

Owner Information Sheet – *Fibrocartilagenous embolic myelopathy*

Background

Intervertebral discs (IVD) permit stability and support of the spine whilst allowing movement and distributing loads between the bones of the spine (the vertebrae). To perform this function, the IVD has two components: an inner cartilaginous bag called the *nucleus pulposus*; and an outer multi-layered ligament that contains the nucleus pulposus, called the *annulus fibrosus*.

A rare form of sudden onset spinal cord injury is recognised in dogs, which we call fibrocartilagenous embolic myelopathy (FCEM).

Cause

We do not fully understand the cause of FCEM. We know that the spinal cord injury is the result of a sudden blockage of a blood vessel that is supplying the spinal cord. This loss of blood supply reduces oxygen delivery to the spinal cord and causes dysfunction of the nerve cells. Other blood vessels open to facilitate collateral circulation to the spinal cord, explaining how dogs can recover from this condition.

The blood vessel is blocked by a fragment of ‘fibrocartilage’ – a substance that seems to originate from the nucleus pulposus of the IVD. We assume that a traumatic incident (minimal trauma like heavy exercise, jumping for a frisbee, etc) causes part of the nucleus pulposus to prolapse into a vein – a small fragment can then cross into the arterial circulation and plug a blood vessel in the spinal cord.

FCEM most commonly occurs in middle-to-large breed dogs during activity, but dogs of any breed or age can be affected, as can cats, horses, pigs and people.

Clinical signs (symptoms)

The clinical signs of FCEM are highly variable depending on the extent of spinal cord injury and whether the body can rapidly restore blood flow to the compromised area of the spinal cord. Generally speaking, the signs are very sudden in onset and pain is not a typical feature, however some dogs may vocalise when the problem first happens.

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

To make a presumptive diagnosis of FCEM an MRI scan is required. However, if this is not possible, FCEM may be highly suspected based on the sudden onset of the problem, the clinical examination findings, and whether a subsequent improvement is seen.

Treatment

Specific treatment is not associated with improved outcome following FCEM. Treatment is supportive as the body compensates for the loss of spinal cord perfusion, and includes rest, physiotherapy and time. Surgery is not required or beneficial in the treatment of this condition.

Physiotherapy and hydrotherapy can be beneficial in the recovery from FCEM and is advised in most cases.

Prognosis

The prognosis for recovery from FCEM depends upon on the severity of the spinal cord injury. More specifically, the maintenance of feeling of a painful stimulus applied to the toes (so called, 'deep-pain') suggests to us that some nerve fibres are still able to send information back and forth and the spinal cord may have the capacity to recover.

Ultimately, the rate and extent of recovery is variable and 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. wobbly while walking). The presence of urinary and faecal incontinence may also affect the prognosis. Animals are typically hospitalised following FCEM until they are able to urinate voluntarily.

Your veterinary neurosurgeon or primary care veterinarian will discuss with you the prognosis for recovery and the expectations of treatment on an individual basis.

Although possible, there is very little chance of recurrence of this problem in an animal's life.

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

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