

Introduction

Spinal cord tumors are a serious condition that affects thousands of people and that can result in paralysis.

In most cases, surgery is needed to determine the nature of the tumor and to take out as much of the tumor as possible.

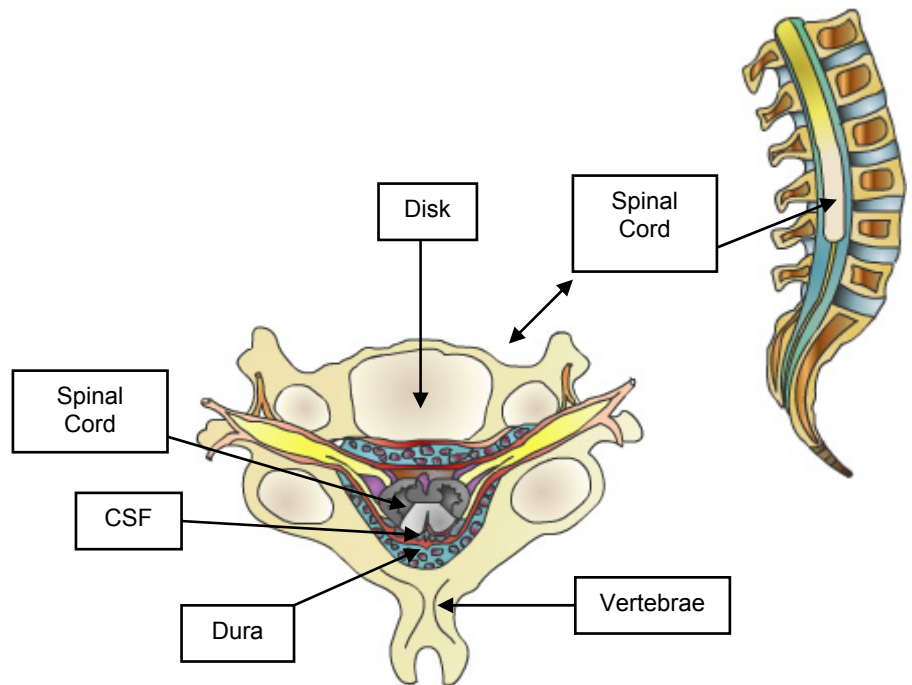
The decision whether or not to have this surgery is yours. This reference summary will help you understand better the benefits and risks of this surgery.

Anatomy

The spinal cord connects the body to the brain. It sends various sensations from the body to the brain, allowing us to feel through the senses, such as recognizing soft, rough, touch, cold, hot, vibrations and pain.

In the other direction, the spinal cord transfers orders from the brain to the arms and legs, allowing us to walk and move our arms and legs.

The spinal cord is very soft, having a Jell-O-like consistency. It is surrounded by fluid called cerebrospinal fluid, or CSF. This fluid acts as a shock absorber. A covering known as “dura” surrounds the spinal cord and CSF.



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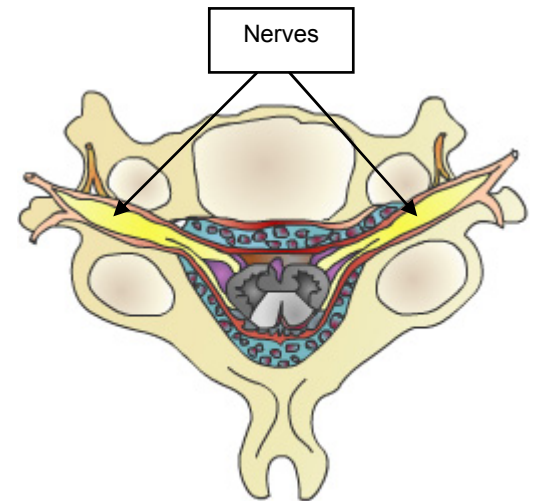
The spinal cord, CSF, and “dura” are protected by the spine, which is formed of vertebrae and disks. From the spinal cord come nerves that go to the rest of the body, taking orders to the muscles and bringing back sensations to the brain.

