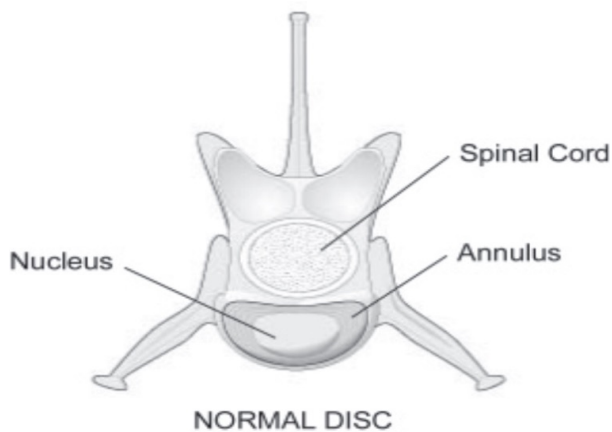


Earlswood Veterinary Hospital

Spinal Surgery and Care of the Spinal Patient

Most dogs who have had spinal surgery have undergone such a procedure due to intervertebral disc disease. Disc disease is most prevalent among small and toy breed dogs for example; Dachshunds, Lhasa Apsos, Poodles and Pekingese dogs. However, there is also a significant occurrence of disc disease in large and giant breed dogs such as Dobermans, Dalmations, Rottweilers, German Shepherds and Labradors. In the more prevalent smaller breeds, primarily due to genetic factors, the disc is more prone to premature ageing thus making them more likely to rupture even with minimal movements. Disc disease can occur anywhere along the spine however, some breeds are more prone to certain locations. This can be in the neck (cervical spine), mid-back (thoracolumbar spine) and further along the back (lumbar spine).

The Spine and Discs



A normal disc resembles a jelly filled doughnut. The outer layer called the annulus consists of a tough fibrous tissue that connects each of the spinal vertebrae together into a column. Due to the flexibility of the annular fibres the vertebral column is able to flex and bend. The centre of the intervertebral disc (the jelly) is called the nucleus and contains a viscous liquid.

Within degenerating discs many things can happen. The discs may just degenerate with age and hence losing their cushioning effect. The material in the jelly nucleus centre can change in consistency and the outer annulus layer can weaken losing its structure. Therefore, some of the central jelly material can come out through the ring and injure the spinal cord (a disc extrusion) or secondly the fibrous ring can either thicken or bulge and compress the spinal cord (a disc protrusion). Either type of change or abnormality will have effects on the spinal cord causing pain and nerve injury with various degrees of limb paralysis and dysfunction. There are also cases in which trauma has caused damage to the spinal cord or discs in which case the cause may be very obvious.

Signs can develop slowly or quickly and can vary in severity, dogs can go from being normal to having severe pain and inability to walk within a matter of minutes, or some dogs will just have a slower onset of back or neck pain with mild symptoms which gradually worsen. The area of the spine affected will also determine the symptoms your dog may have.

How is it Diagnosed?

A full neurological examination by an experienced surgeon is necessary to detect evidence of spinal cord injury and pain. There may be other causes of this pain and it is vital to determine if there is any loss of nerve function especially within the limbs. A thorough examination often helps localise which area of the spine may be affected.

Normal xrays (radiographs) are carried out which can sometimes reveal some evidence of disease, such as a narrowed disc space or calcified discs, but also to rule out other possible causes of disease, for example fractures and tumours. However, more advanced investigations are necessary to find the exact location of the problem and to what extent the spinal cord has been damaged.

All imaging must be performed with the patient under general anaesthetic. The next step after routine radiographs is to carry out the procedure called 'Myelography'. This is a more specialist technique used to investigate spinal injury. A 'Spinal Tap' or collection of spinal fluid is first performed and then the very careful injection of a radio-opaque dye around the spinal cord. This makes its shape more visible and following a series of radiographs the flow of dye can show where the problem may lie. This isn't without risk to causing further damage to already compromised nerve tissue, however, it is vital to ascertain the exact location of the problem if surgery is to be performed. The benefits of myelography far outweigh the risks and this diagnostic test still remains one of the most routine tests available.

