

## Acute Non-Compressive Nucleus Pulposus Extrusion Seizures

### What is ANNPE?

The intervertebral discs are situated between the vertebrae, which are the bones of the spine. Each intervertebral disc consists of a fibrous ring or capsule that encases a jelly-like substance known as the nucleus pulposus. If the fibrous ring of the intervertebral disc sustains a tear, it may permit the nucleus pulposus to herniate, occasionally at a very high velocity. This rapid herniation can inflict a concussive or bruising injury to the spinal cord. Given that the nucleus pulposus is jelly-like and can be absorbed by the epidural fat, it does not exert pressure on the spinal cord. Ultimately, the neurological symptoms observed following an Acute Non-compressive Nucleus Pulposus Extrusion (ANNPE) are a result of the high-velocity impact to the spinal cord caused by the nucleus pulposus.

### What Clinical Symptoms are Associated with ANNPE?

The primary indication of an ANNPE is a rapid emergence of weakness in a single limb, both hind limbs, or all four limbs. An uncoordinated, spastic, or unsteady gait may also be observed, and some animals might stand with their paw(s) knuckled over. In extreme cases, paralysis (the inability to move) can happen. Back or neck discomfort may also be present, particularly if the spinal cord sustains considerable bruising. The appearance of clinical signs is typically very abrupt and often occurs during routine exercise or activity. Most dogs and cats affected by an ANNPE will experience a brief phase of progressive neurological dysfunction, but in most instances, the neurological issues do not deteriorate after the initial 24 hours.

### Which Animals are Susceptible to Developing ANNPE?

Any dog or cat has the potential to develop ANNPE. However, it is significantly more prevalent in dogs.

### How is ANNPE Diagnosed?

An MRI of the spinal cord is considered the gold standard for diagnosing an ANNPE, and conducting this test can assist in eliminating other potential causes of your pet's spinal cord dysfunction, such as a compressive intervertebral disc, a fibrocartilaginous embolism, a tumor, or an infection. Typically, the MRI will reveal an area of heightened signal (brightness) within the spinal cord, located directly above the intervertebral disc space. In certain cases, a spinal tap may be advised to exclude the possibility of inflammation or infection in the spinal cord.

### How is ANNPE Treated?

There is currently no designated treatment for an ANNPE, and no medications have been shown to accelerate recover. Surgical intervention is ineffective as the spinal cord is not compressed by this jelly-like nucleus pulposus.

The sole treatment for a quicker recovery from an ANNPE is physical therapy. Physical therapy is highly advised for the majority of dogs and cats. A period of strict crate rest is advised for dogs and cats suffering from ANNPE. This is intended to permit the tear in the fibrous ring of the intervertebral disc to heal properly. Some pets with may experience back or neck pain during the initial 1 to 2 weeks following the injury, thus pain medications might be prescribed. Nursing care plays a crucial role for animals recovering, particularly for those who are unable to move their limbs or urinate independently.

If your pet is unable to move independently, it is essential to rotate them every 4 to 6 hours to avoid bedsores. Ensuring that your pet has soft, clean, and dry bedding is crucial, as this will also help in preventing bedsores. During the recovery period, it is vital to keep your pet away from slippery surfaces or stairs to prevent any potential falls that could lead to injuries.

If your pet exhibits signs of dragging their toes or knuckling their paws, it is necessary to examine their feet twice a day for any ulcers or sores. It is advisable to keep them away from rough surfaces such as pavement or asphalt. To help prevent the occurrence of sores, you may consider putting a bootie or sock on your pet's feet.

If your pet is unable to walk unaided, a sling or harness can be very beneficial in providing support for their weight. Some pets may need assistance with urination during their recovery. This could involve expressing their bladder.

#### **What is the Prognosis for ANNPE?**

The outlook for recovery from an ANNPE is generally good as long as sensation of the limbs is intact. Dogs and cats that experience a loss of sensation in their toes (specifically, the loss of deep pain perception) generally have a less favorable prognosis for recovery. Most dogs and cats begin to exhibit signs of neurologic improvement within the initial two weeks. Although recurrence of an ANNPE can occur, it is exceedingly uncommon.