

INGUINAL ("GROIN") HERNIA REPAIR SURGERY

AT CHILDREN'S HOSPITAL OF PITTSBURGH OF UPMC, we believe parents and guardians can contribute to the success of this surgery and invite you to participate. Please read the following information to learn about the surgery and how you can help.

Fast Facts About Inguinal Hernia Repair Surgery

- An inguinal hernia is an opening in the belly wall near the groin. The groin is the place where the lower abdomen or belly meets the thigh. Fluid or intestines can pass through this opening if it is left untreated.
- Inguinal hernia repair is an outpatient surgery that will be done at the Same Day Surgery Center at Children's Hospital in Oakland or at Children's North or Children's South surgery centers.
- Your child's surgery will be done under general anesthesia, which means that he or she will be sound asleep during the surgery.
- When general anesthesia is needed, there are special rules for eating and drinking that must be followed in the hours before surgery.
- During the surgery, your child will be given numbing medication—either an injection in the low back called a caudal or directly into the incision or cut—to relieve discomfort after surgery.
- Hernia repair is one of the most common procedures performed on children and teens.
- The surgery takes about 45 minutes, but recovery from the anesthesia might take several hours.

What Is An Inguinal Hernia?

An inguinal (*IN-gwa-nul*) hernia is an internal opening or "sac" in the inguinal canal. Although both boys and girls may be diagnosed with inguinal hernias, they are far more common in boys than girls. In boys, the inguinal canal is a passageway between the abdomen and the scrotum—the sac of skin that holds the testicles on the outside of the body. The testicles are attached to a cord called the spermatic cord, which passes through the inguinal canal. In girls, the inguinal canal is the passageway for a ligament that holds the uterus in place. Often the hernia goes undetected



for years because of its small size, and may not be noticed until a child is in his or her teens. Straining, coughing or crying may make the hernia more visible, but they are not the cause of the hernia. Nearly all cases of inguinal hernias are congenital (*con-JEN-it-tool*), meaning that they were present at birth.

What Is Inguinal Hernia Repair?

This surgery closes up the opening in the abdominal (belly) wall near the groin. Inguinal hernias need to be fixed surgically to keep pieces of intestine, or bowel, from becoming stuck in the opening, causing a surgical emergency.

The surgery is done under general anesthesia (*an-es-THEEZ-ya*).

General anesthesia makes your child's whole body go to sleep and

is needed for inguinal hernia repair so that his or her reflexes will be completely relaxed. General anesthesia makes the surgery easier and safer to do because your child will not feel any pain or have any memory of it.

Caudal (*COD-ull*) anesthesia is given with general anesthesia to block pain in the low back, tummy and lower trunk area and provides up to 4 hours of pain relief in that area after the surgery. Caudal anesthesia is usually intended for younger children or those having hernias repaired on both sides.



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The Surgery

Once your child has been registered, he or she will be taken to a “holding area” where you will meet the anesthesiologist and your surgeon. A pediatric anesthesiologist—a doctor who specializes in anesthesia for children—will give the medications that will make your child sleep during the surgery. At this time, you will be able to ask any questions about the procedure.

Once questions are answered and the operating room is prepared, your child will be taken into the operating room and given an anesthetic to make him or her go to sleep.

When your child is asleep, the surgery will begin.

- The surgeon will make a small incision (*in-SIZH-yun*) or cut over the area of the hernia and locate the sac that has not closed properly.
- He or she will remove a portion of the sac after closing the sac with dissolvable sutures (*SOO-chers*) or stitches that dissolve on their own.
- Before closing the incision, the surgeon will inject a local anesthetic to decrease pain after the surgery. This anesthetic will help relieve pain for up to 6 hours after the surgery.
- He or she then will close the incision with dissolvable sutures.
- If your child wears diapers, the surgeon will use DERMABOND™ to cover the incision area. DERMABOND is a type of “skin glue” that goes on the skin as a liquid and dries as a solid.
- If your child is toilet trained, the surgeon will apply Steri-Strips™. Steri-Strips are adhesive strips that are sometimes used on shallow cuts in the skin instead of stitches to hold the edges of the cut together. They will fall off on their own as the incision heals.
- Finally, the surgeon will place a small cotton dressing over the area. This dressing should stay on for 5 days.

