Pain Diagnostics & Interventional Care

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301 Ohio River Blvd
Sewickley, PA 15143
Phone Number: 412-221-7640

Minimally Invasive Lumbar Decompression (MILD)

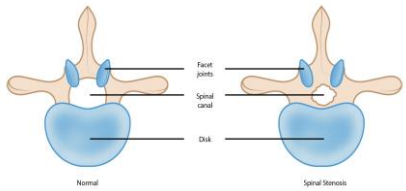
Pictured above are Dr. David A. Provenzano (right) and Esha Vaidya (left). Esha Vaidya was a previous summer intern.

Her research focused on analyzing the ability of preoperative MRI imaging to modify spinal cord stimulator epidural lead placement.

The research was presented at the American Society of Regional Anesthesia and Pain Medicine and to the North American Neuromodulation Society. In addition, the research was published in The Neuromodulation: Technology at the Neural Interface journal.

What is MILD?

Minimally invasive lumbar decompression – or more commonly known as MILD – is a procedure wherein a part of the ligament flavum tissue in the spine is removed due to excessive thickening. Excessively thick spinal ligaments cause the spinal canal to narrow, which puts pressure on the spinal nerves, leading to back pain and leg pain.



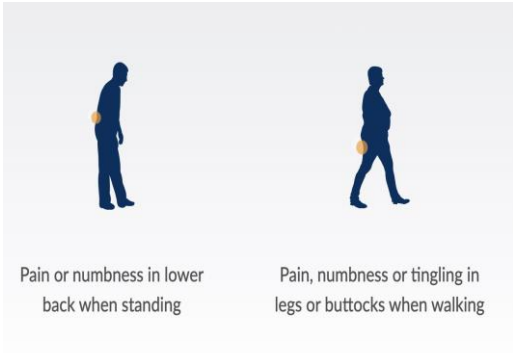
The image on the left is a normal spinal canal, while the image on the right shows a narrowed spinal canal.

What does MILD treat?

MILD is used to treat narrowing in the lower part of the spinal canal, or lumbar spinal stenosis (LSS). LSS is a degenerative condition which typically worsens with increasing age and can cause pain, numbness, and tingling in the lower extremities. Patients also describe symptoms of neurogenic claudication (i.e., pain, numbness and heaviness in the legs with standing). LSS can be treated with physical therapy, non-opioid pain medication, and lumbar epidural steroid injections. If these treatments do not adequately relieve pain, MILD, a minimally invasive procedure, might be an option for some patients before considering spine surgery.

Why opt for the MILD?

MILD is a brief outpatient procedure with low complication risk and quick recovery. Performed through a small incision, it allows patients to resume daily activities quickly. MILD effectively treats the root cause of LSS by addressing narrowing, providing pain relief and improved functionality. It can significantly reduce pain during activities like walking and standing, making it a viable option for treating LSS with minimal surgical risks and effective results in specific patients with hypertrophied ligamentum flavum.



These are some symptoms of LSS that MILD can help alleviate.

References

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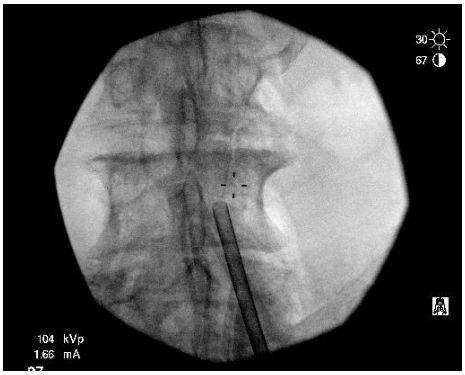
Contact us!

301 Ohio River Boulevard
Suite 203
Edgeworth Medical Commons
Sewickley, PA 15143
Phone: 412-221-7640
Fax: 412-490-9850

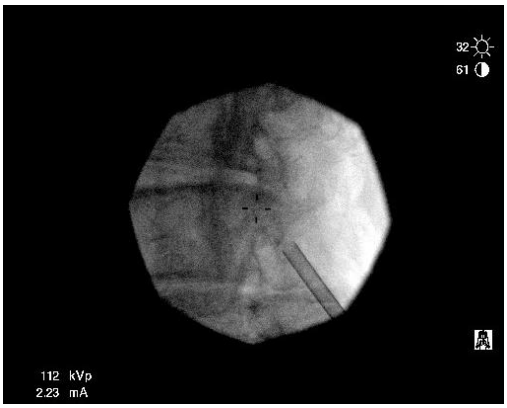
The Procedure

1. Prior to the day of the procedure, the location of stenosis on the spine is identified via magnetic resonance imaging (MRI).
2. On the day of the procedure, the patient lies face-down on the operating table and the back is cleaned with antimicrobial solution.
3. Local anesthetic is administered. The patient receives light to moderate sedation.
4. Location of stenosis on the spine is again confirmed via real-time x-rays.
5. An incision smaller than the size of a baby aspirin is made on the skin and a thin portal is inserted through the incision to the spine.
6. Surgical instruments are guided in through the portal, and with the help of real-time x-rays, the instruments are used to remove part of the laminar bone causing stenosis. Part of the ligamentum flavum, which is a special spinal ligament that supports the laminar bones, is also partly removed with some fatty tissue.
7. X-ray will confirm decompression, after which the portal and surgical instruments are removed from the incision.
8. The skin is then covered with a bandage.
9. The patient is then observed in the recovery area.
10. After a neurological exam, the patient is discharged and free to go home.



The image above shows a portal inserted into the skin above the spine.

The image below shows the portal instrument to place the surgical tools to remove the thickened ligament tissue from the spine.



Words to Know:

Ligament – fibrous connective tissue that attaches bones together.

Ligamentum flavum – ligament in spine that attaches lamina (bones originating from vertebrae) together.

Stenosis - narrowing of the spinal canal which can lead to compression of the spinal cord or nerve roots sand subsequently lead to pain and functional dysfunction.