

Spinal Cord Trauma

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BASIC INFORMATION

Description

The spinal cord is protected within the spinal column, which is composed of small bones called *vertebrae*. The spinal cord transmits neurologic information between the brain and the rest of the body. Spinal cord trauma can cause neurologic abnormalities and pain.

Causes

The most common causes are automobile accidents. Other causes include falling from a height or being struck by an object. Trauma to the spinal column may cause fractures or luxations (dislocations of the spine) that result in bruising, bleeding into, or compression of the spinal cord.

Clinical Signs

Signs are dependent on the area of spinal cord affected and the severity of the trauma. Often, other areas of the body are also injured, with loss of blood (hemorrhage), internal organ damage, broken bones, and/or trauma to the heart and lungs.

Neurologic abnormalities vary with the degree of spinal cord injury:

- Mild injury may result in only pain at the injured site.
- Moderate injury causes an uncoordinated gait, crossing over of the legs while walking, scuffing of the nails, and weakness.
- When the injury is more severe, animals lose the ability to move their legs and may have difficulty urinating on their own.
- With the most severe damage, animals cannot feel a painful stimulus applied to their toes and are paralyzed.

All four legs may be affected if the spinal cord in the neck is injured. Only the hind legs are affected if the damage occurs in the upper or lower back region.

Diagnostic Tests

Routine laboratory tests may be recommended to evaluate for blood loss and organ damage associated with the trauma. X-rays are used to evaluate injury to the chest, abdomen, and other bones.

X-rays of the spine may show a fracture, luxation, or malalignment of the spine. Additional imaging with computed tomography (CT scan) or magnetic resonance imaging (MRI) may be recommended to further evaluate the vertebrae and spinal cord. CT scans show more detailed images of bone that may be used for planning surgery in cases of fracture or dislocation. MRI allows detailed evaluation of the spinal cord for damage or compression.

TREATMENT AND FOLLOW-UP

Treatment Options

Animals with spinal cord trauma may be treated conservatively or surgically, depending on the severity of the signs and the stability of the spine. Conservative therapy is typically recommended when neurologic signs are mild and the spine appears on imaging studies to be stable and properly aligned.

Animals with mild injuries may be treated with exercise restriction and medication. Occasionally splints (back braces) are used to help support the spine. Exercise restriction involves strict confinement to a crate and leash walking only to allow the animal to urinate and defecate. Cats are confined in a small area with a litter box. Animals cannot be allowed to run, jump, or play during their confinement. Exercise restriction usually lasts 4-6 weeks, with gradual return to normal activity at the end of the confinement period.

Anti-inflammatory medications, such as nonsteroidal anti-inflammatory drugs or steroids, can be used, but these two classes of drugs are not used together because of their combined side effects. Pain medications may be needed to keep the animal comfortable.

Some animals require surgery to stabilize spinal fractures or luxations, realign the spinal column, and decompress (relieve pressure on) the spinal cord. Surgery involves the placement of orthopedic implants to fuse the spinal column and prevent additional movement. In some cases, the spinal canal may be opened and any bone fragments or blood clots removed to relieve compression on the spinal cord.

Depending on the overall condition of the affected animal, spinal surgery is sometimes delayed until the animal can be safely anesthetized. Animals also require strict cage rest for several weeks after surgery to allow their injuries to heal.

Follow-up Care

While the animal is hospitalized, neurologic functions are monitored on a daily basis. After discharge, periodic rechecks are often used to monitor for improvement. X-rays of the spine are usually performed to evaluate healing at 4-6 weeks after surgery.

Prognosis

Prognosis depends on the severity of spinal cord injury and other systemic abnormalities. Animals with the ability to feel a painful stimulus in their affected legs often walk again after surgery, but recovery can take several weeks to months. If the animal is unable to feel a painful stimulus in the affected legs, the prognosis for regaining the ability to walk is grave. Residual problems, such as incoordination and incontinence, are possible. Maximal improvement is usually seen within 3-4 months.