Children’s Hospital of Pittsburgh takes every precaution to make sure your child is safe. Risks involved in the surgery include:

- Infection (less than 1 percent).
- Bleeding (very much less than 1 percent, with the average amount less than a teaspoon).
- Recurrence (less than 1 percent).

There are other lesser risks, including injury to the testicle, the blood vessels to the testicle and tube (which carries the sperm). Prolonged pain is rarely seen following the repair.

Home Preparation

When general anesthesia is needed, there are important rules for eating and drinking that must be followed in the hours before the surgery. One business day before your child’s surgery, you will receive a phone call from a nurse between the hours of 1 and 9 p.m. (Nurses do not make these calls on weekends or holidays.) Please have paper and a pen ready to write down these important instructions.

- The nurse will give you specific eating and drinking instructions for your child based on your child’s age. Following are the **usual** instructions given for eating and drinking. No matter what age your child is, you should follow the specific instructions given to you on the phone by the nurse.

For children older than 12 months:

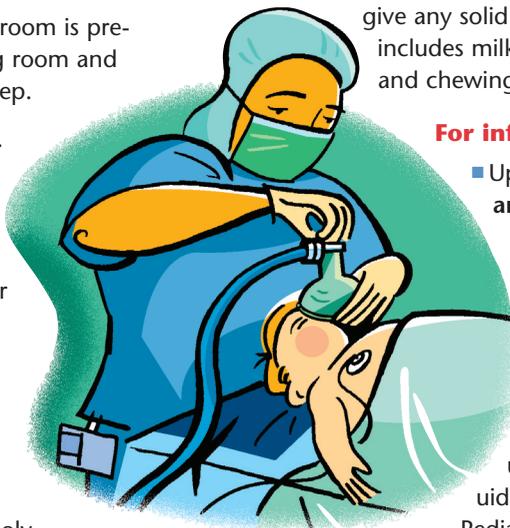
- After midnight the night before the surgery, do not give any solid food or non-clear liquids. That includes milk, formula, juices with pulp, coffee and chewing gum or candy.

For infants under 12 months:

- Up to 6 hours before the **scheduled arrival time**, formula-fed babies may be given formula.
- Up to 4 hours before the **scheduled arrival time**, breastfed babies may nurse.

For all children:

- Up to 2 hours before the **scheduled arrival time**, give only clear liquids. Clear liquids include water, Pedialyte®, Kool-Aid® and juices you can see through, such as apple or white grape juice. Milk is not a clear liquid.
- In the 2 hours before the **scheduled arrival time**, give nothing to eat or drink.



Going to Sleep

Once your child has been registered for the surgery, a member of the anesthesia staff will meet with you to take your child’s vital signs, weight and medical history. As the parent or legal guardian, you will be asked to sign a consent form before the anesthesia is given.

- The anesthesiologist will meet with you and your child to review your child’s medical information and decide which kind of sleep medication your child should get.
- If your child is very scared or upset, the doctor may give a special medication to help him or her relax. This medication is flavored and takes effect in 10 to 15 minutes.
- If you wish, you may go with your child to the room where the surgery will be done and stay as the sleep medication is given.
 - Younger children will get their sleep medication through a “space mask” that will carry air mixed with medication. Your child may choose a favorite scent to flavor the air flowing through the mask. There are no shots or needles used while your child is still awake.
 - Older children may choose between getting their medication through the mask or directly into a vein through an intravenous (IV) line.

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- When your child has fallen asleep, you will be taken to the waiting room. If it has not already been done, an IV will be started so that medication can be given to keep your child sleeping throughout the surgery.
- After the IV has been placed, your child will be turned onto his or her side. Your child’s lower back near the spine (the sacral caudal area) will be cleaned and a needle placed under the skin to inject the caudal anesthetic.

While Asleep

While your child is asleep, his or her heart rate, blood pressure, temperature and blood oxygen level will be checked continuously.

- Your child might have a breathing tube placed while he or she is asleep. If a breathing tube is used, your child might have a sore throat after the surgery.
- To keep your child asleep during the surgery, he or she might be given anesthetic medication by mask, through the IV tube or both. When the surgery is over, the medications will be stopped and your child will begin to wake up.

Waking Up

When your child is moved to the recovery room, you will be called so that you can be there as he or she wakes up.

