

Diagnosing Low Back Pain in Hunting Dogs

by Dr. Ryan Gallagher

Low back pain (sciatica) is a common cause of substandard performance in hunting dogs. It can often be difficult to pinpoint due to the nebulous nature of the signs seen, but it is an important differential for any sporting dog that is having an unexplained drop in performance or pain referable to their hind end. Any hind limb lameness, however subtle, usually warrants a visit to your vet and may require referral to a veterinary specialist. Specialists may include a sports trainer or orthopedist to begin the process of diagnosing the cause of lameness or discomfort. In some cases, this hind limb lameness can be attributed to a back injury, as other orthopedic and soft tissue causes are ruled out. As part of your dog's examination, a neurologic examination (or referral to a veterinary neurologist), should be performed to address any possible spinal causes of lameness or discomfort.

ANATOMY

Somewhat simplistically, the vertebral column can be thought of as a tube of bone that the spinal cord and nerve roots pass through until exiting and traveling to various parts of the body to perform their function. Each individual vertebra makes up a portion of this tube, and in between each vertebrae there are intervertebral discs which function as cushions or shock absorbers. The lumbosacral junction is where the seventh lumbar vertebrae articulates with the sacrum, which is three fused vertebrae that make up part of the pelvis. The lumbosacral junction is unique in that it undergoes a large amount of movement compared to other areas of the spine. As the primary connection of the pelvis to the rest of the spine, any dynamic movement incorporating the hind limbs, such as running and jumping, puts the lumbosacral junction through a full range of motion.

CLINICAL SIGNS

The severity of signs in dogs with low back pain/nerve root compression can vary quite a bit depending on the severity of compression, time of onset, and intended activities of the animal. In early cases, declining to jump, missing jumps, and unilateral or bilateral pelvic limb

lameness are a frequent manifestation of low back pain. Discomfort associated with nerve compression can be quite severe compared with other causes of lameness, with dogs favoring or refusing to use the limb, even though orthopedically the limb is sound. In advanced or severe cases, hind limb weakness, incoordination, weakness of the tail, and even urinary/fecal incontinence can manifest. The inability to walk is uncommon even in severe cases, which can lead to underestimating how compressed the nerve roots are compared to other spinal conditions. At examination, your veterinary specialist should perform a complete evaluation that includes physical, orthopedic, and neurologic examinations, as well as possible imaging options. These tools will give your veterinary specialist a full picture of the cause of hind limb lameness, discomfort, or back pain.

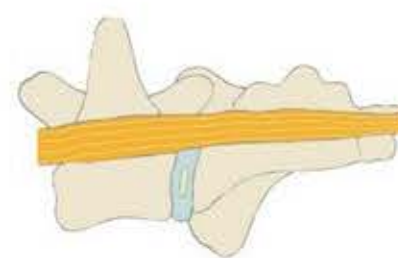
CONDITIONS

Lumbosacral disease (lumbosacral stenosis) refers to a number of different changes in the low lumbar spine which all contribute to vertebral canal narrowing and nerve root compression. These changes can be seen as a primary degenerative wear and tear process in hunting and field trial dogs. The changes seen with lumbosacral disease include misalignment of the vertebrae (subluxation), degeneration and bulging of the intervertebral disc, and thickening of the bone and soft tissues/ligaments of the lumbosacral junction. All of these changes individually, or in combination, lead to narrowing of the vertebral canal and nerve compression.

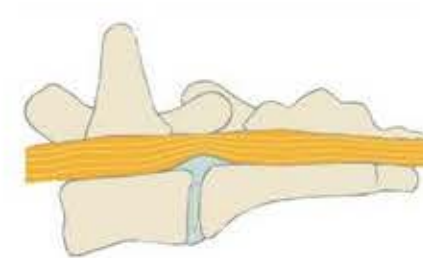
DIAGNOSIS

PHYSICAL EXAMINATION

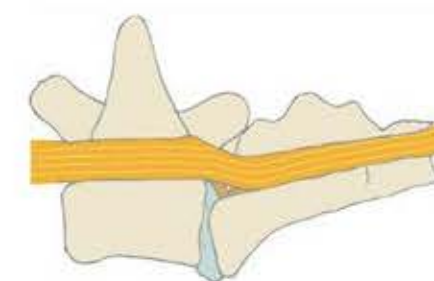
Given the often vague nature of the signs seen with lumbosacral nerve root compression, a thorough physical, orthopedic, and neurologic exam is often vital in pinpointing the area of concern. Orthopedic conditions such as hip osteoarthritis, cruciate ligament injury, and groin muscle strains should be screened for as their presentations can look quite similar to lumbosacral disease.



Normal lumbosacral junction



Lumbosacral disc protrusion



Subluxation (instability) of the lumbosacral junction

RADIOGRAPHS (X-RAYS)

