

# Nerve Injury in Lateral Lumbar Interbody Fusion

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## Editorial

Despite the widespread use of intraoperative electrophysiologic neuromonitoring, lumbar plexus injuries have been documented during lateral lumbar interbody fusion (LLIF). Using recombinant human bone morphogenetic protein-2 (rhBMP-2) during an anterior or transforaminal lumbar interbody fusion can increase the risk of neurological deficit, according to new research. For selective degenerative deformity correction, reduction of low-grade spondylolisthesis, and indirect foraminal decompression, lateral lumbar interbody fusion (LLIF) has become an increasingly common minimally invasive technique. The proximity of the lumbosacral plexus poses questions about the safety of the transpsoas approach to the spine.

Thigh pain affects approximately 20% to 40% of patients after transpsoas LLIF, and numbness or dysesthetic pain affects 10% to 20% of patients. Physical therapists and total joint surgeons have described psoas pain as activity-related pain that worsens with exertion as a distinct entity. It radiates to the ipsilateral groin and anterior thigh, and it is made worse by active hip flexion when sitting or climbing stairs. Psoas pain is normal after transpsoas

surgery, but it must be distinguished from neural injury. Open spinal fusion has been linked to a 22 percent higher rate of post-traumatic stress disorder and worse outcomes. It is clear that, regardless of the method, the given morbidity and objectives must be considered before obtaining informed consent.

Discectomy, open spinal fusion, and LLIF may all cause neural injury. During skin incision, the subcostal, iliohypogastric, and ilioinguinal nerves may be injured, resulting in thigh pain after LLIF. The surgeon would be assisted in preventing these nerves through direct visualisation and intraoperative magnification. Tracing the pain pattern on the patient's leg will help the surgeon recognise the pain pattern and will almost certainly show that the neural injury is not a root level problem (i.e., L4 or L5). Excessive retractor time (>20 to 40 minutes per level) and table flexion without ipsilateral hip flexion can cause direct injury to the lumbar plexus nerves.

The ability of surgeons to consider the approach-related morbidity of LLIF would be aided by direct visualisation, proper positioning, and separation of psoas pain from neural injury. The role of LLIF in the modern spine surgeon's armamentarium will be substantiated by practical comparisons of morbidity with open surgical methods.

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