

## Veterinary Medicine Teaching Hospital

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## Small Animal Orthopedic Surgery

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### INTERVERTEBRAL DISC DISEASE

The dog's spinal column consists of the spinal cord which is protected by the vertebrae. The intervertebral discs are structures which lie between the individual vertebrae and act to cushion the dog's movement. Each disc has a fibrous tissue outer layer which surrounds a soft inner core (similar to a jelly filled doughnut). Intervertebral disc disease is a premature hardening of the center of the disc, and weakening of the outer layer of the disc occurring primarily in Dachshunds and similar short legged, long back type dogs. As the dog jumps or runs, the outer layer ruptures and the inner material is displaced up against the spinal cord. Because the spinal cord is surrounded by bone, the disc material squeezes the spinal cord. This pressure on the cord damages the nerves traveling to the legs, tail, bowels and urinary bladder causing loss of limb function that can range from weakness to paralysis, and loss of bowel and bladder control.

In some cases, the damage to the spinal cord is mild and conservative management may be a successful treatment. Conservative management may consist of giving anti-inflammatory drugs to decrease the swelling in the cord and allow function to return as well as strict confinement. The dog must be strictly confined to a crate at all times for a certain period to prevent further extrusion of disc material. It takes about 4-6 weeks for the outer layer to heal over, and the dog can gradually return to normal activity. Most of these dogs will regain normal function. About 40% of these dogs will have a recurrence of IVDD. Maintaining the dogs at a slim weight may help prevent recurrence.

In other cases, the amount of disc material squeezing the cord is too great and the dog does not improve, or becomes worse with the conservative therapy. These dogs usually need surgery to remove a portion of the bone over the spinal cord, remove the disc material and relieve the pressure on the cord. Before surgery can be done a neurologic examination is performed to localize the disc rupture. Often, plain radiographs (x-rays) are then used to further identify the area of the spine which is involved. Because disc material and the spinal cord itself are NOT visible on plain X-Rays, further imagining is necessary to definitively diagnose the location of the disc rupture. In some cases, a dye is injected along the spinal cord (myelogram) to allow us to see the compression of the spinal cord on the radiographs. Sometimes a myelogram is followed with a CT to further localize the disc rupture and occasionally an MRI is a better diagnostic tool. After surgery the prognosis is still guarded until we see the progress the dog is capable of. Unless there has been severe damage to the cord, most dogs will regain some degree of function and be able to walk. Early diagnosis and treatment improves the prognosis. Failure to be able to walk is considered a medical emergency. If this occur, your dog should be evaluated right away-even in the middle of the night or after hours-by a veterinarian to determine if emergency surgery is necessary. Some dogs have such severe damage to the spinal cord that they can no longer feel when their toes are pinched (lack of deep pain sensation). This means the prognosis for regaining use of the legs is very poor. Surgery can still be done to relieve the pressure on the cord, and if the cord appears intact, we can wait and see if the dog regains function. After 3 months, if the dog has not regained function it is highly unlikely he/she will do so.

Your dog will require a great deal of care until he/she regains limb and bladder function.

Cage confinement is necessary to prevent injury. Soft dry bedding must be supplied to prevent bed sores from developing. The bladder may need to be expressed (manually squeezing on the abdomen to apply pressure to the bladder and cause urination) two to three times a day. Physical rehabilitation is important to maintain muscle tone, joint mobility, and improve function.

## PROGNOSIS

Over 80% of dogs will regain function, if they are operated before they lose sensation. Many dogs will be ambulatory within 2 to 4 weeks after surgery. The most common complication is recurrence of signs, usually due to extrusion of another disk. However, surgery will not predispose your dog to recurrence of IVDD.

After a decompressive laminectomy (removing the bone over the compressed cord and removing the disc material if possible), your dog must be observed to determine if the clinical signs (paralysis, loss of pain sensation, bladder function) are improving, for signs of infections either at the surgery site or in the bladder and pain manageable by oral medication. When the dog's condition has stabilized he/she will be allowed to return home.