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North Dublin Orthopaedic Animal Hospital

Spinal Surgery for Dogs

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Introduction to Spinal Surgery for Dogs

Spinal surgery in dogs and cats is a specialised discipline in veterinary surgery.

Experience in dealing with spinal cases is vital to be able to manage all the issues. Not alone is the surgery itself complex, but the postoperative care, prognosis and client difficulties make the overall treatment a minefield.

Neurological tissue is the slowest tissue in the body to heal and predicting how long or even if recovery will occur is not an absolute exact science.

Disc disease is the most frequent reason to do spinal decompressive surgery. To read more about disc disease, surgical treatments available and additional developments in spinal surgery for dogs, select any of the links to the left.

Disc Disease in Dogs

Compression of the spinal cord by extruded or protruding disc material can cause symptoms ranging from pain to complete paralysis. Some breeds, such as the Dachshund, have a premature degeneration and calcification of the disc core which leads to movement of the disc material. Successful decompression surgery can be achieved by operating before permanent damage is caused to the spinal cord. So the length of time between onset of symptoms and surgical decompression is extremely crucial.

Thoracolumbar discs are the commonest site of disc extrusion in the dog which is the opposite of the Human where it is the least common, where the lower lumbar discs are the most common site of pathology. Veterinary spinal surgery has always been common because of chondrodystrophic dogs and the associated nucleus pulposus calcification/degeneration leading to extrusion of copious amounts of material, and the subsequent spinal cord compression.

These dogs will typically present at 4-5 years (or younger) of age with hind limb paralysis often at grade 4 level with a loss of conscious nociception. Emergency hemilaminectomy when performed within 24 hours can be highly successful. Extruded disc associated spinal cord compression greater than 48 hours is common and has been treated by various methods such as omentalisation, olfactory neuron transplant and stem cell transplant with varying degrees of response. The less common disc protrusion (Hansen Type II) is currently treated by corpectomy, but the long term prognosis may not be favourable. Disc protrusion in man is associated with abnormal vascularity and a concomitant weakened or tear in the annulus fibrosis leading to radicular pain, coupled with an inflammatory response to the extruded nucleus pulposus. These symptoms are most frequently seen in males of 30-40 years of age. Pain and numbness are the commonest symptoms in man compared to paraparesis in dogs. Diskectomy, foraminotomy, laminectomy and fusion are the surgical treatment options used in man.

Surgical Treatments

Surgical stabilisation and or decompression would be needed to treat cases of cervical spondylopathy and lumbosacral spondylopathy. These are degenerative disorders and can involve bone or soft tissues structures leading to spinal or nerve root compression. Cervical and lumbosacral

spondylopathy in dogs and the associated disc disease can be treated by locking plate fusion and laminectomy respectively.

Atlantoaxial subluxation is frequently seen in toy breeds of dogs such as Chihuahua, Yorkshire Terrier, Pomeranian and Maltese Terrier. These dogs quite frequently present in a collapsed state. It can be due to either ligament trauma/absence or dens malformation is commonly seen in toy dog breeds and arthrodesis of the articular facets can successfully transform a quadriparetic animal to normal locomotion. Surgical stabilisation using pins and screws is a proven technique and has a good prognosis depending on the severity of the symptoms preoperatively.

Stabilisation of vertebral luxations/dislocations or fractures is frequently possible, especially if the degree of spinal cord damage has not gone beyond the presence of deep pain sensation in the toes. Deep pain sensation is the final neurological function to disappear before complete loss of spinal cord function. The vertebral column can be stabilised with pins, plates, screws, and bone cement.

Tumours of the spinal cord can be surgically removed depending on location, severity of symptoms, and if it is a benign growth not within the substance of the spinal cord. This usually means that tumours of the meninges or nerve root can be operable. So spinal tumours, especially meningiomas or nerve sheath tumours can be excised giving good survival times.

