



## Therapeutic Enema for Intussusception

Therapeutic enema is used to help identify and diagnose intussusception, a serious disorder in which one part of the intestine slides into another in a telescoping manner and causes inflammation and an obstruction.

Intussusception often occurs at the junction of the small and large intestine and most commonly occurs in children three to 24 months of age. A therapeutic enema using air or a contrast material solution may be performed to create pressure within the intestine and “un-telescope” the intussusception while relieving the obstruction.



This exam is usually performed on an emergency basis. Tell your doctor about your child’s recent illnesses, medical conditions, medications and allergies, especially to barium or iodinated contrast materials. Your child may be asked to wear a gown and remove any objects that might interfere with the x-ray images. An ultrasound may be performed to help confirm the diagnosis.

## What is a Therapeutic Enema for Intussusception?

### What is intussusception?

Intussusception is a serious disorder in which one part of the intestine slides into another part of the intestine, similar to a collapsing telescope. The intestine becomes inflamed and swollen and can cause an obstruction or blockage. Symptoms can include severe abdominal pain, fever, vomiting or abnormal stools.

Intussusception may occur anywhere along the gastrointestinal tract; however, it often occurs at the junction of the small and large intestine. The condition most commonly occurs in children three months to 24 months of age. Intussusception is a medical/surgical emergency. If your child has some or all of the symptoms of intussusception, you should call your physician or an emergency medical professional immediately. Do not give your child over-the-counter medications.

### What is a therapeutic enema?

A diagnostic enema may be used to help identify and diagnose an intussusception. It may also be used to treat the intussusception, in which case it is referred to as a therapeutic enema.

During this exam, air or a solution containing contrast material (x-ray dye or barium) is injected into the large intestine through a small, soft tube placed in the rectum. X-ray fluoroscopy is used to watch the air or contrast material flow into the large intestine. The air or contrast material is injected in a manner that creates pressure within the large intestine and pushes or “un-telescopes” the intussusception, thus relieving the obstruction. The therapeutic enema is not always successful, and surgery may need to be performed to correct the problem.

## What are some common uses of the procedure?

A therapeutic enema can be performed to treat symptoms of intussusception, including:

- abdominal swelling or distention.
- severe abdominal pain that comes and goes and causes infants to pull their knees to their chest and cry.
- vomiting, including a greenish fluid called bile.
- passing stools mixed with blood and mucus.

## How should we prepare for the therapeutic enema?

You should inform your physician of any medications your child is taking and if your child has any allergies, especially to barium or iodinated contrast materials. Also inform your doctor about your child’s recent illnesses or other medical conditions.

Your child may be asked to wear a gown and to remove jewelry, eyeglasses and any metal objects or clothing that might interfere with the x-ray images.

An ultrasound examination may also be performed to help confirm the diagnosis of intussusception.

## What does the equipment look like?

The equipment typically used for this examination consists of a radiographic table, one or two x-ray tubes and a television-like monitor that is located in the examining room. Fluoroscopy, which converts x-rays into video images, is used to watch and guide progress of the procedure. The video is produced by the x-ray machine and a detector that is suspended over a table on which the patient lies.

## How does the procedure work?

X-rays are a form of radiation like light or radio waves. X-rays pass through most objects, including the body. Once it is carefully aimed at the part of the body being examined, an x-ray machine produces a small burst of radiation that passes through the body, recording an image on photographic film or a special detector.

Fluoroscopy uses a continuous or pulsed x-ray beam to create a sequence of images that are projected onto a fluorescent screen, or television-like monitor. When used with an oral or rectal contrast material, which show the area being examined by making it appear bright white or black, this special x-ray technique makes it possible for the physician to view internal organs in motion. Still images are also captured and stored either on film or electronically on a computer.

Until recently, x-ray images were maintained on large film sheets (much like a large photographic negative). Today, most images are digital files that are stored electronically. These stored images are easily accessible and are frequently compared to current x-ray images for diagnosis and disease management.

## How is the procedure performed?

An enema for intussusception is usually done on an emergency basis.

A radiologist, a physician specifically trained to perform, supervise and interpret radiology examinations, will perform the enema with the assistance of a radiologic technologist.