- Children coming out of anesthesia react in different ways. Your child might cry, be fussy or confused, feel sick to his or her stomach, or vomit. These reactions are normal and will go away as the anesthesia wears off.
- While your child is in recovery, your surgeon will talk to you about the surgery. That is a good time to ask questions about pain medications, diet and activity.
- When your child is awake enough, he might be given a Popsicle® or “slushy” to drink in the recovery room. Once the anesthesiologist sees he or she can hold down the drink and the pain is controlled, you may go home.

A Parent’s/Guardian’s Role During the Surgery

The most important role of a parent or guardian is to help your child stay calm and relaxed before the surgery. The best way to help your child stay calm is for you to stay calm.

- You are encouraged to talk to your child or hold his or her hand before the surgery, while sleep medication is given and while in recovery.
- You may bring along a “comfort” item—such as a favorite stuffed animal or “blankie”—for your child to hold before and after the surgery

At Home After the Surgery

After your child is discharged and goes home, he or she may still be groggy and should take it easy for the day.

Once your child is home, his or her diet should be restricted to clear liquids, such as water, Gatorade®, Popsicles® or Kool-aid®, for a couple of hours to ensure his or her stomach is settled after the surgery and the car ride home. If your child does well with liquids after a couple hours, he or she may try a light diet and soft foods such as applesauce, soup, toast, bananas, rice or hot cereal. Avoid greasy foods that stay in the stomach a long time, such as pizza and fast food. Your child may resume a normal diet the next day.

Pain Medication

Your child should take Tylenol® or Motrin® 4 hours after the surgery to help with discomfort when the anesthesia wears off. If your child is over 5 years of age, your surgeon will give you a prescription for Tylenol with codeine elixir, in the event that your child requires additional pain medication. You do not need to fill this prescription until you see how your child is doing.



Bathing

- You will be told how to care for your child’s dressing.
- The incision should not be soaked for about 5 days.
- If your child is in diapers, you will need to give “wash cloth” baths for 4 to 5 days.
- If your child is toilet trained, you will need to give wash cloth baths for 4 to 5 days, but he or she may have a brief shower after 2 days. If the cotton dressing gets wet, you may remove it and replace it with a band-aid.

Activity

After the operation, activity needs to be somewhat restricted.

- Your surgeon will determine when your child may resume normal activities.
- Your child may return to school as soon as the next day and certainly within 2 or 3 days of the surgery
- No bike riding for 1 week.
- Participation in contact sports and gym class is not permitted until the follow-up appointment with the surgeon (usually 4 to 6 weeks).
- Swimming is permitted 1 week after surgery (but no “cannon balls” or belly flops).

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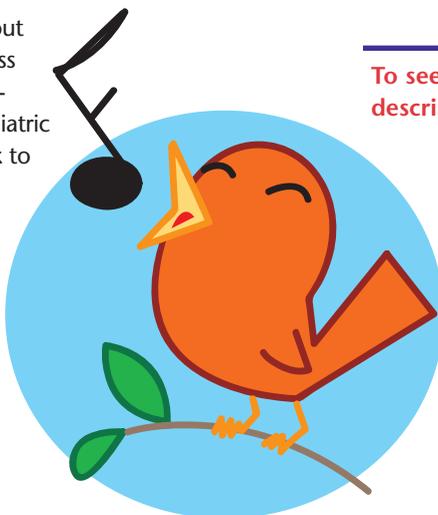
When to Call the Surgeon

If you notice a fever higher than 101.4 degrees F, bleeding or foul smelling drainage from the area around the incision, call the doctor who did the surgery right away. Also call the doctor if your child has:

- Increased tenderness near the incision.
- Increased swelling or redness near the incision.
- Increased pain that is unexplained.
- Nausea, vomiting, diarrhea or constipation that is not improving.

Questions

If you have any specific questions about your child’s surgery, you should discuss them with the surgeon *before* the surgery. You may call the Division of Pediatric Surgery at Children’s Hospital and ask to speak with your child’s surgeon, or speak with him or her during the pre-surgical examination on the day of the surgery.



Special Needs

If your child has any special needs or health issues you feel the doctor needs to know about, please call the Division of Pediatric Surgery at Children’s Hospital *before* the surgery and ask to speak with a nurse. It is important to notify us *in advance* about any special needs your child might have.

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To see the list of all available patient procedures descriptions, please visit www.chp.edu/procedures.