

## **Owner Information Sheet – *Degenerative Lumbosacral Stenosis***

### **Background**

Degenerative lumbosacral stenosis (DLSS) is a condition associated with degeneration of the bony and soft tissue components at the junction between the last lumbar vertebra and the sacrum at the base of the back. This may cause compression of the surrounding nerves and result in signs of lower back pain, with or without neurological abnormalities affecting the back legs, the tail and the voluntary control of urination and defecation. DLSS is most commonly recognised in middle aged to older, medium to large breed, working or active dogs, particularly German shepherd dogs and retrievers. Cats can also be affected, although less commonly.

### **Cause**

The stability and normal range of motion of the vertebral column (the 'spine') is provided by both the individual bones of the back (vertebrae), and their associated soft tissues (intervertebral discs, ligaments, and joint capsules). The lumbosacral junction describes the connection between the last lumbar vertebra and the first sacral vertebra (which supports the pelvis). At the lumbosacral junction, the nervous tissue is housed within the vertebral canal, which is a bony tube within the centre of the vertebral column and consists of multiple small nerve roots known collectively as the 'cauda equina'. A pair of these nerve roots exit the vertebral column through small holes (one on the left and one on the right) between the last lumbar vertebra and the first sacral vertebra; these holes are called intervertebral foramina.

Normal aging and wear and tear of the lumbosacral junction can lead to degeneration of the lumbosacral intervertebral disc and secondary bulging (protrusion) of the disc. Excessive growth of the surrounding soft tissues and new bone formation may also occur as part of the degenerative process. These degenerative changes can cause narrowing (stenosis) of the vertebral canal and/or the intervertebral foramina, causing compression/entrapment of the nerve roots, which is often more significant when the lumbosacral junction is extended (e.g. when rising from rest, jumping or climbing stairs).

### **Clinical signs (symptoms)**

The most common clinical signs of lower back pain caused by DLSS are reluctance to jump or climb, and/or pain during activity, especially when jumping or when attempting to stand up on the back legs after rest. Patients may groan or yelp spontaneously. Other less common signs may include lameness of the back legs and even back leg weakness, a low tail carriage with reduced tail movement, or incontinence. On examination, these patients will usually show signs of discomfort when the lower back is pressed or extended.

## Diagnosis

Diagnosis of DLSS consists of a history and clinical examination compatible with lower back pain, along with advanced imaging (MRI-scan +/- CT-scan) of the lower back +/- the collection of spinal fluid. These investigations are used to document the degenerative changes and possible nervous tissue compression at the lumbosacral junction, whilst also excluding other causes of lower back pain. The latter is particularly important as there are several different causes of lower back pain (such as tumours, disc infections or nerve inflammation), and the presence of degenerative lumbosacral changes is a relatively common finding in older dogs and is not always associated with clinical signs in affected patients. MRI is the best imaging modality to confirm the diagnosis of DLSS; this uses a high-powered magnet to create very detailed images of the nervous tissue, as well as visualising the soft tissues and the back bones. In some cases, we may suggest a CT-scan be performed if MRI has not been able to provide all the information we need and / or to aid surgical planning.

## Treatment and prognosis

There are two treatment approaches for DLSS, namely medical and surgical management. As is the case in humans with lower back pain, there is currently no consensus as to the best treatment approach for individuals with DLSS due to a lack of scientific evidence on which to base decision making.

Many dogs and cats with DLSS respond favourably to medical management, consisting of oral pain relieving and anti-inflammatory medications, along with an initial period of rest. This is usually followed by a programme of gradually increasing activity, initially only on the lead. Lifestyle adjustments (avoiding vigorous activities) may be required long-term to prevent flare-ups of back pain; however, relapses may occur, necessitating further periods of rest and oral medications. In some patients, a course of long-acting epidural steroid injections may be effective, which are administered via the skin by lumbar puncture under heavy sedation or general anaesthesia. Achieving an optimal body weight is recommended and rehabilitation therapies such as physiotherapy and hydrotherapy may be beneficial, although further studies to evaluate these rehabilitation techniques are warranted.

Surgical management may be required in some patients to manage the clinical signs of DLSS, especially when neurological abnormalities are present. Surgical techniques vary, with the aims of removing bone from the lumbar and sacral vertebrae to decompress the nerves within the vertebral canal and/or intervertebral foramen, removing protruding disc material and/or excessive soft tissue from the lumbosacral junction, and/or stabilisation of the lumbosacral bones by the placement of orthopaedic implants. Following a short period of hospitalisation for pain relief, surgical patients are managed similarly to those that are medically managed.

Whilst many patients with DLSS can be successfully managed, relapses of clinical signs are possible with either treatment approach and some dogs unfortunately fail to respond to both medical management and surgery (comprising up to 20% of cases).

If you have any concerns about your dog or their treatment, do not hesitate to contact your veterinarian.

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