Another imaging method is MRI scanning which in some situations may be available. However, this alternative is more expensive and not always available in the emergency situation, which many of these cases are. MRI uses high powered magnets and a computer to generate images of the spine.

How can these cases be treated?

The two principle methods of managing disc disease and spinal injury are 1) conservative treatment and 2) surgery. Every case needs to be assessed individually as to what will provide the best outcome. The level of obvious spinal cord damage observed at the time (i.e. paralysis) and the length of time between the onset of the problem and veterinary intervention will determine the chances of recovery and return to normal health and mobility.

Conservative Treatment

Some cases are mild enough that spinal cord damage is minimal and there may be no benefit from carrying out any surgery. Time needs to be given to allow the nerve tissue to heal and recover. Strict cage rest confinement is an absolute must in the early days. Initially most of these cases will stay in hospital until the surgeon is confident that improvements are being made and more importantly pain is manageable. Management consists of pain management and muscle relaxation, supportive care and nursing, physiotherapy, comfortable bedding and good control of toileting. (See later for more detail) It takes time for nerve tissue to recover and this can be a slow process which owners must be aware of.

Surgery

The type of surgery required will depend on the location of the problem, either within the neck or along the spine of the upper and lower back. The aims of surgery is to remove the source of compression of the spinal cord.

The neck - Ventral Cervical Slot

The Thoracolumbar Region - Hemi-laminectomy

Immediately After Surgery

Surgical procedures can be very difficult and last some hours in theatre. Therefore your pet will need to remain in the hospital until they are able to cope without intensive care. Initially they will be receiving intravenous fluids to support them until they are well enough to eat and drink. They also will need some considerable amount of injectable pain medications and muscle relaxants. Most cases are able to stop injectable medications within a few days and are eating and drinking within 24-48hrs. At this point oral medications can commence. In many cases the spinal cord injury can cause problems with urination and many dogs need to have urinary catheters placed to control this initially. Once progress is made, these can be removed and they can start to urinate on their own. In these first few days it is vital they have the appropriate nursing care and attention. It is a trying time for both the veterinary team and the owners as occasionally we really will not know what level of recovery can be achieved and it is very much a day at a time. Some physiotherapy can often be started in hospital by our rehabilitation team and continued at home. Depending on the level of injury some dogs will leave hospital walking, others will not and it all takes time and part of the healing process.

Long term Post-Operative Care

The complex surgery is quite often only part of the story. Following surgery aftercare is of vital importance and these dogs really do need some very close care and attention for a number of weeks. Generally we are looking at a 4-6 recovery period before we can fully determine the outcome of the procedure. During this time, setbacks are possible and everything that happens in this timescale can have a positive or negative impact. Therefore, all instructions are vitally important.

Medication and General Health

There may be pain relief medications and occasionally antibiotics for your pet to continue with at home. These must be given at the correct times and all courses completed. Generally at this point your pet will be eating/drinking normally and toileting normally. The surgery and mobility aside there should be no reason for your pet to be off colour. Appetite may be slightly reduced as you can imagine and there will still be some level of pain and discomfort, however, there should be no vomiting or diarrhoea, blood in urine/stools and they should be reasonably bright. If there is any deterioration or any changes we must see them again as soon as possible.

Wound Care

There will be a wound after surgery which will usually have staples in the skin due to be removed 10 days after surgery. The wound should remain dry and clean at all times. Do not put any creams or ointments onto the wound. There shouldn't be any redness, swelling or discharge and the wound itself should be minimally painful. Check daily for any of these signs and contact us as soon as possible should you have any concerns.

Mobility, movement and exercise

These patients have lost a lot of movement, strength and coordination on one or more limbs as well as some loss of bladder and /or bowel movement. Some are unable to walk or stand well on their own, some have weak and flaccid muscles and muscle wastage whilst others have tense muscles and rigid limbs. There may still be some pain and they can be stressed and frightened. We will not discharge your pet home until we are happy they can be managed at home.

