

## Intervertebral Disc Disease (IVDD)



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# Intervertebral Disc Disease

Intervertebral disc disease (IVDD) is the most common spinal disease in dogs and is also seen occasionally in cats. Intervertebral discs are fibrocartilage cushions that sit between the vertebrae (except for C1-2). They allow movement, are supportive and act as shock absorbers. Intervertebral disc degeneration results in changes in the disc and can ultimately lead to disc herniation and spinal cord compression.

## Causes

Intervertebral disc disease is caused by degenerative changes in the intervertebral disc. In some patients, especially the chondrodystrophic breeds, this degeneration can occur from an early age. Disc degeneration occurs because of changes in the hydration of the disc. Chondrodystrophic dogs have short legs relative to their body such as Dachshund, Beagles, Terriers and many other breeds. Chondrodystrophic dogs frequently have early degenerative changes in their discs making them more likely to cause problems. Disc degeneration results in diminished shock-absorbing capacity, and can ultimately lead to disc herniation and spinal cord compression.

## Clinical signs

Animals affected by intervertebral disc disease may present with spinal pain localised to the back or neck, progressing to weakness or even paralysis. In some animals, acute onset of paralysis is the first clinical sign noted. Nerve fibres flow from the brain to the limbs along the spinal cord, therefore the clinical signs will refer to spinal cord dysfunction below the injury. For example, disc disease in the lower back can cause hind limb weakness, paralysis or urinary incontinence whilst disc disease in the neck can cause weakness or even paralysis of all four limbs.

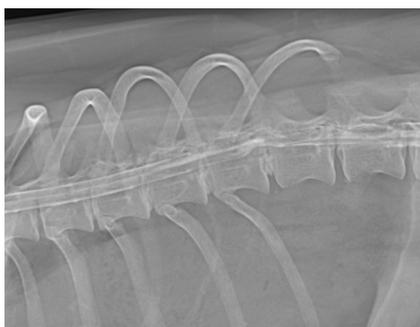
The initial signs are usually associated with pain. Signs associated with spinal pain include abnormal posture such as a hunched back, shivering, panting, unwillingness to move and difficulty jumping or using stairs. This can progress to difficulty walking, poor control of the limbs, weakness, ataxia (wobbly walking) or complete paralysis. Disc disease can also affect the ability to empty the bladder and in severe cases there can be loss of sensation or feeling in the legs.

Spinal injury is an emergency situation and your pet needs to be assessed by a Specialist Surgeon as soon as possible following the onset of clinical signs. Delay in treatment can worsen the prognosis.

## Diagnosis

Intervertebral disc disease may be strongly suspected based on clinical signs especially in predisposed breeds, however diagnostic imaging is essential to confirm the diagnosis. Plain spinal radiographs may reveal characteristic changes of disc disease however plain radiographs rarely provide the accurate conformation and localisation required for surgical management.

Advanced imaging is always required to allow a definitive diagnosis. Myelography, MRI or CT are routinely used at Veterinary Specialist Services for diagnosis and surgical planning. Your surgeon will advise the best diagnostic modality for your pet - this varies between cases. Advanced imaging provides more information than plain radiographs for diagnosis and surgical planning and allows a treatment plan to be developed for your pet. As patients must be perfectly still general anaesthesia is always necessary for imaging. If imaging and advanced diagnostic tests are not performed an accurate diagnosis is not possible.

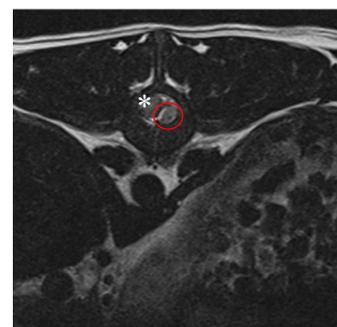


Myelogram showing spinal cord compression by an extruded disc at T13-L1 Oblique view



CT scan showing spinal cord compression by an extruded disc at T13-L1

Coronal view above, sagittal view below



MRI scan showing spinal cord (\*) compression by an extruded disc (circled) at T13-L1



## Differential diagnoses

Many other conditions can cause similar clinical signs. These include meningitis, infections in the spine or disc space, tumours or cancers, blood or other clots affecting the spinal cord, trauma and even tick paralysis envenomation. It can be difficult to determine the exact cause without imaging with myelography, CT or MRI.

## TREATMENT

### Conservative or Non-surgical

Conservative management may be indicated for patients with pain only or for those with very mild deficits. Patients with more severe neurological deficits are less likely to recover with conservative treatment. Patients which have lost pain sensation are a surgical emergency and are extremely unlikely to respond to conservative management. Disadvantages of conservative management include a higher rate of recurrence of clinical signs and a higher chance of deterioration or persistence of neurological deficits.

Conservative management has the advantage that it is comparatively inexpensive and avoids surgery. The most important aspect is restriction of movement which involves cage or crate confinement for a minimum of 8 weeks. This helps to prevent further disc extrusion and worsening of your pet's condition. The animal's natural healing process can then repair the damage to disc and spinal cord. Pain relief is essential. Regular rechecks are usually required to assess your pet's progress.

### Surgical Treatment

Veterinary Specialist Services is a world leader in spinal surgery and rehabilitation. Our published results are among the best in the world and we have made many advances with surgical treatment as well as our rehabilitation programmes. In our experience, early surgical intervention gives the best, most complete and rapid return of function.