Other Conditions

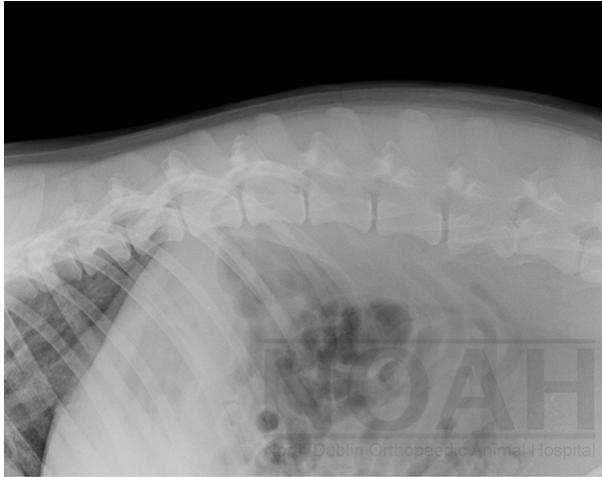
There are other conditions that can involve surgical treatment such as:

- Meningeal/Arachnoid Cysts
- Deformed Vertebral Column
- Spinal Dysraphism
- Discospondylitis
- Osteochondromatosis/Multiple Cartilaginous Exostoses
- Dermoid Sinus
- Mucopolysaccharoidosis
- Spina Bifida
- Calcinosis Circumscripca
- Myelodysplasia

Hemivertebra, block vertebra and butterfly vertebra with or without associated kyphosis can be treated by laminectomy and fusion. In those dogs having any of the above diseases then the decision to opt for surgical intervention would have to be decided on a case by case basis.

It is worth mentioning diseases characterised by degenerative myelopathy, even though they are not surgical cases, as they may be present along with other conditions thereby confusing the clinical picture. There is myelin degeneration of the thoracolumbar spinal cord and is seen most frequently in German Shepherd Dogs. There are a number of rare diseases specific to certain breeds such as leukoencephalomyopathy of Rottweilers which can occur as well.

Gallery



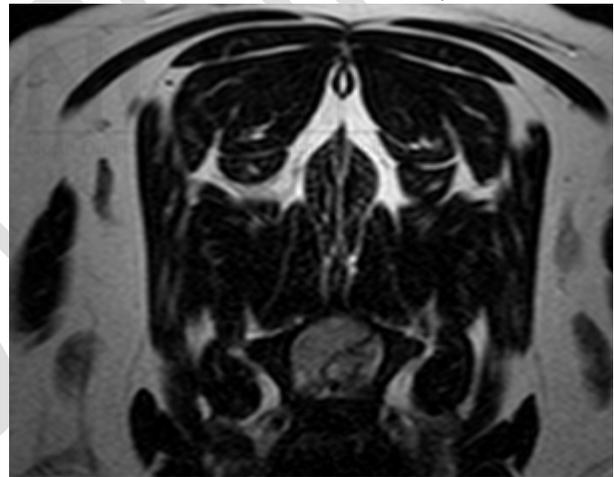
Lumbar Fracture Pre-Op



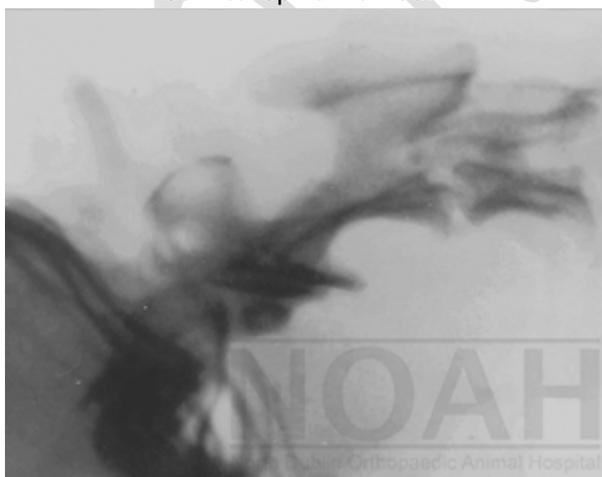
Lumbar Fracture Post-Op



Cervical Spinal Tumour



Cervical Spinal Tumour



Atlantoaxial Subluxation Pre-Op



Atlantoaxial Subluxation Post-Op



Cervical Spondylopathy



Cervical Spine Pins

The information on this site is brought to you by the specialists at

NOAH

North Dublin Orthopaedic Animal Hospital

NOAH provides an orthopaedic referral service
for injured or ill dogs and cats from the
Republic of Ireland and Northern Ireland