Cervical Disc Disease

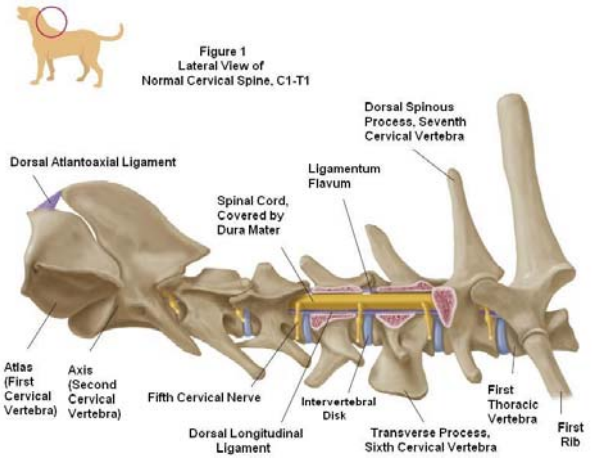

Figure 1
Lateral View of
Normal Cervical Spine, C1-T1

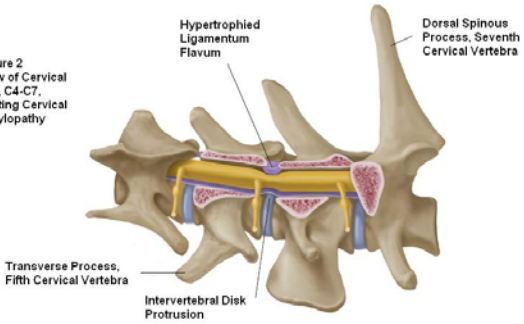

Figure 2
Lateral View of Cervical Spine, C4-C7, Demonstrating Cervical Spondylopathy

Intervertebral disc disease is the most common neurologic syndrome seen in dogs. Disc degeneration has been reported in 84 breeds with particular susceptibility in certain small breeds. These breeds (Dachshund, Pekinese, Poodle, Beagle, etc.) have characteristic skeletal changes that predispose the discs to degenerate and bulge as a disc protrusion at a very early age (Fig. 1 and 2).

Intervertebral discs act as cushions between the vertebrae and function as the shock absorbers of the spine. A normal disc has two regions: a resilient gelatinous nucleus (center) and an outer fibrous ring that encircles the nucleus (see Fig.3).

A degenerative disc loses its resiliency when its jelly-like center calcifies and develops a gritty, hardened consistency. No longer able to cushion the vertebrae, the center is predisposed to bulging and to rupture (extrusion), resulting in pressure on the spinal cord, pain, and paralysis. Cervical (neck) lesions account for approximately one fifth of all intervertebral disc problems. Most patients experience neck pain as the first and most consistent clinical sign. This occurs when there is a moderate disc rupture (see Fig. 4).

The head and neck are held in a tense position with the patient reluctant to elevate the head and neck when climbing stairs or to eat or drink. The neck often appears swollen or thickened when muscle spasms become intense. Spontaneous whining with cervical guarding, evident by periodic elevations of the ears and muscle spasms, are often seen. One sided disc ruptures (see Fig. 5) can result in lameness of one front leg.

When discs rupture in the center of the spinal canal, both front and rear limbs become weak. This can progress to paralysis of all four limbs (see Fig. 6).

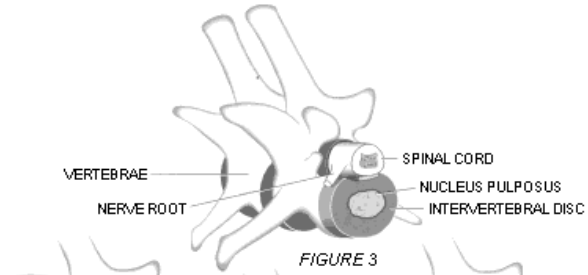

FIGURE 3

FIGURE 4

FIGURE 5

FIGURE 6

Diagnosis

A diagnosis of intervertebral disc disease is made based on the history and neurologic examination. Radiographs (x-rays) can reveal the presence of degenerative, calcified discs and may outline narrowed disc spaces with evidence of extruded (ruptured), calcified disc material in the spinal cord. A definitive diagnosis may require a MRI or a myelogram (a contrast dye study of the spine) to confirm and document not only the location of the ruptured disc but also the amount of spinal cord swelling. The myelogram is a common and safe diagnostic procedure when performed with care and under proper conditions. Most cervical disk problems are diagnosed with a myelogram while complicated cases may require a MRI.

Because cervical discs by nature rupture slowly, the symptoms may come and go for some time. Early or mild cases are often treated medically. These medical treatments, which often include corticosteroids to relieve the cord swelling and pain caused by intense inflammation, become unrewarding as more disc material pushes against the spinal cord.

The treatment of choice to reverse the symptoms and return the patient to a normal pain free life is surgical removal of the ruptured portion of the disc from its compressive position under the spinal cord.

Treatment

After radiographs and a myelogram confirm the involved intervertebral site, a surgical decompression technique (a ventral cervical slotting procedure) is performed from an incision under the neck to remove all of the ruptured disc material. The architecture of the disc space is maintained to allow for a normal recovery.

The remaining discs in the area undergo fenestration, a procedure which involves removal of the degenerative center of the other discs in the neck. This procedure includes up to five intervertebral discs and involves cutting a window in the outer fibrous rim of the discs followed by extraction of the calcified, degenerative centers. This prevents recurrence of any disc rupture, while allowing normal motion and pain free movement following surgery. As the respected center of the disc scars, there is little or no effect on mobility.

Postoperative Care

After surgery, the patient generally requires one or two nights of analgesics (pain medication) and is then released. Three weeks of strict confinement to a small room, covered playpen, or cage is mandatory. During the convalescent period, the patient's paralysis, tenderness, or weakness will slowly improve. The specific type of rehabilitation therapy, as well as the protocol for performing the rehabilitation therapy, will be outlined on an individual basis. Patients may require occasional medications for discomfort. They can be carried outside for eliminations and must be walked using a harness rather than a neck collar.

While the nervous system is a delicate structure, almost all cases can be managed in such a manner as to result in a normal, pain free lifestyle.

Source of most images: Phizer Atlas of Common Painful Conditions in Dogs and Cats, SA Johnston VMD and DN Biery, DVM, editors.

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