Symptoms and their Causes

Tumors are abnormal growth of cells. The causes of most spinal tumors are not known. Some types of spinal cord tumors occur in families. Other types are more common in women.

Spinal cord tumors can come from different structures in the spinal cord and its coverings:

- They can come from the spinal cord itself.
- Tumors can also come from the coverings of the spinal cord; these are known as meningiomas.
- Tumors can originate from the nerves that branch off from the spinal cord.



The symptoms of spinal cord tumors vary from simple numbness, or tingling sensation, in the leg or arm, to weakness and total paralysis. The feeling of numbness or tingling results when the tumor presses on the spinal cord or nerves. Paralysis occurs when the spinal cord is compressed. The part of the body that is paralyzed is the section controlled by the part of the spinal cord that is compressed.

Some spinal cord tumors are malignant others and are not. A malignant tumor tends to grow more rapidly and be more aggressive than a benign tumor.

Magnetic Resonance Imaging, or MRI, is usually done to help find the exact location of the tumor. Sometimes, the MRI can help the doctor distinguish between a malignant tumor and a benign tumor.

Because of the relatively small space surrounding the spinal cord, even a benign tumor could significantly compress the spinal cord and nerves, and lead to permanent paralysis.



MRI of Spine

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In the rare cases where the MRI shows the tumor to be benign and small enough not to cause significant compression on the spinal cord, the patient and the physician may still need to watch it closely.

In most other cases, an operation is needed to determine the exact nature of the tumor and to take as much of the tumor as is safely possible. The pathologist looks at the tumor under the microscope to help decide whether the tumor is benign or malignant and whether any other treatment is needed.

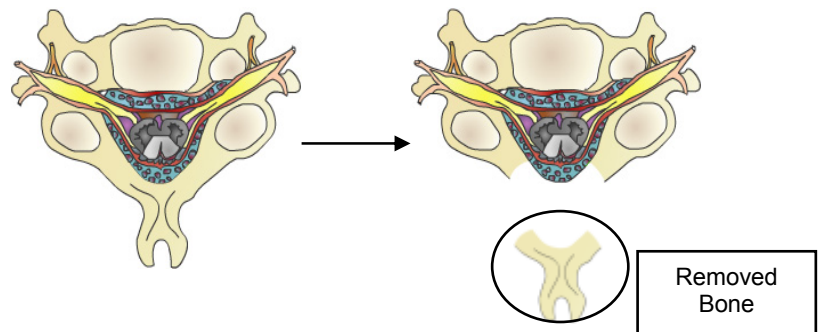


When spinal cord tumor is found, surgery is needed in most cases to determine the cause and composition of the tumor, and to take out as much as possible of the tumor.

In the rare cases where tests show the tumor to be benign and small, your doctor may advise to observe the tumor rather than operate. Observation consists of taking MRIs regularly, to determine how fast the tumor is growing. In cases of malignant tumors, radiation therapy and possibly chemotherapy may be needed after the operation.

Procedure

Spinal cord tumor operations are done under general anesthesia. The spinal cord tumor is usually approached from the back. After the back is shaved, an incision is made near the site of the tumor and taken down to the bones of the spine.

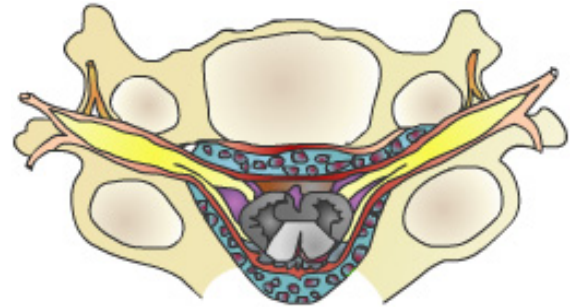


The muscles are separated from the bones and enough bone is taken out to expose the dura, the covering of the spinal cord and its fluid. The dura is then opened up and the spinal cord, the tumor and the nerves are seen. The tumor is then taken out.

