

Owner Information Sheet – *Intervertebral Disc Disease*

Background

Intervertebral discs (IVD) are important for stability and support of the spine, whilst allowing movement and distribution of loads between the bones (vertebrae). To perform this function, the IVD has two components: an inner gelatinous bag called the *nucleus pulposus* and an outer multi-layered ligamentous capsule called the *annulus fibrosus* that surrounds the nucleus.

Cause

Intervertebral disc disease (IVDD) is a ‘degenerative’ condition that may occur as an age-related, wear and tear problem in some breeds, or reflect a genetic predisposition to early-onset disc degeneration in other breeds (e.g. dachshund, cocker spaniels and French bulldogs). As the disc degenerates it loses its water content and becomes dry and brittle. This makes it more liable to cracking and splitting.

We recognise two clinical syndromes of disc disease in dogs:

Type-I disc disease is an ‘extrusion’ of the degenerate nuclear material through a tear in the outer annulus fibrosus – like squeezing jam from a doughnut. We most often see this condition as a sudden onset problem in young (2 to 6 years old), small breed dogs. However, dogs of any breed and age can be affected.

Type-II disc disease is a ‘protrusion’ or ‘bulge’ of the outer annulus fibrosus that has slowly thickened in an effort to stabilise a degenerate disc. We most often see this condition as a slowly progressive disease in older (5 to 12 years old), medium to large breed dogs.

Clinical signs (symptoms)

The clinical signs of IVDD are highly variable. They normally relate to pain and dysfunction of the spinal cord secondary to bruising (contusion) and/or spinal cord compression. The severity of spinal cord injury varies and will result in a differing ‘grade’ of injury.

Grade of injury	Clinical signs
1	Pain only
2	Walking with weakness and wobbliness in the legs
3	Loss of ability to walk but still able to voluntarily move the legs a little
4	Paralysis – an inability to move the legs but with intact feeling in the feet
5	Paralysis with loss of feeling of a painful stimulus applied to the toes and urinary/faecal incontinence

Diagnosis

Plain X-rays may support the diagnosis but rarely indicate which disc has caused the problem and they cannot be used to plan surgery. Therefore advanced, cross-sectional imaging of the spine (MRI or CT scan) is normally required to make a diagnosis, which will also allow other causes of spinal cord dysfunction to be excluded (such as tumours and infection).

Treatment

Whether medical or surgical treatment is advised for this condition depends on several factors, such as the severity of the condition, the rate of progression, the presence of severe pain and the funds available for surgery.

Medical treatment is based on strict crate rest and management of any pain. The body's immune system can deal with some disc problems by making them more inert, less inflammatory and less compressive by forming a scar over injuries in the annulus fibrosis. Medical treatment is generally not advised in patients with severe and progressive clinical signs. Surgical treatment involves making a window in the bones of the spine and removing the extruded or protruded disc material that is compressing the spinal cord.

Your veterinary neurosurgeon or primary care veterinarian will discuss with you the advantages and disadvantages of each treatment option on an individual basis.

Prognosis

The prognosis for recovery in all forms of disc disease depends upon the severity of spinal cord injury. More specifically, the maintenance of feeling a painful stimulus applied to the toes (so called, 'deep-pain') suggests to us that some nerve fibres can still function to send information and the spinal cord may have the capacity to recover. Ultimately, the rate and extent of recovery is highly variable with or without surgery, and can be difficult to predict. Dogs with mild spinal cord injuries can recover quickly and fully. Dogs with severe injuries may also recover, but this can take much longer and these dogs may be left with residual neurological dysfunction (e.g. remaining wobbly on the back legs when walking).

Dogs with disc protrusions (Type II disc disease) can have more long term damage to the spinal cord and its blood supply, meaning that a full recovery may be less likely. The goals of treatment in these cases are to maintain and preserve spinal cord function as far as possible and to delay or halt the progression of the disease if possible.

Your veterinary neurosurgeon or primary care veterinarian will discuss with you the prognosis for recovery and the expectations of treatment on an individual basis. Disc disease can be recurrent in an affected dog, with around 10-30% of dogs suffering recurrence at the same or a different disc over their lifetime.

If you have any concerns about your dog or their treatment, do not hesitate to contact your veterinarian.

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The Granary, Bunstead Barns, Poles Lane,
Hursley, Winchester, Hampshire, SO21 2LL.

Tel: 01962 767920 Fax: 01962 775909

Email: info@andersonmoores.com

www.andersonmoores.com

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