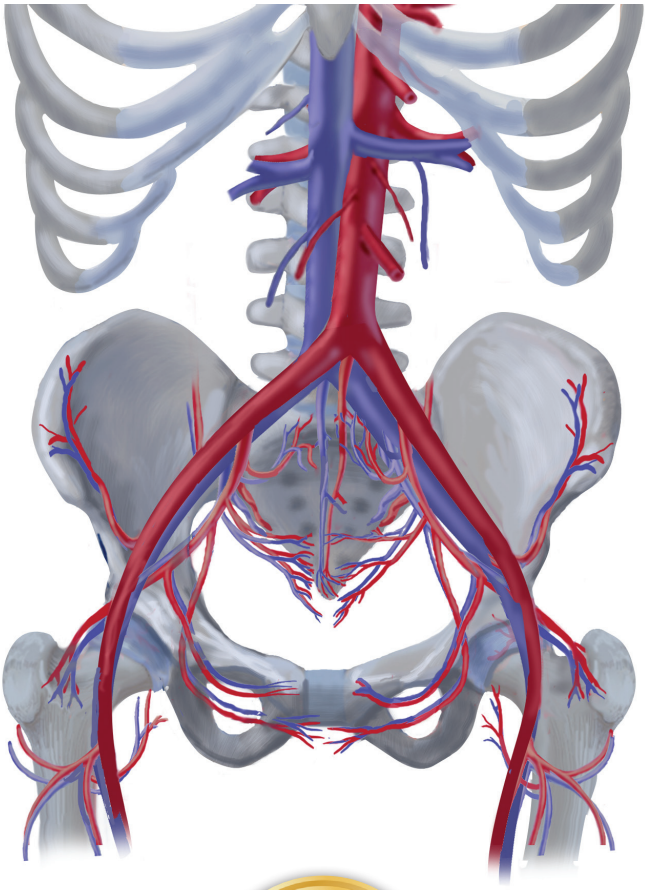


Laparoscopic Spine Surgery

patient information from your surgeon & SAGES

Laparoscopic Spine Surgery

Your spine surgeon has determined that you need an operation for your back problem and feels that there would be a benefit to approach your spine from the front, through the abdomen. Most people are aware of back operations that are performed from the posterior approach, through the skin of the back, but are surprised when they are told they are going to have a back operation "from the front."

The spine (or back bone) can be reached from the front. Although back operations from an anterior or front approach have been around for decades, they have usually been used for the more difficult and complex spine problems due to the need for a large abdominal incision. With the introduction of minimal invasive surgery (also known as laparoscopy), you surgeons can now perform a spine operation from the front without having to make a big incision. Your spine surgeon has recommended one of these minimally invasive techniques for you. This minimal invasive technique is called "Laparoscopic Anterior Spine Surgery." The laparoscopic approach uses small puncture holes instead of long incisions. A special lighted telescope is inserted through one of these puncture holes projecting a picture on a television screen allowing your surgeon to see the spine. Additional puncture holes are used to allow other specialize surgical instruments into your abdomen to perform the operation. This brochure has been designed to help you better understand your laparoscopic spine operation.

Laparoscopic spine surgery procedures

Why go through my front (anterior approach) to get to my back?

Your doctor has selected an anterior (front) approach to your spine rather than the posterior (back) approach. A part of your operation requires the removal of a badly degenerated disc as well as attempting to get a fusion or bond between two vertebral bodies. The disc is a cushion or pad between the bones (vertebral bodies) of the spine. An "interbody fusion" is a bony bridge that "welds" the two vertebral bodies together to stop unstable motion. It is this unstable motion that is felt to be partially responsible for your back pain. The disc is actually located on the front part of the spine. Approaching the disc from the front avoids the need to move the spinal nerves and spinal cord out of the way to get to the disc from the posterior or back side. Surgery on the disc space from a posterior approach may cause long term pain due to:

- Manipulation and retraction of the nerve roots which can injure or damage the nerves.
- Bleeding around the nerve roots which can produce scar tissue that can lead to pressure on the nerve.

Are there other advantages to the anterior approach?

- Inter-vertebral disc height (the space between the two vertebral bodies is left after the disc is removed) may be better restored with the anterior approach. Restoring this space opens up the neural foramen (the openings in the spine that allow the nerves to leave the spinal cord) taking pressure off of the nerve roots.
- Removal of bone from the spine (which is necessary from the posterior approach and can be destabilizing) is not necessary.
- The normal anatomy the spine is preserved since the frontal approach takes advantage of normal tissue planes and does not require removal of any bone.

What are the advantages of the laparoscopic (minimally invasive) approach?

