

SPRING UPDATE 2010

OKLAHOMA SPINE & BRAIN INSTITUTE

Laser Spine Surgery: Is This the Future or Can We Learn From Our Past?

by Dr. Frank Tomecek, M.D.

Interestingly, what you don't know about this type of spine surgery might hurt you or at least not help you. Laser spine surgery, surprisingly, has been in existence for almost 25 years. One of the first papers published on this subject was written in the New England Journal of Medicine in 1983. This was a paper that discussed the fact that laser surgery could be used for spinal problems; but at that time, it was considered experimental except for use in specific types of tumors. To this day, no randomized trial into the medical or cost effectiveness of percutaneous laser disk decompression versus open standard lumbar surgery for treatment of lumbar disk herniation has been done. Open microdiscectomy remains the gold standard in surgical treatment of lumbar disk herniation. Despite the fact a large evidence-based practice study on laser spine surgery showed evidence is moderate for short-term and very limited for long-term relief, laser spine surgery has become increasingly popular in the United States. Interestingly, there are only a few practices in the country that are still using this technology. As I mentioned, this technology has been available for over 25 years. Most spine surgeons do not utilize the technology, because there is no evidence it has any significant benefit. There is no evidence in the literature that it has a long-lasting benefit. Most studies have not much more than 6 to 12 months of follow-up. Most of laser spine surgery involves percutaneously placing a probe into a disk, either in the cervical or the lumbar spine, and shrinking the disk with laser heat. This is known as percutaneous endoscopic laser disk decompression, either involving the lumbar or the cervical spine. Patients almost always have this procedure performed on an outpatient basis. Most patients who have the following conditions are not a candidate for lumbar laser spine surgery or for cervical laser spine surgery: 1) Previous surgery at the same disk level, epidural fibrosis; 2) Cauda equina compression; 3) Spondylitic or degenerative spondylolisthesis and spinal instability; 4) Spondylitic lumbar or cervical spinal stenosis; 5) Degenerative, idiopathic, or congenital scoliosis; 6) Lumbar compression fractures and kyphosis; 7) Free fragment disk herniations; or 8) Diskitis, osteomyelitis, or other spinal infection.

Spine surgery can be performed using several different tools including a laser. The purpose of spine surgery typically is to relieve pain and other symptoms such as numbness and weakness, by decreasing pressure on a compressed nerve or stabilizing the spine. Surgery often involves removing a herniated or damaged portion of the disk in the spine (discectomy), removing the back part of the bone that covers the

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spinal canal (laminectomy), removing bone spurs or other spinal growths or by connecting two or more vertebral bones in the spine to stabilize, such as in spinal fusion.

During laser spine surgery, a focused beam of light (laser) is used to cut away tissue. Laser spine surgery is often promoted as being noninvasive and risk free. However, these procedures require incisions and can result in serious complications such as heat injury to the nerve. Before deciding on the type of spine surgery to have, first, one should thoroughly investigate the need for surgery. Chronic neck and back pain has many possible causes. In some cases, a precise diagnosis can be difficult to determine. Magnetic resonance imaging (MRI scan), CT/myelograms, EMGs, and discograms are among the several tests that can be used to make the diagnosis. Pain specialists can also be used to perform diagnostic injections to pinpoint the problem area. One difficulty in diagnosing spine problems is that the spine has many moving parts that are potential pain generators; for example, the disks, the facet joints, the nerve roots, the spinal cord, and the muscles. Even when you have made a diagnosis and know what is causing the neck or back pain, surgery should be the last line of treatment. Medications, physical therapy, and possibly

and to how well doctors monitor patients after surgery, in order to minimize the chance that spinal injuries or disk injuries will recur.