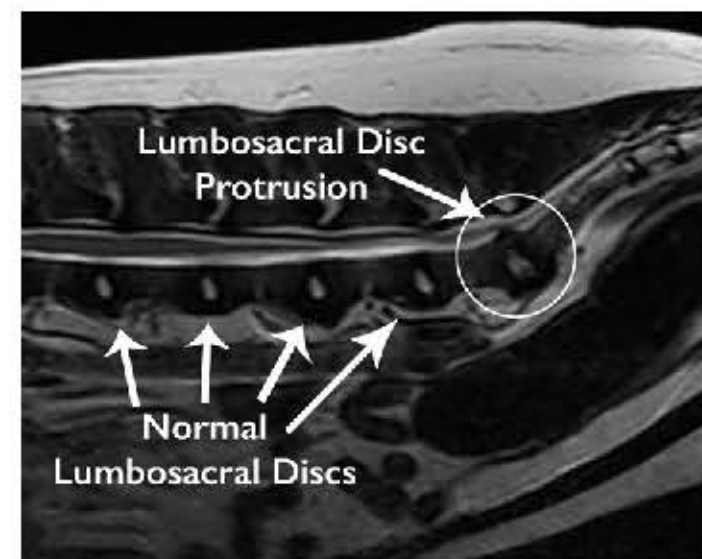
Radiographs are a useful tool for screening for certain conditions. They are frequently recommended as an initial screening tool in dogs with low back pain as they are easy to obtain. In particular, radiographs are useful for identifying bone conditions that can cause back pain (fractures, vertebral tumors), or infections of the intervertebral disc (discospondylitis). Changes supportive of lumbosacral disease may be seen radiographically such as bone proliferation, disc space collapse, or significant instability of the lumbosacral junction. However, one significant limitation of radiographs is that they do not provide detail of the soft tissue (nerve roots, intervertebral discs), which precludes definitive diagnosis of lumbosacral disease.

COMPUTED TOMOGRAPHY (CT SCANNING)

CT scans utilize similar technology to radiographs to acquire 3-D imaging of the area of interest. Because CT provides images in three dimensions, the detail acquired is much higher than plain radiography. In particular, CT imaging is useful in screening for bone conditions that plain radiography is not sensitive enough to pick up, such as small fractures. Since CT is based on the same X-ray technology as radiographs, it also shares the limitations in soft tissue detail. Due to this limitation, MRI is usually preferred. While CT scans are relatively quick to obtain, the need for the patient to remain motionless during the scan often means they need to be either sedated or placed under general anesthesia.

MAGNETIC RESONANCE IMAGING (MRI)

Magnetic resonance imaging provides excellent soft tissue detail and allows visualization of the spinal cord, nerve roots, and intervertebral discs. It is also a 3-D imaging modality, allowing for pinpoint identification of areas of concern. MRI imaging is currently the diagnostic modality of choice for identifying lumbosacral nerve root compression. General anesthesia is an absolute necessity during an MRI study since it takes more time to obtain compared to radiographs or CT.



TREATMENT

NONSURGICAL

Nonsurgical management for lumbosacral disease consists of a course (usually 4-6 weeks) of enforced rest, medications, and rehabilitation therapy. Activity is limited to leash walks only, and movements that exacerbate the compression, like running and jumping, are strictly discouraged. Medications can consist of anti-inflammatory medications, pain medications, and muscle relaxants. One therapy that is quite popular in human medicine is epidural injection of a steroid at the site of compression. This gives the patient the benefits of a potent anti-inflammatory while minimizing the systemic side effects. While this seems to be an effective modality in some dogs, efficacy data in veterinary medicine is limited.

SURGICAL

There are quite a few surgical procedures described for the lumbosacral junction depending on the nature



of the compression and degree of instability. The most common decompressive procedure is called a Dorsal Laminectomy, in which a window is created in the roof of the vertebral canal. This window allows access to remove protruding intervertebral disc, compressive bone, or soft tissues. Once the nerve roots have been adequately decompressed, the procedure is complete. In dogs with significant instability of the lumbosacral junction, stabilization or fusion may be elected. If necessary, stabilization is achieved through the use of implants to prevent movement across the lumbosacral junction.

REHABILITATION THERAPY

Rehabilitation therapy is an extremely useful adjunctive therapy which can be an important part of any conservative or surgical management plan. Rehabilitation therapy can consist of manual therapies and hydrotherapy to improve conditioning and resolve muscle imbalances. Some therapeutic modalities such as acupuncture, cold laser, and transcutaneous electrical nerve stimulation (TENS) can also provide non-medication pain relief. As a part of rehabilitation therapy, a home exercise plan is also mapped out, allowing owners to take an important role in their dog's recovery process.

PROGNOSIS

NONSURGICAL THERAPY

Unfortunately, nonsurgical therapy is only effective in approximately 50% of dogs, likely due to the fact that any nerve root compression does not resolve, as well as the dynamic nature of the lumbosacral junction.


In particular, dogs returning to a high level of activity are predisposed to exacerbations or flare-ups of their discomfort. Because the nature of lumbosacral disease is such that it tends to progress gradually, a trial of medical therapy may be elected as a first option with minimal risk, with more aggressive therapies pursued if the patient does not respond sufficiently.

SURGICAL THERAPY

Overall, the prognosis with surgical therapy tends to be fairly good with success rates of between 75-90% reported in veterinary literature. Addressing any nerve root compression often leads to a rapid return to com-

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fort once post-surgical discomfort has resolved. Neurologic deficits (weakness, incoordination) often do take weeks (occasionally months) to see the full extent of improvement, as nerve healing can take quite some time. The one scenario where the prognosis is more guarded, even with a successful surgical decompression, is in dogs that have developed urinary and fecal incontinence. The overall recovery rate for these dogs is guarded, with approximately 50% achieving return to continence.

CONCLUSION

Lower back pain can be an intimidating concern in hunting dogs. There are often subtle changes in performance, such as unexplained decreased performance or hind limb lameness, which will warrant a visit to your veterinary specialist. Through a thorough examination and possible advanced diagnostics, your veterinary specialist will be able to get a better picture of your canine's cause of injury. While canine back pain can be daunting, it is important to remember that advances in veterinary

medicine are continuing to provide better patient outcomes over time, and your veterinary specialist is a key resource in your dog's return to hunting or field trial.

References and Continued Reading

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