The advantages of the minimally invasive or laparoscopic technique are:

- Small incisions and little blood loss
- Less post-operative pain and need for pain medication
- Earlier discharge from the hospital
- Shorter post-operative disability at home

Why do I need another surgeon who is not a spine surgeon?

Whereas your spine surgeon has the expertise to diagnose and treat your spine problem, the laparoscopic surgeon has the expertise to approach the spine using minimal invasive techniques.

By combining the expertise of both surgeons, your surgical team can afford to offer you the best chance at a safe and efficient laparoscopic operation. The co-surgeon is a general surgeon known also as a laparoscopic surgeon who:

- Is accustomed to working with non-bony structures such as major blood vessels and intestines that are in front of the spine.
- Can assist the spine surgeon with some parts of the operation, such as obtaining bone for the bone grafts.
- Is present during your operation to both assist the spine surgeon and protect the vital structures in the vicinity where the spine surgeon is working.

Alternatives to laparoscopic surgery

What other treatment options are available?

Treatments for back pain include:

- Rest
- Special exercises
- Physical therapy
- Treatment by steroid injection
- Pain medications
- Conventional back surgery
- Microsurgery

What to expect with laparoscopic spine surgery

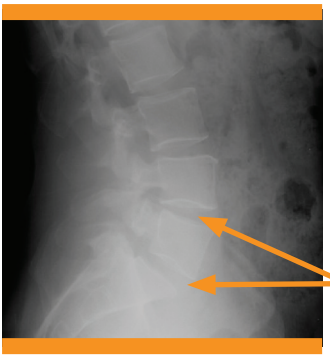
What preparation is required?

- Preoperative preparation includes blood work, medical evaluation, chest x-ray and an EKG depending on your age and medical condition.
- After your surgeon reviews with you the potential risks and benefits of the operation, you will need to provide written consent for surgery.
- Blood transfusion and/or blood products may be needed depending on your condition.
- It is recommended that you shower the night before or morning of the operation.
- Your surgeon my request that you completely empty your colon and cleanse your intestines before surgery. Usually, you must drink a special cleansing solution. You may be requested to drink clear liquids, only, for one or several days prior to the operation.
- After midnight the night before the operation, you should not eat or drink anything except medications that your surgeon has told you are permissible to take with a sip of water the morning of surgery.
- Drugs such as aspirin, blood thinners, anti-inflammatory medications (arthritis medications) and Vitamin E will need to be stopped temporarily for several days to a week prior to surgery.
- Diet medication or St. John's Wort should not be used for the two weeks prior to surgery.
- Quit smoking and arrange for any help you may need at home.

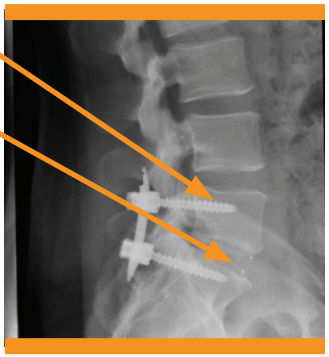
How is the operation performed?

Minimally invasive operations are done by using small tubes, known as cannula ports, that are placed through the skin and into the abdomen. These cannulas have inlet valves that allow the surgeon to inflate the abdominal cavity with carbon dioxide gas. This gas creates a bubble that allows room for the surgeon to see and perform surgery. The surgeon looks through a special lighted telescope that is connected to a video-TV camera which is put through one of the cannulas.

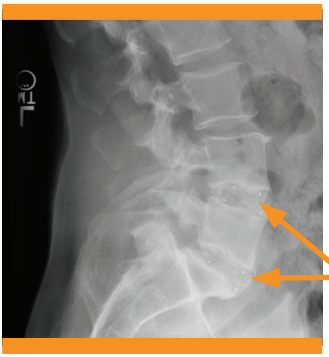
Other cannulas are needed to allow various instruments to be inserted into the abdominal cavity. The number of cannula ports needed is dependent on the number of instruments required to perform the operation. The cannulas are only 1/4 to 1/2 inch in size. Sometimes a longer incision measuring 2-3 inches is needed for other special instrumentation. Your surgeons will decide on the number and size of the incisions.



The disc spaces at two levels are collapsed and this patient has a spondylolysis at L5



A. The four white dots are within a carbon fiber disc spacer placed from the front.
B. Pedicle screws and instrumentation placed from behind.



Successful bone bridging across L4 and L5 disc with resolution of back and leg pain.

What to expect during the procedure

Are there different types of laparoscopic spine operations?

