

Ischemic / fibrocartilaginous embolic myelopathy (FCEM)

What is ischemic myelopathy?

The spinal cord needs a proper blood supply to maintain normal function. Any decrease in blood (ischemia) or loss of blood supply (infarction) to a region of the spinal cord causes spinal cord damage and neurologic abnormalities. Blood supply is usually lost when an obstruction (embolus) develops within a blood vessel.

Between adjacent vertebrae are discs (intervertebral discs). These discs act as cushions between vertebrae and provide strength and stability to the spine. Fibrocartilaginous embolic myelopathy (FCEM) occurs when microscopic pieces of an intervertebral disc lodge in the blood vessels that supply blood to the spinal cord. The end result is spinal cord ischemia or infarction – ischemic myelopathy.

What are the clinical signs of ischemic myelopathy?

FCEM causes a sudden onset of neurologic abnormalities, which are dependent on the area of spinal cord affected. The condition is not typically painful; however, some animals cry out when the infarction occurs. Neurologic abnormalities do not usually progress or deteriorate from their initial severity and can be worse on one side of the body or in one leg.

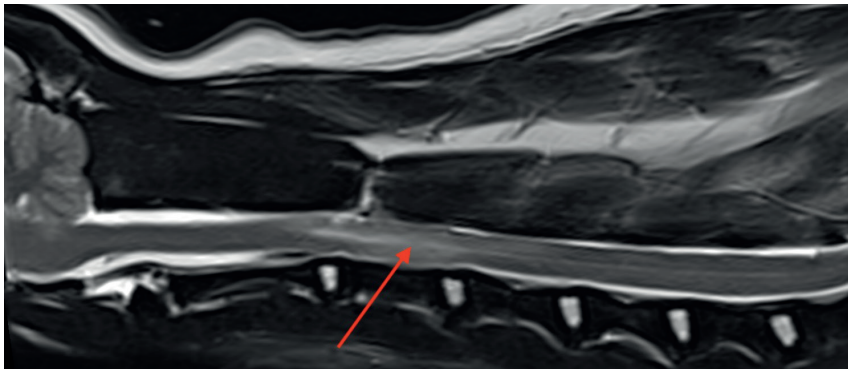
An uncoordinated walk suddenly develops that may involve all four legs, the legs on just one side of the body, only the hind legs or sometimes just one leg. The animals may be weak, scuff their feet, and cross their legs when walking. Severe injury to the spinal cord can result in paralysis and the inability to feel a painful stimulus applied to the toes.

What can cause ischemic myelopathy?

FCEM is the most common cause of ischemic myelopathy in dogs. The cause of FCEM is unknown. Medium to large breed dogs are more commonly affected; however, smaller dogs, such as the miniature schnauzer, Shetland sheepdog, and Yorkshire terrier can also develop FCEM. Rarely, FCEM may occur in cats, most frequently causing weakness of all four limbs and unlike in dogs, can be seen to recur in some cases.

How is ischemic myelopathy diagnosed?

Ischemic myelopathy is initially suspected in animals based on the history and neurological examination findings. Routine laboratory tests and x-rays may be recommended to rule out other conditions that produce similar signs but are usually normal in these cases. Magnetic resonance imaging (MRI) is the best test available to diagnose FCEM or ischemic myelopathy and to rule out other conditions. A computed tomography (CT scan) can be used to eliminate other conditions but are often normal in cases of FCEM. A spinal tap and evaluation of cerebrospinal fluid (CSF) may be recommended to help eliminate other neurological diseases.



Large ischaemic lesion in the spinal cord of the neck (arrow).

How is ischemic myelopathy treated?

No specific treatment exists for the spinal cord damage that develops with ischemic myelopathy. Treatment involves supportive care and allowing time for the spinal cord to heal. Hospitalization is often required. Physical therapy, such as hydrotherapy, may be recommended during recovery. Supportive care is particularly important for paralyzed animals. These patients may develop urinary retention and bladder infections, urine-induced scalding of their skin, skin ulcers and pneumonia if excellent nursing care is not provided.

While hospitalized, neurological functions are re-evaluated frequently. If the animal improves enough to be discharged, then periodic rechecks are usually done to evaluate signs of recovery. If the animal recovers the ability to walk and urinate on its own within the first 3-months, then long-term follow up may not be necessary.

Prognosis depends on the severity of clinical signs. Many mild to moderately affected dogs improve over time. Recovery may take weeks to months, and some pets do not return completely to normal. Residual neurological problems can include inability to walk, weakness, and urinary or fecal incontinence. Any clinical signs remaining after 3-4 months are likely to be permanent. Prognosis is worse in animals that have severe spinal cord injury and do not have the ability to feel a painful stimulus in the affected legs from the onset of the signs.