A microscope may be used to help the surgeon see and take out the tumor. Using his or her judgment, the surgeon will take as much of the tumor as is deemed safe. Some tumor may be left behind if the surgeon determines that taking it out will result in more spinal cord damage.

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In most cases, the dura is closed. After the dura is closed, the muscle layers and the skin are also closed with special sutures. The bone that is taken out does not usually need to be replaced. In the rare cases where the surgeon feels that your spine is not strong and stable, a fusion may need to be done. During a fusion, the surgeon uses bone material or plastic to replace the removed bone and stabilize the spine.



Risks and Complications

This surgery is relatively safe. There are, however, several possible risks and complications. These are unlikely, but possible. You need to know about them just in case they happen. By being informed, you may be able to help your doctor detect complications early. The risks and complications include those related to anesthesia and those related to any type of surgery.

Risks of general anesthesia include nausea, vomiting, urinary retention, cut lips, chipped teeth, sore throat, and headache. More serious risks of general anesthesia include heart attacks, strokes, and pneumonia. Your anesthesiologist will discuss these risks with you and ask you if you are allergic to certain medications.

Blood clots in the legs can occur due to inactivity during and after the surgery. These usually show up a few days after surgery. They cause the leg to swell and hurt. Blood clots can become dislodged from the leg and go to the lungs where they will cause shortness of breath, chest pain and possibly death. It is extremely important to let your doctors know if any of these symptoms occur. Sometimes the shortness of breath can happen without warning. Getting out of bed shortly after surgery may help decrease the risk of blood clots in the legs.

Some of the risks are seen in any type of surgery. These are rare and include:

- Infection, deep or at the skin level. Deep infections may involve the spinal cord or the fluid that circulates around the spinal cord and brain. This is known as meningitis. Treating deep infections may require long-term antibiotics and possibly surgery.
- Bleeding, either during or after the operation. This very rarely necessitates a blood transfusion.
- Skin scars.

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Other risks and complications are related specifically to spinal cord tumor surgery. These again are very rare. However, it is important to know about them.

Depending on the site of the operation, the arms and or legs may become paralyzed. Bowel and bladder control may be lost. Sexual function may be affected. The risk of paralysis is rare. However, the risk is higher the bigger the tumor and the more severe the preoperative symptoms. Another operation may be needed to remove blood clots that can happen after the operation.

The tumor may recur or grow back. Future observation may be needed after an operation to monitor the growth of any residual tumor or recurrence of the tumor. In cases of malignant tumors, radiation therapy and possibly chemotherapy may be needed after the operation.

CSF, the fluid that surrounds the spinal cord, may leak under the skin and even to the outside. Another operation may be needed to repair this fluid leak. A CSF leak can also cause headache, nausea, and vomiting every time the patient sits up and elevates his or her head. Be sure to tell your doctor if you notice these signs after the operation.

After the Surgery

After the operation, you may be asked to lay flat for a few days to allow the dura to heal properly and to prevent fluid leaks from around the spine. The nurses will check the function of your arms and legs repeatedly to make sure you are recovering and not getting worse.

Heavy lifting, bending, or twisting is usually not allowed in the first few weeks after surgery. Physical therapy may be needed after the operation to help you strengthen your muscles.

Depending on how much physical therapy is needed after the operation, patients may stay from a few days to a few weeks in the hospital or in an extended care facility. It may take a long time to recover from the weakness and symptoms that were present before the surgery or that have occurred since. It is therefore very important for patients to follow a strict physical therapy program to help them become stronger.



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After the surgery, repeated MRIs may also be done to make sure the tumor is not recurring. If the tumor is determined to be malignant or cancerous by the pathologist, further radiation therapy or chemotherapy may be needed

You should make sure to call your doctor if you develop any severe headache, fever, new weakness or fluid leak from the incision. All of these may be signs of serious complications.

Summary

Tumors of the spinal cord are a serious condition that may lead to paralysis. Surgical procedures are usually successful in determining the type of tumor, improving the patient's symptoms, and preventing paralysis.

This procedure is safe. Risks and complications are rare. Knowing about them will help you detect and treat them early.



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