L is for lumbar radiculopathy which is not a cause of back pain; rather, nerve root impingement, disc herniation, facet arthropathy, and other conditions are causes of back pain. Lumbosacral radiculopathy results from nerve root impingement and/or inflammation that cause neurological symptoms in the areas that are supplied by the affected nerve roots.

The sinuvertebral innervated structures in the lumbar epidural space such as arteries, veins and lymphatics. The sinuvertebral nerves divide into ascending and descending nerve branches that freely communication with the corresponding sinuvertebral nerves from the lumbar levels above and below, and from the opposite side of the lumbar spine.

The sinuvertebral nerve supplies the ligaments, muscles, epidural blood vessels, meninges, and bone of the spinal column. The sinuvertebral nerve and the nerve root are capable of transmitting neuronal impulses that result in the sensation of pain.

Herniation of the intervertebral disc can cause impingement of the above neuronal structures, thus causing pain. The presence of disc material in the epidural space is thought to result in direct toxic injury to the nerve root by chemical mediation which then causes swelling inside and around the nerve root. The swelling results in venous congestion and nerve conduction block. The size of the disc herniation has <u>not</u> been found to be related to the severity of the patient's pain.

The onset of symptoms is often sudden and includes low back pain. Some patients state that preexisting back pain disappears when the leg pain begins. Sitting, coughing, or sneezing may exacerbate the pain, which travels from the buttocks down to the posterior or posterolateral leg to the ankle or foot. Radiculopathy in root L1 – L3 refers pain to the anterior aspect of the thigh and typically does not radiate below the knee.

Plain spinal x-rays are often overused in the diagnosis of back pain and are useful only in ruling out other pathology. MRI has demonstrated excellent sensitivity in the diagnosis of lumbar disc herniation and is considered the gold standard for determining nerve root impingement. However, a MRI is not necessary in all patients who have examination findings that are consistent with radiculopathy. In these patients MRIs are useful in guiding treatment plans if surgery or epidural injections are being considered.

Conservative or non-surgical treatments including physical therapy programs such as "back school", lumbar stabilization, and core strengthening are advocated by many rehabilitation specialists as a means of preventing and improving lumbar muscle pain.

Other treatments include epidural steroidal injections especially in combination with PT and oral medications. Epidural injections have been found to be most effective in acute back pain (3-6 months post onset) followed by the time period of 6 – 9 months. Transforaminal steroid injections have also been studied with evidence of successful treatment. In this approach the tip of the epidural needle is inserted into the anterior epidural space either directly above or below the nerve root.