If a patient is motivated enough to set his or her eye on being treated at a laser center, the patient might as well print out a list, tape it to the wall, and throw darts. They don't have a prayer of learning which have the best outcome records and most satisfied patients. If one does a more extensive search, the curious patient will find that a number of laser spine surgeons face considerable scrutiny and have received negative press in their local news. Interestingly, patients who are treated at laser institutes are all outpatient and frequently instead of staying postoperatively in a hospital, they are put up in a hotel/motel or condominium location. A number of laser spine surgeons never admit or follow their patients long term. It is hard to provide good continuity of care under these circumstances. It is also hard to follow outcomes long term under this type of care system. Interestingly, the YAG and CTP percutaneous laser disk ablation tools for use in degenerative cervical disk disease have been shown to have only a 50% sustained significant clinical benefit at the 12-month followup. At the Oklahoma Spine

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epidural steroid injections should be tried first in an effort to treat the spinal problem without any type of invasive technique. If more conservative treatments fail to reduce back or neck pain, surgery may be necessary. Traditional spine surgery has been tested in numerous clinical trials and proven to be effective. Studies have shown that discectomy reduces pain and other symptoms in approximately 85% of people who have a herniated disk. This treatment has also been determined to be long lasting. There is a recurrence rate in discectomy that varies from 5% to 10%. In elderly patients who have spinal stenosis, a lumbar or cervical laminectomy can effectively reduce symptoms in about 80% of patients. Very few neurosurgeons regard laser spine surgery as a viable alternative to conventional spine surgery techniques. At the Oklahoma Spine & Brain Institute, we agree with large institutions such as the Mayo Clinic and Johns Hopkins University who don't use or recommend laser spine surgery.

Remarkably, after review of the literature, good outcomes after spine surgery are not reflected by who has the newest, coolest multi-million dollar machines or technologies (laser). Instead, it comes down to such basics as experience, to getting the diagnosis right, to whether doctors address diet, exercise, psychological health, and smoking cessation,

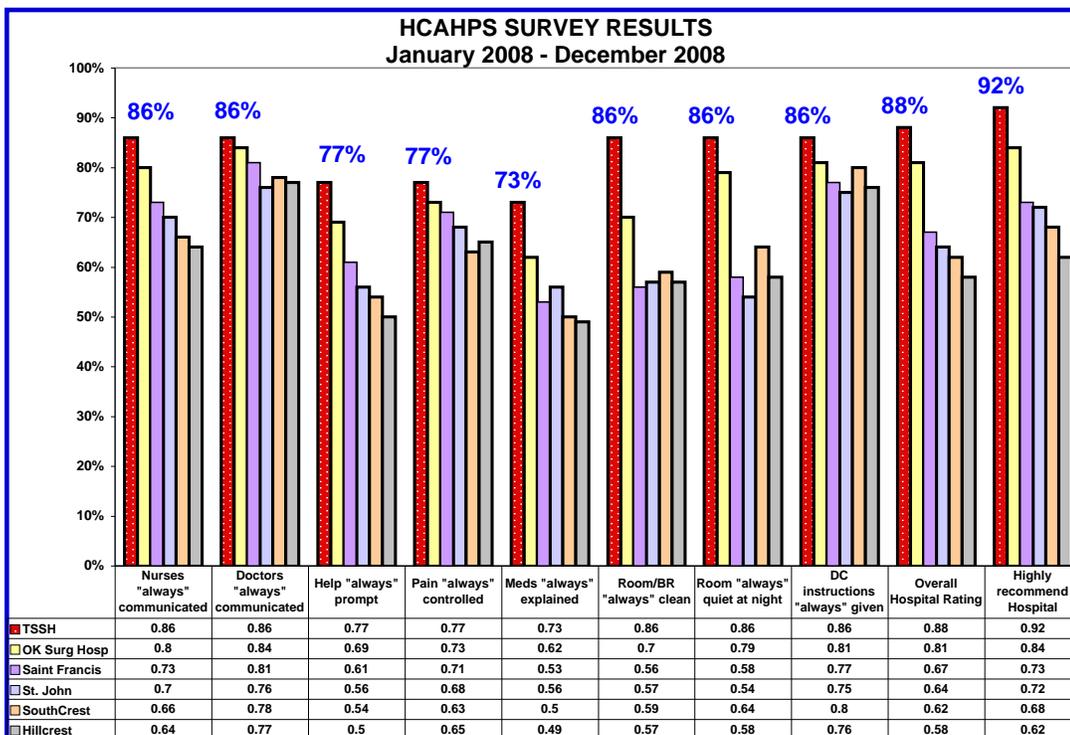
& Brain Institute, we take pride in caring for our patients at the Tulsa Spine and Specialty Hospital. A number of our patients are done outpatient when the operation is minimally invasive. However, if they develop any type of side effects or problems from anesthesia or from surgery, they are admitted at the spine hospital. Interestingly, recently, the 2010 spine surgery ratings have been released by HealthGrades. HealthGrades has ranked Tulsa Spine and Specialty Hospital at the five-star rating, which is the highest rating a hospital can receive. There are only two other hospitals in Oklahoma that are involved with spinal treatment that have received this honorable rating. Also, the Tulsa Spine and Specialty Hospital has received the highest marks from the HCAHPS Patient Satisfaction Survey Results. The Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) is a national standardized survey of hospital patients. The Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) was created to publicly report the patient's prospective of hospital care. The survey asks recently discharged patients about important aspects of their hospital experience and outcome. There are 10 important measures of the patient's prospective of care that are involved with this system. Development of the survey was funded by the federal government, specifically the

