Tests and Treatments

Tethered Spinal Cord Release

What is Tethered Spinal Cord Release?

Tethered spinal cord release is a fairly routine surgical procedure used to treat a tethered spine. There are two types of tethered spinal cord release surgery. In the simplest and most common form, a neurosurgeon makes a small opening in the back of the spine, below the end of the spinal cord, to cut the filum terminale, which is a band of tissue at the end of the spinal cord. This is a short procedure with very low risks.

The more complex form of surgery is for patients who have previously had surgery to repair open spina bifida or other complex malformations (e.g., lipoma, split cord malformation, etc). During the procedure, a neurosurgeon opens up the back and the spinal column to gently cut away the spinal cord from the scarred tissue it’s attached to, which allows the spinal cord to move freely. This is done using microsurgical techniques, but carries a slightly higher risk.

If a child has tethered cord syndrome and doesn’t have the operation, their spinal cord could stretch even further, leading to more damage.

Although tethered spinal cord surgery prevents symptoms from getting worse, it doesn’t cure spinal cord damage that has already happened. In some cases, children who have the procedure experience improvement of pain, weakness, numbness or tingling after surgery. However, the amount of lost muscle and bladder function that they recover varies.

Who Benefits from Tethered Spinal Cord Release?

Neurosurgeons usually perform tethered cord surgery if any of the following problems occur:

- Progressive or severe pain.
- Loss of muscle function.
- Difficulty walking that gets worse over time.
Changes in bladder or bowel function.

Progressive scoliosis (spinal deformity).

A neurosurgeon reviews all the diagnostic studies, the test results, and your child’s signs and symptoms before deciding to do surgery.

Although medicines can’t treat tethered spinal cord itself, they sometimes help to ease pain or reduce muscle stiffness (spasticity) linked to the condition.

If your child has the following conditions they might need tethered spinal cord release:

- **Scoliosis** of any type.
- Dermal sinus tract (a rare congenital deformity).
- Split spinal cord (diastematomyelia).
- Lipoma (a benign, fatty growth).
- A thickened or tight filum terminale or filum lipoma.
- A history of **spinal cord injury** or related neurotrauma.
- A history of spine surgery.
- Tumor.

Tethered cord syndrome is also closely associated with **spina bifida**. Twenty to 50 percent of children who have surgery shortly after birth to repair spina bifida defects (myelomeningocele) will also require tethered cord release.

**Preparing for Surgery**

You can help make sure your child has the best possible surgery outcome by understanding what to expect before, during and after tethered spinal cord release at Gillette Children’s Specialty Healthcare. Here are a few resources to help you feel more prepared:

- Review tips to **prepare for surgery** at Gillette.
- Understand the **amenities** available at Gillette.

**A Week Before Surgery**

A week before the surgery, we will contact you to:

- Gather a health history, including details about medicines (name, dose, frequency), pharmacy and primary care doctor.
- Discuss what to expect on the day of surgery and during the hospital stay.
• Let you know what you’ll need when your child leaves the hospital.

Maintain a Healthy Diet and Regular Activity

Overall health can affect how well and how quickly your child recovers from tethered spinal cord release. In general, kids should maintain regular levels of activity leading up to surgery.

Before and after the surgery, make sure your child eats enough food with iron, calcium and vitamins C and D. Fresh colorful fruits and vegetables, dairy food, and other products with added iron and calcium offer great ways to get these nutrients.

Tell Us About Latex Allergies

Gillette is a latex-free facility. However, we still want to know if your child has a latex allergy or has ever had a severe reaction to latex.

Manage Stress

Sometimes fears, behavior or expectations related to upcoming surgery can cause stress for families. Contact your child’s primary health care provider or Gillette Child and Family Services for support.

We can also help with resources that might reduce anxiety for your family. Our child life specialists can provide emotional support and distractions, such as toys and movies in the waiting area before surgery begins. Child life specialists can also meet with your child’s siblings to address their feelings and concerns.

Knowing what to expect can help everyone feel more prepared. We’ll take time to clarify short- and long-term expectations for outcomes following tethered spinal cord release.

During Your Hospital Stay

The Day of Surgery

Arrival

The perianesthesia staff welcomes you when you arrive. We weigh your child, and ask them to change into a hospital gown. We also check temperature, pulse and blood pressure. A child life specialist helps your child feel more at ease with toys, crafts or movies.

Surgery Preparation

Next, you and your child meet with the surgery team, which includes:

• Pediatric neurosurgeon.
• Nurse anesthetist.
• Anesthesiologist.
• Nurses.

This is a chance for you to raise any questions or concerns. The anesthesiologist discusses how anesthesia and pain medicine are used during surgery. You can talk about your child’s experiences with pain and request medicine or other techniques to help them relax.

**Surgery**

1. The neurosurgeon makes a cut (incision) on your child’s back.

2. The neurosurgeon cuts (releases) the source of the tethering, such as the threadlike filum at the end of the spinal cord, lipoma or scar tissue.

3. Sometimes the neurosurgeon removes a small portion of the bony vertebrae (laminae) for better exposure, or to decompress the spinal cord.

4. The neurosurgeon opens the thin layer of matter (dura) covering the spinal cord and gently cuts the spinal cord away from the scarred attachments to the surrounding tissues.

The procedure lasts two to four hours.

**After Surgery**

Although each child’s experience is different, a typical hospital stay after a tethered cord release lasts four to seven days. If your child has the procedure, they will likely be hospitalized in the **Neurosciences Unit**. Here, they rest flat in bed for 24 to 72 hours after surgery. The duration of bed rest depends on what caused the tethering, the age of your child, and other factors. A pediatric neurosurgeon decides how long your child needs to stay in bed.

A neurosurgery team member visits your child every day during hospitalization, making recommendations and checking the incision. Before your child returns home, we make sure they:

• Have adequate pain management with oral medicines.

• Can urinate and have bowel movements without difficulty.

• Can eat and drink well.

• Can get up and out of bed easily.

Your child’s care team includes a pediatric neurosurgeon, neurosurgery pediatric nurse practitioners, and registered nurses. **Physical therapists** evaluate some children to assess and monitor strength and ability to move safely.

**Rehabilitation and Recovery**

Every child heals differently, and outcomes depend on the neurologic condition of your child before surgery. Kids usually return to normal activities within a few weeks.

Your child will likely have a checkup with a neurosurgery nurse practitioner two weeks after release from the
hospital, to check the incision. Six weeks after surgery, a neurosurgeon will evaluate your child’s progress. The pediatric neurosurgery team generally sees kids regularly throughout childhood and adolescence to watch for any tethering that returns.

Integrated Care

If your child has tethered cord syndrome, Gillette specialists work closely with you and your family to develop a customized treatment plan. As a regional leader in pediatric neurology and neurosurgery, we offer access to a full range of services and support in a family-centered environment.

It’s normal if your child continues to experience pain, weakness, difficulty walking or other medical issues after surgery to release the spine. Our care team members provide a variety of services to meet these ongoing needs.

Your child might receive care from experts in the following areas related to tethered cord syndrome:

- Gastroenterology.
- Neurology.
- Neurosurgery.
- Occupational therapy.
- Pediatric rehabilitation medicine.
- Physical therapy.
- Radiology and imaging.
- Rehabilitation therapies.
- Urology.
- Orthopedics.

Make An Appointment 651-290-8707 Refer a Patient 651-325-2200