losing the ability to feel the legs for the best chance of recovery. Unfortunately, with or without surgery, dogs that have lost feeling in their limbs are at risk for myelomalacia, an extremely serious condition that is typically progressive and fatal.



Learn more about
IVDD:

