

# Intervertebral Disc Disease

## Surgery Service



**Michigan Veterinary  
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### Locations

#### Auburn Hills

3412 E. Walton Blvd.  
(West of Squirrel Rd.)  
(248) 371-3713

#### Grand Rapids

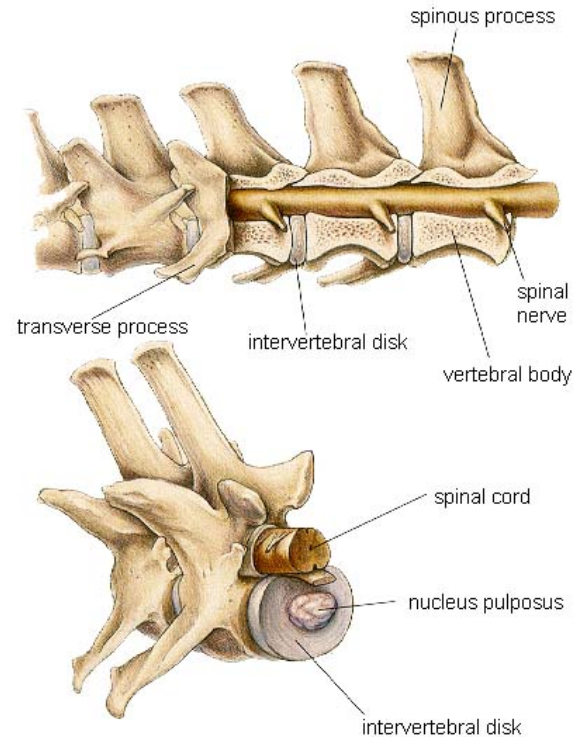
1425 Michigan St. NE  
(East of Fuller Rd.)  
(616) 284-5300

#### MVS Southfield

29080 Inkster Rd.  
(North of 12 Mile Rd.)  
(248) 354-6660

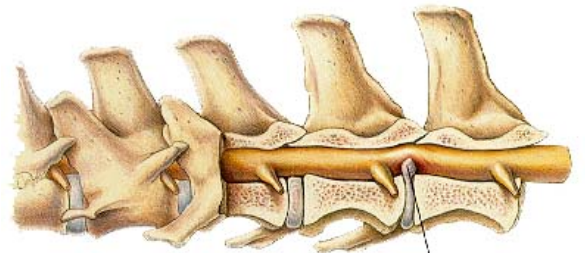
## Anatomy

The spine consists of 27 bones, not including those in the tail. Discs are located between the bones of the spine and serve as shock absorbers. Each disc consists of an outer fibrous ring that surrounds inner pocket of gelatinous material. Ligaments and many muscles support each of the bones of the spine. The spinal cord runs through a large canal within the bones of the spine, thereby protecting it from injury. Each disc is located beneath the spinal cord where each of the spinal nerves exits the spine.



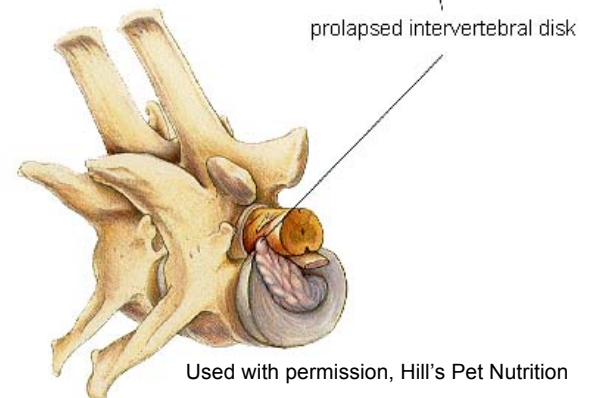
## Disc rupture

Some dogs are genetically predisposed to degeneration of the spinal discs. The inner gel of the disc frequently becomes calcified and the outer fibrous ring becomes weak and susceptible to tearing. Then the disc tears, the inner calcified gel material extrudes into the spinal canal, beneath the spinal cord. If the material explosively hits the spinal cord, sudden paralysis of the patient is seen. Because the spinal canal in the neck bones is much larger than the spinal cord, disc rupture in this area frequently does not cause paralysis, but severe neck pain. If a large amount of disc material compresses the spinal cord in the neck, paralysis of all four limbs may be seen. In contrast, paralysis of the hind limbs is common with disc rupture in the mid back region, as the spinal cord in this region fills most of the spinal canal. If the protruding disc material compresses a nerve of a hind or forelimb, lameness is a common finding.



## Clinical signs and diagnosis

Both small and large breed dogs can develop a disc rupture; however, small breeds such as Dachshunds, Lhasa apso, Poodles, Cocker spaniels, and Shitzus are more commonly affected. Usually these patients are mid age, but may be very young. Dachshunds as young as 1 year of age, can show degenerative disc disease. In fact, one in five Dachshunds will have disc rupture during their lifetime.



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The majority of dogs with a disc rupture have only spinal pain as their primary clinical sign. Other patients may have nonspecific signs such as loss of appetite and may seem to have abdominal pain (referred pain). These patients

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may intermittently cry out in pain. Disc rupture in the neck may cause the pet to have a stiff neck and they may not be willing to bend the head down to drink water or eat food. Rupture of a disc in the back commonly causes the pet to walk more slowly than normal, be unwilling to climb stairs, arch the back, and be unwilling to jump on or off elevated surfaces. With more severe injury to the spinal cord, the patient may have limb weakness, knuckling of the paws when walking, wobbly gait (drunkenness), paralysis of the hind limbs and loss of bladder or bowel control. As previously mentioned, herniated disc material compressing a nerve of the hind or forelimb will cause mild to nonweight-bearing lameness.

Plain x-rays frequently do not provide enough information to diagnose a disc rupture, but in some cases it may be helpful. The diagnosis of a ruptured disc requires advanced diagnostic tests such as a myelogram, CT scan, or MRI. A myelogram is a test in which a contrast agent (dye) is injected in to the fluid space that surrounds the spinal cord and radiographs (x-rays) are made to identify the location of disc rupture and spinal cord compression. A CT scan commonly is done in conjunction with a myelogram. This special type of cross-sectional x-ray may be needed to show the surgeon the specific location and extent of the disc herniation. MRI or magnetic resonance imaging requires no injections in to the spine and also provides cross-sectional images of the spine to diagnose a disc rupture.

## The day of surgery

Our anesthesia and surgical team will prescribe a pain management program, both during and after surgery that will keep your companion comfortable. This may include a combination of general anesthesia, injectable analgesics, epidural anesthesia, oral analgesics, and anti-inflammatories.

## Treatment

Treatment of a ruptured disc in the neck or back may respond to nonsurgical treatments including, cage rest, anti-inflammatory medication, narcotics, and muscle relaxants. If the patient has severe pain that cannot be controlled with medication, pain that continues for 2 weeks, or if the patient has weakness or paralysis, surgery may be the best option. With the use of the diagnostic tests, the surgeon will plan the necessary surgical procedure. For most mid back and lower back problems, a hemilaminectomy is performed. This procedure involves removing a portion of bone from one side of the backbone to expose the herniated disc. The offending disc material compressing the spinal cord or a nerve root is then removed. The surgeon may make a hole in the side of adjacent "normal" discs and remove the gel material (called fenestration) to prevent a subsequent disc rupture. One study showed that this procedure reduced the recurrence rate of disc rupture from 6.6% to 4.4%. Because of this, some neurologists and surgeons will only fenestrate the disc that has ruptured.

For those patients that have a ruptured disc in the neck, a ventral slot surgery is the most commonly performed. This involves making an incision on the under side of the neck and creating an oval opening (slot) through the spinal bone to expose the bottom of the spinal cord. Offending disc material is then removed.

## Home care and results

After surgery, you can continue to give your pet a prescribed pain reliever to minimize discomfort. It's also extremely important to limit your dog's activity and exercise level during this post-operative period. Ideally, the pet should be kept in a crate for a period of about 1 month after surgery. While the pet is not able to walk, a very soft bed is essential so that bedsores do not develop. If the bladder function is impaired (cannot urinate), the pet will need to have the bladder squeezed multiple times daily to relieve the urine. A professionally trained therapist at an animal rehabilitation center should preferably do rehabilitation exercises. Rehabilitation therapy should be continued until



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your dog is using the limbs well (typically 6 weeks after surgery). The surgeon will monitor the healing process with two follow-up exams. The first is scheduled at two weeks after the surgery and the second is at six weeks after the surgery.

After spinal surgery, it is common that the neurological status may be the same or somewhat worse than prior to surgery. This may be caused by the myelogram or surgical manipulation of the spinal cord. In most cases, this is a temporary set back and improves within a few days. Recovery of the ability to urinate usually resumes once the pet is able to voluntarily move the limbs. The recovery of limb function following surgery is highly variable, however, most paralyzed dogs will regain some motor function to the limbs within 2 weeks after surgery and will be able to walk relatively well by 6 weeks after surgery. Full recovery of neurological function may take 6 to 9 months. In some cases, residual neurological deficits are present due to permanent damage to the spinal cord. About 95% of dogs that have surgery will regain the ability to walk again. Surgery also allows for a more speedy healing process and more complete recovery of neurological function versus those patients that do not have surgery. Overall, about 60% of patients that are paralyzed and receive no surgery will recover enough function of the limbs to walk reasonably well. Patients that have no feeling in their toes have a guarded prognosis with a 50% chance for recovery if the patient is operated within the first 24 hours after the onset of paralysis. If the perception of pain has been absent for more than 24 hours, the chances for recovery is less than 25%.

## Assessment and recommendations

Patient: \_\_\_\_\_ Date: \_\_\_\_\_

- Your companion is suspected to have a disc rupture
- Advanced diagnostics and potential surgery is recommended at Michigan Veterinary Specialists
- Emergency testing and potential surgery is recommended at Michigan Veterinary Specialists
- Conservative treatment is recommended

The following has been prescribed by one of our surgeons

- No medications or diet are necessary at this time
- Prednisone: \_\_\_\_\_
- Narcotic: \_\_\_\_\_
- Nonsteroidal anti-inflammatory medication: \_\_\_\_\_
- Muscle relaxant: \_\_\_\_\_
- Other medication: \_\_\_\_\_

Exercise

- Unlimited
- Confine your pet to a crate for 1 month; carry your pet outdoors for urination/BM's
- Restrict exercise to leash walks 10 minutes twice daily

Preparation for surgery

- Start fasting your companion at midnight before the surgery; water should not be withheld
- Pepcid AC 10 mg tablets: give \_\_\_\_\_ tablets with water (if needed use a syringe) at 6 AM on the day of surgery

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