

LUMBOSACRAL DISEASE IN DOGS



Lumbosacral disease is a degenerative condition that occurs most frequently in medium to large breed dogs (particularly German Shepherd Dogs). The average age is five and a half years old, and working male dogs are more commonly affected.

This condition affects the junction where the last lumbar vertebra joins the sacral bone. A vertebral malformation in this area can predispose dogs to lumbosacral disease as well, which means it can cause problems in younger dogs.

Degenerative lumbosacral stenosis is a relatively common cause of canine lumbar pain. Lumbosacral stenosis can cause:

- + pain only
- + lameness in one or both hind limbs (which can be induced or worsened by exercise)
- + neurological deficits (cauda equina syndrome).

Pain caused by lumbosacral stenosis can happen intermittently and during specific movements. Some dogs can be reluctant to jump and may struggle when rising from sitting or climbing stairs.

Cauda equina syndrome is related to the neurological deficits caused by a lesion involving the nerves at the end of the spine. Clinical signs include hind limb weakness, pain, issues with continence and tail movement. Lumbosacral disease is only one of the potential diagnoses for cauda equina syndrome, other common conditions being tumours and infections.

The underlying cause of pain and nerve damage (cauda equina syndrome) can be multifactorial. The most common causes are chronic degeneration and protrusion of the intervertebral disc. Oftentimes, this is in conjunction with degeneration of other structures, such as ligaments, and these changes result in narrowing the space for the nerve roots and the foramina.

In some dogs there is a difference in the degree of compression depending on the position. This can explain why the pain and dysfunction are sometimes intermittent. One of the typical signs of dynamic compression is an intermittent and marked lameness in one of the hind limbs.

It's important to note that there are other common causes of pain and lameness, mainly joint and muscular problems, and it's important to look out for these too. Sometimes, both orthopaedic and neurological conditions can coexist.

Diagnosis

A thorough examination is necessary to try differentiating the origin of the pain, as many of the dogs that show symptoms of back pain also suffer from other degenerative joint diseases (German Shepherds and Retrievers).

Most dogs with lumbosacral disease will show pain when during an examination when pressure is put on their lower back, specifically during a pelvic tilt test. During examination, the nervous system will be assessed to

find if the nerves are also affected. The neurological deficits will reflect which nerves are specifically impinged or swollen.

This condition affects only the hindlimbs and tail and rarely, can cause incontinence. It is common that not all features are present at the same time.

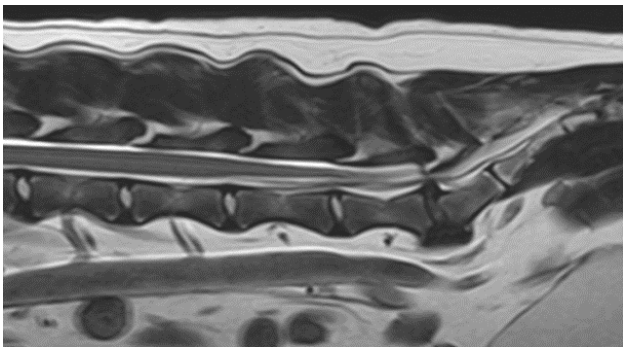
Whilst we can gain some diagnostic understanding from clinical and neurological examinations, definitive diagnosis requires advanced tests. Your local vet might offer to take radiographs to assess for bony changes in the lumbosacral spine and hips. These are very helpful in providing an overview and allow us to consider if there is more than one problem. Sometimes, in cases of tumours or infections, these can be diagnostic.

Further tests will be discussed and recommended by your veterinary neurologist on a case-by-case basis. These tests require general anaesthesia.

Advanced imaging

We have two main tools to assess the anatomy through advanced imaging, namely computed tomography (CT scan) and magnetic resonance (MRI).

Advanced imaging provides much more detail than radiographs and give us detailed information about the nervous system, changes to the bone/ soft tissues and the space available in the canal and foramina (the space where the nerve roots leave the spinal canal). CT and MRI are complementary, as a CT is very useful for bone detail and an MRI for nervous tissue. In some cases, a diagnosis can be reached with one modality, in other cases both might be recommended.



MR image of a dog's lumbosacral area depicting a disc protrusion and ventral spondylosis at L7-S1.

Electrodiagnostics

This is a specific test measuring the electrical activity of the muscles and nerves. It can be very helpful for mapping which nerves are affected and to what degree. These tests may be recommended in cases where the signs are not obvious, as it can detect early damage, or when patients suffer from multiple conditions.

Treatment

There is no blanket treatment for this condition as different factors play a role in each dog. Each case will be assessed, and the recommended course of action discussed. The treatment options include:

- + Conservative: This consists of anti-inflammatories, painkillers, and exercise restriction. Good outcomes are seen in about 50% of dogs, but relapses are possible.
- + Epidural injections: Steroids (anti-inflammatories) are injected directly into the lumbosacral junction to aim for a more targeted effect. Many dogs need a course of injections (three to five), as it's uncommon that the first one will show noticeable results. The efficacy is about 80% on dogs with pain only. As the effect of the drugs wear off, a repeat injection might be needed to achieve longer lasting results.
- + Surgical: there are various techniques described, depending on the main factor causing the lumbosacral disease identified via CT or MRI. In some cases, we need to decompress, removing part of the vertebra to allow more room for the nerve roots or increase the size of the foramina. In others, we favour the use of implants to stabilise the joint and prevent further movement. The latter seems to be a better option for younger and working dogs, although there is no consensus. The average post-surgical hospitalisation ranges between two and seven days. Some techniques have reported outcomes of up to 90% success.
- + Physiotherapy: strengthening core muscles can result in muscular aid to stabilise the lumbosacral area. This is an adjunctive therapy, not a therapy on its own.

Prognosis

Unfortunately, as a chronic degenerative condition, progression can be expected in many cases in the medium- to-long term. Early retirement might be recommended for working dogs that are not able to continue with their expected activity levels. Adequate pain management is essential.

Maintaining a healthy weight (body condition score of 4-5) and moderate exercise is recommended long-term. This advice is particularly important in dogs that concurrently have joint disease, as the combination of joint and lumbosacral disease can have a severe impact in the dog's day to day life.



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