More than one type of minimally invasive technique has been developed for access to the anterior lumbar spine. The techniques differ not only in the approach, but in the spine instrumentation that is used to stabilize the spine. The technique chosen is based on many factors including individual surgeon preference and site (level) of the lumbar spine surgery. Some surgeons select a direct access into the abdominal cavity, known as a transperitoneal approach, and move the internal organs away from the spine. Another technique, the retroperitoneal approach, is when the operation is done from behind the muscles so the spine is actually reached by going around the internal organs. The placement, number and size of the incisions and cannula portals all depend on factors individualized for each patient.

What happens if the operation cannot be performed or completed by the laparoscopic method?

In a small number of patients the laparoscopic method does not work effectively. Factors that may increase the possibility of choosing or converting to the "open" procedure may include:

- Obesity
- A history of prior abdominal surgery causing dense scar tissue
- Inability to visualize structures
- Bleeding during the operation
- More than one lumbar disc level and which lumbar disc level

The decision to perform the open procedure is a judgment decision made by your surgeon either before or during the actual operation. The decision to convert to an open (conventional) procedure is based on patient safety.

Expected outcomes

What should i expect after surgery?

After the operation it is important to follow your doctor's instructions. Remember, your body needs time to heal. You should check with your spine surgeon and co-surgeon about scheduling a follow up appointment, diet and what type of activity you should engage in.

What complications can occur?

Since minimal invasive surgery is still "major" surgery, all the usual complications such as heart attack, stroke and even death are rare but possible. Most of those risks are related to the general anesthesia and being put to sleep. Complications specific to the spine surgery are related to blood vessels, small nerves and other structures that lie in front of the spine and are at risk of being injured. Injuries to the intestine and urinary bladder may occur. Infection of the incisions or to the spine is rare, but can occur. With any operation, blood clots can form in the legs and may even spread to the lungs causing lung problems. Working near large blood vessel in front of the spine and needing to move these blood vessels aside makes these complications more likely. The occurrence of any of these complications may require additional surgical or non-surgical treatment.

Retrograde ejaculation is reported to occur in 2-4% of men who undergo the anterior approach to the spine. This rare complication is due to disturbing the small sympathetic nerves that control normal ejaculation. With retrograde ejaculation, erection and ejaculation do occur, but the sperm and semen is discharged into the urinary bladder rather than going out the penis. In women, these same nerves control vaginal lubrication. Men who are considering anterior spine surgery but have not finished building a family may wish to consider donating sperm for storage in a sperm bank prior to their operation.

Your surgeons will take those measures to minimize the occurrence of any of these complications.

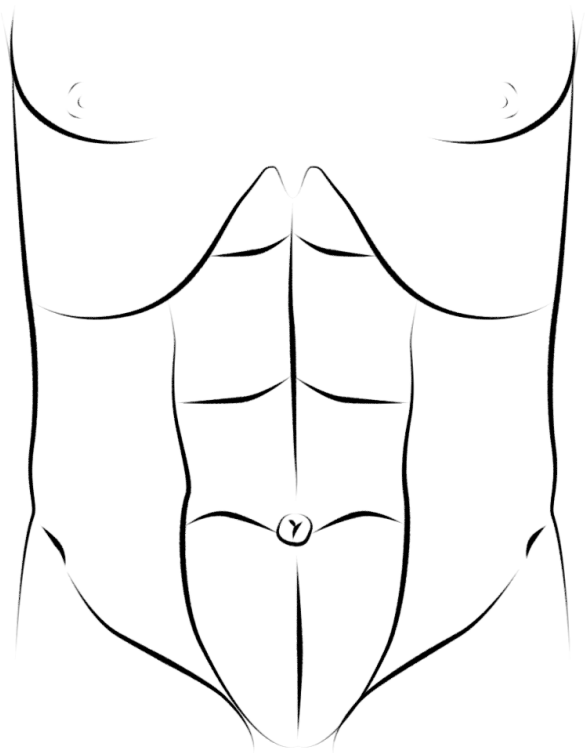
When to call your doctor

Be sure to call your doctor if you develop any of the following:

- Persistent fever (over 100 degrees Fahrenheit or 39 degrees Celsius)
- Bleeding
- Increased abdominal swelling
- Increasing pain that is not relieve by the prescribed pain medication
- Persistent nausea or vomiting
- Chills
- Persistent cough or shortness of breath
- Drainage from any incision
- Redness surrounding any of your incisions that is worsening or getting bigger
- You are unable to eat or drink liquids

This brochure is not intended to take the place of your discussion with your surgeon about the need for laparoscopic spine surgery. If you have questions about your need for spine surgery, your alternatives, billing or insurance coverage, or your surgeon's training and experience, do not hesitate to ask your surgeon or his/her office staff about it. If you have questions about the operation or subsequent follow-up, please discuss them with your surgeon before or after the operation.

Additional instructions:



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