Baystate neurosurgeons Drs. Dennis Oh and Sherry Taylor perform a variety of minimally invasive spine surgeries, such as transforaminal lumbar interbody fusion.

Spinal Surgery

Minimally Invasive Techniques Benefit Patients

By Scott P. Edwards

Minimally invasive technology and expertise are revolutionizing the way surgery is performed, from simple procedures like hernia repair, to complex procedures like spinal surgery.

Neurosurgeons at Baystate Medical Center now offer a range of minimally invasive spinal surgical procedures, such as transforaminal lumbar interbody fusion (TLIF), helping many people return to a pain-free life in less time than ever.

"The development of minimally invasive technologies continues to push and promote the advancement of spinal surgery," says Sherry Taylor, MD, chief of Neurosurgery at Baystate Medical Center. "We can now perform major surgeries that used to require 6 to 8 inch long incisions with much tinier incisions and less trauma to the soft tissues and muscles around the spine. Our patients come to us looking for this level of expertise."

A Patient's Experience

Just a few short months ago, Robert Ragone could barely walk more than 100 feet without experiencing excruciating lower back pain. Today, thanks to minimally invasive spinal fusion, Mr. Ragone is not only walking further, but is doing so without the debilitating back pain he suffered from for years.

"Over the last two years," Mr. Ragone says, "my back went from quite good to quite bad." After a couple visits to a doctor, he was told he needed spinal fusion, a surgical technique in which one or more of the vertebrae of the spine are fused to stop them from moving against each other and causing pain. His doctor recommended the traditional open technique, which requires a large incision in the back and months of recovery time.

Baystate's newest neurosurgeon, Dr. Robert Schapiro, specializes in tumors, spine and pediatric neurosurgery, and also performs a range of minimally invasive procedures.

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At his wife's request, Mr. Ragone requested a second opinion from Dennis Oh, MD, a neurosurgeon at Baystate Medical Center, who has performed more than 100 minimally invasive spine surgeries over the past several years, including minimally invasive spinal fusions.

Mr. Ragone suffered from debilitating back pain that radiated down through his buttocks and thigh, and did not respond to conservative treatment. Dr. Oh diagnosed L5-S1 spondylolisthesis (a forward slip of one vertebra in the lower back in relation to another vertebra), degenerative disc disease, and severe stenosis of the spinal column. He recommended a minimally invasive version of a procedure called TLIF—transforaminal lumbar interbody fusion.

Less Trauma, Quicker Recovery

The open TLIF procedure requires a long incision and involves cutting or stripping the muscles from the spine. Minimally invasive TLIF is similar, but because smaller incisions are used, there is less damage to surrounding tissue and muscle.

The surgeon makes four small incisions—each about 1/2 inch in length—and uses microscopic instruments to gently separate the muscles surrounding the spine. This causes less damage to the spinal musculature and minimizes scarring.

For the patient, this means less pain, muscle damage, and blood loss, as well as a shorter hospital stay and a quicker recovery period.

Two hours after his procedure, Mr. Ragone was up and walking. "They asked if I wanted to get out of bed," he says. "I stood up and felt surprisingly well. I walked across the room to the doorway and then proceeded to walk around the entire floor of the hospital unit."

He continues, "My restrictions right now are more self-imposed. At first, there was no lifting, twisting, or bending. I can do some of that now. I still can't bend down and touch the ground, but it's only been a couple of months since my procedure. Once the soreness is gone, I think I'll be quite well."

Other Microsurgical Techniques

In addition to TLIF, Dr. Oh, Dr. Taylor, and Baystate's newest neurosurgeon, Robert Schapiro, MD, also perform a variety of other minimally invasive spine surgeries. These include foraminotomies, which enlarge the space where a spinal nerve root exits the cervical spinal canal to relieve a pinched nerve; laminectomies to remove bone and relieve excess pressure on spinal nerves in the lower back; and microdiscectomies to relieve debilitating pain and weakness caused by a herniated disc or pinched nerve.

Surgeons performing lumbar microdiscectomy use a surgical microscope and microsurgical techniques to access and treat the lumbar spine. By providing magnification and illumination, the microscope allows for limited dissection, so only that portion of a herniated disc that is pinching one or more nerve roots is removed.

Dr. Oh says minimally invasive microdiscectomy is a "faster, shorter procedure" than an open discectomy, resulting in less tissue damage and less trauma to the muscles. "This could even be performed as an outpatient procedure," he says, "but we typically keep patients overnight so that we can give them three doses of antibiotics to reduce the risk of infection."

Baystate neurosurgeons also use minimally invasive procedures to treat a host of other back and spine problems, including sciatica, scoliosis, degenerative disc disease, spinal fractures, and tumors.

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For more information,

or to refer a patient, call Baystate Neurosurgery at 413-794-4440.