Lumbosacral Instabillity

LUMBOSACRAL INSTABILITY (also known as L-S disease, or cauda equine syndrome) is a complex of nerologic signs caused by compression of the nerve roots (nerves as they exit the spinal cord). The condition is relatively common and can be either acquired (degenerative) or congenital (developmental).
Degenerative L-S disease is most commonly encountered and can be the result of instability of the L-S space leading to thickening and herniation of the intervertebral disc resulting in narrowing of the vertebral canal.

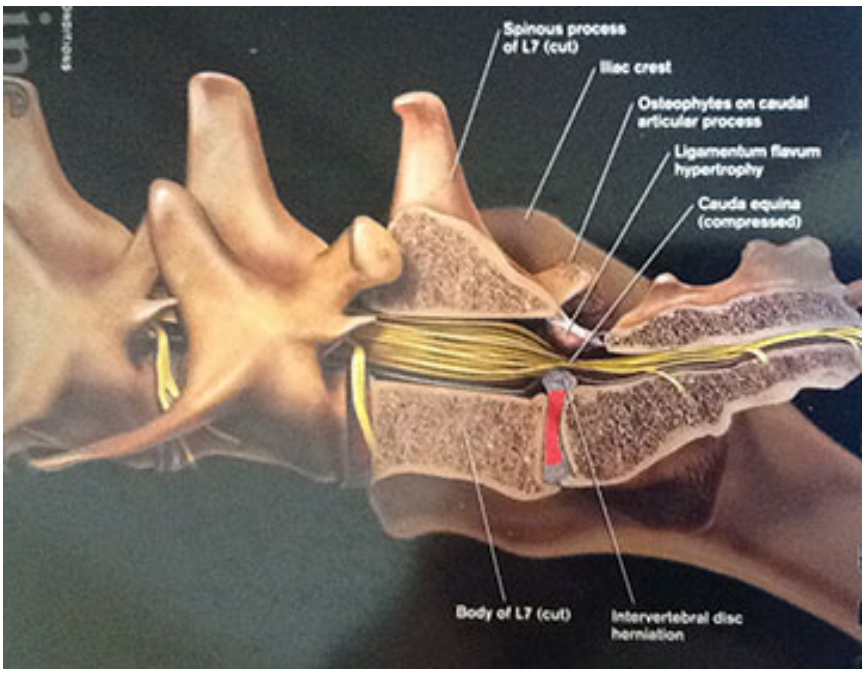

Diagram showing a saggital (midline) section of the lumbosacral compression. The intervertebral disc between L7 and the sacrum is protruding into the vertebral canal and compressing the nerves as they pass through.

CLINICAL SIGNS L-S disease most commonly effects large breed dogs. Dogs often present with a history of back pain and reluctance to run, jump and squat. Early in the course of the disease, back pain is the only finding. As the syndrome progresses, compression of the nerve roots worsens. These animals are chronically painful and begin to lose neurologic function. As neurologic function deteriorates, dogs experience muscle atrophy in the rear limbs and ataxia (staggering) when walking. Dogs may carry their tail lower and wag their tail less due to pain. Tingling sensations in their feet, tail and genitals may lead to constant licking and chewing of the effected area. Rarely animals will have neurologic dysfunction of the urinary and anal sphincter resulting in urinary and fecal incontinence.

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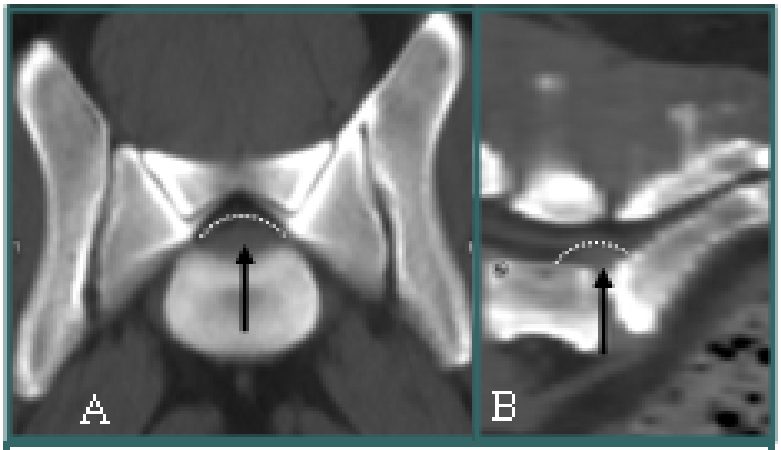
DIAGNOSIS L-S disease is diagnosed by a combination of clinical signs and diagnostic tests. Radiographs (or x-rays) are sometimes helpful, however some dogs will have nerve root compression with no radiographic abnormalities. Computed Tomography (CT or CAT scan) or MRI allows a three dimensional reconstruction of the L-S space. This diagnostic modality allows evaluation of bony and soft tissue (disc and ligamentous) structures leading to nerve root compression. Since L-S instability presents as back pain and reluctance to walk early in the course of the disease it is important to rule out orthopedic conditions such as hip dysplasia or bilateral cranial cruciate ligament ruptures as a cause for the discomfort. Later in the course of the disease, neurologic conditions such as intervertebral disc herniation and degenerative myelopathy should be ruled out.



CT scan Transverse (A) and Sagittal (B) cross section of a dog with LS disease. The arrows indicate the intervertebral disc protruding into the vertebral canal compressing the nerve roots. Dotted lines outline the herniated disc.

TREATMENT Dogs suffering from mild L-S disease can often be treated conservatively with anti-inflammatory drugs and exercise modification. If the condition is more severe, surgical correction is indicated. A dorsal hemilaminectomy is performed removing the top of the vertebral bodies over the L-S space and excising the compressive disc. The collapsed disc space can then be distracted back to length and stabilized using bone screws.

POST OPERATIVE CARE Dogs are often immediately more comfortable after surgery although the total benefit of the procedure may take 2 to 3 months to appreciate fully. Dogs should be restricted to calm leashed activity for 3 months allowing fusion of the L-S space. Following fusion, animals can return to normal function. Dogs treated early in the course of the disease have a better post operative outcome compared to animals where neurologic function is already deteriorating. Dogs experiencing incontinence prior to surgery will likely never regain continence. Collapse of the stabilized joint space is a potential complication although it is rare. Surgical risks and complications are low and the outcome for affected dogs is generally good.