

Intervertebral disc disease in dogs and cats

What is intervertebral disc disease?

The intervertebral disc is a spongy, doughnut shaped pad in the main joint between the vertebrae (bones of the spine). The disc lies just underneath the spinal cord in dogs and cats. Each disc has a semi-liquid centre (nucleus pulposus) and a tough outer fibrous layer (annulus fibrosus). The discs form a bridge between two neighbouring vertebrae and act as a cushion, giving strength and flexibility to the spine.

As in humans it is perfectly normal for intervertebral discs to age as dogs and cats get older. This results in these normally flexible and rubbery discs becoming stiffer and brittle. The annulus fibrosus can also become thicker and bulge. These changes tend to occur at sites of high mobility and stress such as the lower neck, mid-back and lower-back. Intervertebral disc disease results in problems for your pet in one of two ways:

1. **Intervertebral disc extrusion (IVDE):** the degenerate annulus fibrosus can tear allowing the stiff nucleus to extrude out and put pressure on the spinal cord (disc extrusion). An IVDE happens quickly (over minutes to hours) and can compress the spinal cord leading to clinical signs ranging from pain to complete paralysis.
2. **Intervertebral disc protrusion (IVDP):** the thickened annulus fibrosus remains intact but bulges into the vertebral canal putting pressure on the spinal cord and nerves.

Which pets experience intervertebral disc disease?

IVDE can occur in dogs of almost all ages and breeds. Most commonly it will affect chondrodystrophic breeds (short legged, long bodied, small dogs) and especially Dachshunds, French Bulldogs and Pekinese dogs. These breeds have genetic factors that lead to premature degeneration and calcification of intervertebral discs. It most commonly affects dogs between 2 and 6 years old.

IVDP can also occur in dogs of all ages and breeds but is more commonly seen in larger older dogs.

What are the signs of intervertebral disc disease?

The clinical signs of intervertebral disc disease are dependent on the site of the disc extrusion/protrusion and the extent of spinal cord and nerve compression. Spinal pain is the most common sign of disc disease and can lead to reduced mobility and a change in posture such as low head carriage or an arched back. In severe cases compression of the spinal cord can lead to wobbliness, weakness and even paralysis and loss of faecal and urinary continence.

How is intervertebral disc disease diagnosed?

The neurologist will take a patient history and perform a thorough neurological examination. The examination often helps the neurologist to localise which area of the spine is affected. To confirm the diagnosis and identify the site of the problem advanced diagnostic imaging (usually an MRI scan, but sometimes a CT scan) will be recommended.

What treatment options are available?

The two main methods of managing thoracolumbar disc disease are:

Medical management: If the clinical signs are **mild** (either just pain or a mild degree of wobbliness in a dog that is still walking) and do not progress we may suggest **medical management** as an initial treatment. Dogs have to be strictly rested, usually in a crate or a pen with short lead walks for toileting purposes. The hope is that the 'slipped disc' will heal, back pain will subside, and the spinal cord will recover from any injury. Dogs are usually given drugs to reduce inflammation and pain. Dogs will need to be rested for 2-4 weeks depending on their clinical signs. You will be required to update us regularly to assess progress.

Surgical treatment: If clinical signs are more severe or medical management is not successful then surgery will be necessary. The goal of the surgery is to remove the "slipped" (extruded) disc material to decompress the spinal cord. Decompressive surgery involves making a window in the bone around the spine (laminectomy) to enable retrieval of disc material. Further 'slipping' can be prevented by cutting a small window in the side of the disc and removing material in the centre (disc fenestration). Occasionally vertebral stabilisation (fusion) procedures are necessary, especially in large dogs

Post-operative care: after surgery patients will stay in the hospital for at least 2-3 days for post-operative pain management and to monitor recovery. Sometimes patients need to stay longer with us because to ensure they can fully empty their bladder before returning home or because they have had a particularly severe spinal cord injury. Following discharge all patients must be strictly rested in a cage, crate or play pen for about 3-4 weeks. Once the patient has been re-examined exercise on a lead may be slowly and gradually increased. Some patients will require pain medication for the first few weeks at home and for most we recommend physiotherapy.

What is the prognosis?

The outcome of intervertebral disc disease strongly depends on how severely the dog is affected and where the disc extrusion/protrusion has occurred. Approximately 85% of mildly affected dogs have successful medical management. Those dogs who are more severely affected and are not able to walk but still have some movement in their back legs have around a 90% chance of being able to walk well after surgery. Even in the severest cases where a dog has lost the ability to feel its toes here is a 50 to 60% chance of recovery with surgery. In rare cases we have to adjust our prognosis after the MRI if there are signs of severe spinal cord damage or if the lower back is affected.