Our Thoughts on Laser Spine Surgery

Perhaps no technology has captured the public's imagination more than the laser. The laser has helped empower and advance many fields of study, including a few areas of medicine.

Currently, several surgeons and non-surgeons are aggressively marketing "laser spine surgery" as a means to remove disk material with the goal of decompressing a nerve to improve pain. While there is clearly a tremendous amount of promotional energy behind this effort – from outdoor billboards to pop-up Internet ads – the fact remains that there is a significant lack of medical data in support of the surgical reliability and safety of the techniques.

In contrast to the tens of thousands of Google results responding to "laser spine surgery," a recent search on *PubMed*, a database of established and peer reviewed medical literature, returned only 135 results. And what's most important is that not one of the listings offered a study of contemporary outcomes.

Laser Spine Surgery Approaches

There are two laser-assisted techniques currently in practice. The first involves the insertion of a fiberoptic endoscope into the spinal canal through openings in the sacrum and vaporization of disk's protrusions. The second involves a tiny incision or needle hole placed oblique to the spine, through which the disk is accessed and then incised with a laser.

Advocates of these approaches consider them for disk protrusions; that is, disk bulging without extrusion or significant spinal stenosis. They maintain that removal of even a small amount of disk with a laser will produce a disproportionately larger drop in intradiscal pressure in the disk protrusion, helping to relieve pressure on the nerve indirectly.

Laser Spine Surgery vs. Minimally Invasive Spine Surgery

Laser Spine Surgery is typically performed through an incision of 7 mm or less, as compared with the 25 mm (approximately one inch) incision commonly used for microdiskectomy.

However, laser approaches are less adept at visualizing and directly decompressing a compressed nerve. Further, they lack the adaptability to manage unexpected bleeding, a cerebrospinal fluid leak or an unforeseen disk extrusion.

In addition, neither of these laser procedures is effective in removing a larger portion of disk material and therefore not applicable to treating sizable disk herniations or disk herniations with significant spinal canal narrowing known as stenosis.

The essential point to remember is that the ultimate effectiveness and safety of both laser-assisted approaches are not established by the mainstream neurosurgical community, which includes dozens of leading research and clinical hospitals across the country. Further, these operations involve very important human "real estate" – areas where connections of nerves that control leg and foot movement, extremity sensation, urinary control, bowel control and sexual function come together. And finally, and remarkably, some of these procedures are being performed by doctors who are not surgeons at all and, as a result, are inexperienced in addressing some of the complications that might arise.

Although use of the laser immediately calls to mind a leading-edge, technological advance, the simple truth is that minimally invasive surgery offers a safer, more proven and versatile treatment option.

While the majority of disk herniations in our neurosurgical practice are effectively managed nonsurgically, a disk herniation performed by our neurosurgeons have the added benefit of our years of experience and refinements in technique. Our patients are routinely sent home the day of surgery with a 90%-95% success rate in the relief of their nerve pain.