A nurse or technologist may insert an intravenous (IV) line into a vein in your child's hand or arm so that fluids can be given intravenously if necessary so that your child stays well hydrated.

Usually, an x-ray of your child's abdomen will be taken prior to the enema to make sure it is safe to perform the enema.

For this x-ray, your child will be positioned on the examination table. The radiologist or technologist will then insert a tube into the rectum, secure it in place with tape and begin to inject the air or fluid contrast into the large intestine.

Your child will be asked to hold very still. Children ages three months to two years will most likely need to be held by the technologist and an assistant or parent or immobilized in some way to help them stay still, such as being wrapped in a blanket or being placed on an immobilization board. Occasionally, a medication may be used for mild sedation.

Parents are often encouraged to be with their children during the procedure. A child-life specialist, a person with expertise in helping children cope with the stress of the procedure, may assist with the exam.

The technologist may walk behind a wall or into the next room at the end of the exam to activate the x-ray machine so a final x-ray image may be taken.

Once the fluoroscopy and x-ray images are completed, most of the liquid contrast will be emptied through the tube. Your child will then be able to expel the remaining liquid or air in a diaper or in a restroom.

An enema for intussusception is usually completed within 30 to 60 minutes.

## What will my child experience during and after the procedure?

As air or the liquid solution is introduced into the colon, your child will feel the need to move his or her bowels and may feel abdominal pressure or even minor cramping. Most children are able to tolerate the discomfort. The tip of the enema tube is specially designed to help the patient hold in the barium.

Depending on the results of the exam, your child may be hospitalized following the enema procedure and may require intravenous fluids and pain medication for a few days. During this time, feedings will initially be withheld; most children are able to resume eating within several days.

If hospitalized, your child will typically be ready to return home when he or she is tolerating a regular diet, has normal bowel function and no fever. Once your child returns home, you should call your healthcare provider if your child experiences fever and/or increased pain.

Your physician will advise you as to when your child can return to normal daily activities.

If barium was used in the enema procedure, your child's stools may appear whitish or greyish for a day or so as it is cleared from his or her system. Some people experience constipation after a barium enema, therefore it is a good idea to encourage your child to drink plenty of fluids. If your child does not have a bowel movement for more than two days after the exam or is unable to pass gas rectally, call your physician promptly. An enema or laxative may be required to help your child eliminate the barium.

## Who interprets the results and how do we get them?

A radiologist, a physician specifically trained to perform therapeutic enemas and supervise and interpret radiology examinations, will perform and analyze the images. The radiologist will send a signed report to your referring physician, who will discuss the results with you.

## What are the benefits vs. risks?

### Benefits

- An air-contrast or liquid-contrast enema is a minimally invasive procedure with rare complications.
- Because barium is not absorbed into the blood, allergic reactions are extremely rare.
- No radiation remains in a patient's body after an x-ray examination.
- X-rays usually have no side effects in the typical diagnostic range for this exam.
- When intussusception is resolved by an air-contrast or liquid-contrast enema, the patient is able to avoid surgery to correct the intestinal blockage.

### Risks

- The effective radiation dose for this procedure varies. See the Safety page for more information

about radiation dose.

- In rare cases:
  - some of the air or liquid contrast may leak through a hole in the intestines producing inflammation in surrounding tissues.
  - bacteria that is present within the intestine may leak out into the surrounding tissues and eventually into the bloodstream, causing an infection that may require antibiotic therapy.
- There is a chance that the enema will be unsuccessful in resolving the blockage. If so, your child will require an operation to treat the intussusception.

## A Word About Minimizing Radiation Exposure

Special care is taken during x-ray examinations to use the lowest radiation dose possible while producing the best images for evaluation. National and international radiology protection organizations continually review and update the technique standards used by radiology professionals.

Modern x-ray systems have very controlled x-ray beams and dose control methods to minimize stray (scatter) radiation. This ensures that those parts of a patient's body not being imaged receive minimal radiation exposure.

## What are the limitations of Enema for Intussusception?

An air-contrast or liquid-contrast enema may not successfully unfold the segments of the intestine. Some children may be too ill to undergo the procedure. In these cases, surgery may need to be performed to treat intussusception.

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