While some patients do recover with conservative management the prognosis is usually better with surgery, improvement is more likely, recovery is more rapid, pain management is improved and recurrence is less common. Patients where pain sensation in the paw is absent are a surgical emergency and have a poor prognosis for improvement without immediate surgery.

### What does the surgery involve?

The most common type of surgery is a decompressive procedure which involves removal of the extruded disc material compressing the spinal cord. This surgery is technically very difficult and requires specialised equipment and training. The type of decompressive surgery performed depends on the site of the problem. In the neck a ventral approach is generally used (sometimes called a ventral slot) and a window is made through the vertebral bodies to allow the extruded disc to be removed. In the thoracolumbar spine, the most common procedure is a hemilaminectomy, where entry into the vertebral canal is made from the side, directly above the disc space. In the lumbosacral region a dorsal laminectomy is often undertaken and the "roof" is taken off the vertebral canal allowing direct visualisation of the cauda equina and the lumbosacral disc.

There are many other procedures routinely performed and your surgeon will advise you of the most beneficial procedure for your pet if required.

### How long does spinal surgery for disc disease take?

1-3 hours – depending on the complexity of the procedure.

### What happens after surgery?

Immediately after surgery your pet will be transferred to the recovery ward to recover from the anaesthetic in a quiet and peaceful environment. Post-operative analgesia and supportive therapy is provided and your pet is monitored and nursed by a dedicated team of experienced nurses and vets. Following recovery your pet will be transferred to the surgical ward to continue nursing care by our team of vets and nurses.

### Rehabilitation

Following surgery your pet will be assessed by our specialised team of Animal Physiotherapists who will design and implement an individual physiotherapy and rehabilitation programme specific to your pet. Physiotherapy plays a vital part in the treatment of animals with spinal cord disease. Inactivity and recumbency results in decreased joint movement, stiffness, muscle weakness, and muscle contracture. Veterinary Specialist Services is a pioneer in the use of physiotherapy and was the first hospital in Australia and one of the first in the world to establish a physiotherapy department. Use of our underwater treadmill is extremely helpful to the recovery of function. Our work shows a significant benefit to patients having physiotherapy in time to recovery and completeness of recovery.



*Post-operative rehabilitation commences 24-48 hours following surgery.*

### **When can my pet go home after spinal surgery?**

The length of stay in the hospital following spinal surgery varies from patient to patient depending on their comfort, functional movement and ability to urinate. As a rule, we like patients to stay in hospital until they can stand, walk and urinate independently. At or before discharge you will have an appointment with one of our Animal Physiotherapists or rehabilitation team. They will show you how to perform the necessary physiotherapy techniques and exercises to ensure your pet continues to make progress at home. Regular follow up appointments with the physiotherapist and surgeon are advised.

### **How long before my paralysed pet will walk again?**

This varies significantly between animals but typically recovery occurs over several weeks. Some cases improve more quickly and others take longer. Please do not despair if your pet is taking a long time to recover. We will continue to work with them to achieve the best outcome. There are a small number of cases however where, sadly, there is no improvement.

### **Recurrence**

Following surgery it is unusual for there to be a problem at the same site. However there may be a problem in some patients with other degenerate discs. In Dachshunds the incidence of recurrence at another site is around 15% but in other breeds the incidence is around 5%.

### **Complications**

With any surgical procedure complications are possible. There is a small risk with any anaesthetic, as there is in people, however the chance of a major anaesthetic complication is very low – only 0.01%. Infection can also occur and we make every effort to avoid this and our theatre standards are the same as those in human hospitals.

Muscle wastage is common due to disuse, and regular physiotherapy helps prevent this.

Urinary tract problems are common with spinal disease. Many patients have difficulty emptying their bladder and infections can occur.

Severe cases may develop myelomalacia - death of the spinal cord due to severe damage to the spinal cord and its blood supply. This condition is fatal.

### **Costs**

Initial work up, blood tests and imaging costs vary depending on patient requirements but range from \$1,700 - \$2,500. The cost of surgery ranges from \$3,500 - \$5,500 depending on the surgical procedures required.

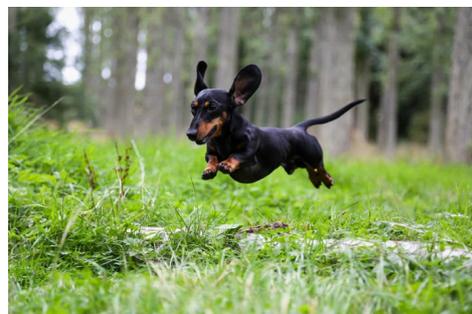
Hospitalisation and physiotherapy following surgery range from \$250-350 per day again depending on individual requirements.

### **Time of stay**

Lower Grades (1 and 2) average hospital stay is 6 days in Grade 3 and 4 patients the average hospital stay is around 10 days and while the more severely affected Grade 5 patients can be expected to be in hospital longer.

VSS is one of the world leaders in recovery from IVDD and our success rate treating patients with intervertebral disc disease is among the best in the world.

**If you have any questions, please feel free to contact of the Specialist Surgeons at Veterinary Specialist Services.**



*Our goal is to return your pet to full function following spinal surgery.*



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