Keeping your pet quiet and confined is most important. Depending on how well your dog is walking or moving will determine where they need to stay at home, along with your own household activities and space. A small area to move around in is fine, big enough that they can move around slowly and taking a few steps but small enough to prevent fast movement or the opportunity to jump, run or encounter any obstacles. This must be adhered to at all times but especially when left alone in the house. When supervised more exercise can be allowed for a few minutes two to three times per day. Gentle movement is fine but excessive can do further damage. Some light exercise is beneficial to help return to normal function rather than cage confinement continuously. However, if you cannot supply a suitable area at home then a cage is best for when left alone.

Controlled exercise on a carpeted surface using a towel as a sling to support the hindquarters is beneficial carried out a few times per day. Once able to walk then short periods of assisted walking is best throughout the day, again only a few minutes at a time. Encourage efforts of walking with praise. Don't carry your pet everywhere, allow controlled assisted walking where possible. This may only however, be around the house and garden and NO walks outdoors of any increased length until instructed to do so. Avoid stairs, steps and any opportunity to jump, falling from a chair or sofa etc will cause further problems. Dog are to remain on ground level at all times.

Use a harness rather than collar and lead, especially in cases of neck surgery. Never use a collar on a dog after neck surgery. A harness will give more control over the body when helping them to walk. Never leave you dog any wide open space unless you have control over them with a harness and lead etc.

Start by helping them to walk a few times per day for 5-10 minutes slowly, controlled and supervised. Remember coordination can be poor so stay away from obstacles in case they do lose balance and hurt themselves. Avoid all interaction with other pets and children, in case of further injury.

Pressure sores, abrasions and hygiene

A dog that is spending a lot of time lying around is at risk of developing pressure sores which are better prevented than treated. Elbows, hips and hocks are most at risk. Alternate the side that the pet lies on every few hours if they are not moving around much for themselves. Use plenty of soft bedding and padding and avoid lying on cold hard surfaces.

Since your dog may not have 100% control of their bladder and bowels they may occasionally be toileting on bedding etc. Urine scald can become a problem furthering the risk of skin sores. Therefore, scrupulous hygiene is paramount. Bathe any soiled areas of skin and fur and keep them clean at all times. Especially around wound areas.

Toileting

Depending on the amount of spinal damage that had originally occurred your dog may have poor control over urination. At least 2 discrete puddles of urine should be expected per day. As your pet may not be walking normally it can be hard to tell if they are really aware that they are urinating. It is unlikely that your dog has been discharged from hospital until they are urinating normally but this is something you must pay close attention to. If the bladder is over filling and the dog not urinating voluntarily there may be a constant trickle or dribble, this doesn't mean that the bladder is emptying normally and prolonged overfilling can permanently damage the bladder. Help your dog outdoors and encourage him/her to toilet normally, again remember to assist at all times, never unsupervised

and avoiding steps or slopes. The bowels should move normally when full, but be aware again to maintain good hygiene. If your dog is not toileting normally, please contact us as soon as possible.

How long does recovery take?

This is extremely variable but usually anything between 3 weeks and 3 months. It all depends on the extent of the injury. What is important is that you do not move forward in terms of activity or exercise until instructed to do so by your vet. The success will depend on all factors from the time of the injury to return to normal function, through surgery and rehabilitation.

Weight management

Remember activity is greatly reduced and although tempting to give treats and offer plenty of food, pay close attention to your dog's weight throughout recovery. Treats and food rewards are by far the best methods of increasing the patient's cooperation during exercise sessions and encouraging walking. However, this can be counterproductive because even a minimum increase in weight will delay full restoration of function. Monitor regularly and control meals where necessary.

Good Luck

If you have any concerns or are unsure that things are heading in the right direction please do not hesitate to contact us or your own referring vet. Be cautious and remember however challenging it may seem at home it is better to be safe and take good precaution. You can see that the care of a spinal patient really is a team approach and the reward of seeing a paralysed dog walk again is immense, for him or her, for you and for us. We are always here to help wherever possible.

Here begins the road to recovery.