Centers of Medicare and Medicaid Services. As mentioned, Tulsa Spine and Specialty Hospital has the highest ratings of all Tulsa hospitals regarding this patient satisfaction and outcome survey. Outcome is extremely important to the doctors of Oklahoma Spine & Brain Institute and Tulsa Spine and Specialty Hospital.

Recently, I attended a seminar presented by North American Spine which is a company that promotes state-of-the-art solutions for back pain. They are promoting the AccuraScope procedure as a state-of-the-art solution for back pain. The AccuraScope is a laser spine catheter. It involves a catheter that is introduced into the lower sacral foramen through a 3 millimeter incision near the anus. This catheter is inserted into the canal through the sacral foramen and reportedly is used to treat several different types of back problems. Interestingly, this procedure is out of network with all insurances. It is basically an investigational procedure and is not FDA approved. At the seminar, I learned that the out-of-pocket cost for the AccuraScope procedure was \$19,500 if the insurance did not cover, and the minimal cost to the patient was \$4,500 for an insurance that might cover a part of the procedure. They are stating with this endoscope and laser that they are able to diagnosis and treat simultaneously. They diagnose pain based on the redness of the nerve root and the color of the nerve root. They have not done any studies to correlate outcome with nerve root color nor did they mention anything about patient outcome. What was said was that they could not guarantee that patients would improve or that this improvement would be long lasting.

There was nothing discussed about potential complications of heat injury to the nerve root. Interestingly, one of the spine surgeons in the Oklahoma Spine & Brain Institute group, Dr. Steven Gaede, is certified in using the laser in spine surgery. He does not use this technique any longer because the few patients where he did, did not improve, and he does not believe this technique is cost effective, medically effective, or safe. We at the Oklahoma Spine & Brain Institute agree with a large study that was performed by a peer review orthopedic journal in 2004. In this article, it was concluded that in most cases percutaneous laser discectomy is not a genuine alternative to open surgery for lumbar or cervical discogenic pain.

In conclusion, we at the Oklahoma Spine & Brain Institute recommend to patients and doctors that they perform due diligence and research before entering into any type of surgical situation. The patient and doctor should be aware if the treatment offered is FDA approved, and evidence-based medicine. Obviously, surgery should be used as a last resort; and minimally invasive treatments are often a reasonable option before a larger open surgery is relied upon. As a final word of advice, if you would like to travel to Florida and spend time in a condo or a hotel, we would recommend that you do this on vacation; but if you wish to have your spine treated, we would highly recommend that you stay locally and be treated by a facility with known and tested high standards in patient care and outcome. For more information on different types of spinal surgery and for the reference articles referred to in this newsletter, please feel free to refer to our website, at www.osbi.net



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**Join us in welcoming
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Here at Oklahoma Spine & Brain Institute, we are pleased to have served Eastern Oklahoma for the past 39 years from our Tulsa office. Since adding our Bartlesville office 15 years ago, we have recently added satellite offices in Miami, Pryor, Sallisaw, and Cushing, to grow and excel with high quality medical care.