

## **Emergent Flouro Guide for Pediatrics**

### **Emergent UGI Questions for Provider**

How long has the pt been vomiting?

Is it bilious?

When was the last time the pt has anything by mouth?

When was the last bowel movement?

### **Emergent UGI Questions for Technologist**

Who is doing the exam?

Have they done fluoro before?

Do they know how to secure the pt on the Octostop?

Tell technologist to make sure the exam is set up for an UGI with NG tube insertion with H<sub>2</sub>O soluble contrast, usually with Isovue 200.

### **Emergent Air Enema Intussusception Questions for Provider**

Has the pt had an US?

How long has the pt had symptoms?

When was the last bowel movement? Bloody?

Has surgery been informed?

Does the Pt have an IV? Pain medication? (IV must be placed prior to start of exam due to rapid onset of hypotension if perforation occurs)

Explain risks to parents which are bowel perforation (1% or less), unsuccessful reduction (roughly 20%), or recurrence of intussusception (5-8%). If bowel perforation occurs, an angiocatheter could be inserted in the midline abdomen through the avascular linea alba, 2 cm above the umbilicus.

## Emergent Air Enema Intussusception Questions for Technologist

Who is doing the exam?

Have they done fluoro before?

Do they know how to secure the pt on the Octostop?

Tell technologist to obtain Supine and LT Lat Decub scout films.

## Procedure for Emergent UGI

Secure pt to Octostop.

Familiarize yourself with the fluoroscopy tower and monitor. Most of the images obtained should be from the "Store Image" button on the bottom left of the monitor system, in either room.

Before you inject anything through NG tube try to decompress stomach by aspirating through NG tube. If the pt has a fairly distended stomach or transverse colon, this could displace the LOT inferiorly and could cause a false positive malrotation.

Insert 8FR NG Tube so tip is in the stomach (not in the duodenum as this may falsely displace the LOT), connect 60cc syringe filled with 30ml of contrast and 30 ml of Air.

Turn pt RT lateral and inject small amount of contrast (10-15ml) followed by air, this will help move contrast into duodenum.

Once contrast is seen in first portion of duodenum, **quickly** turn pt supine. Watch and use the "store image" option as the contrast courses through the duodenum and Capture/Expose once contrast reaches the LOT, to exclude malrotation and midgut volvulus.

Turn Pt Rt lateral and Capture/Expose retroperitoneal course of duodenum.

Turn pt back supine and aspirate contrast.

Remove NG tube (unless ER has requested you to place it) and send pt back to ER and communicate finding to patient's Physician.

A pt with malrotation and midgut volvulus would show poor contrast movement with potential dilatation of proximal duodenum and a beaked appearance of the lumen. If contrast is able to flow into the volvulized portion of bowel it will have a Corkscrew appearance. If you are not sure about the position of the LOT, follow contrast through the small bowel to the cecum.

## Procedure for Air Enema Reduction of Intussusceptions

Connect the air tubing to the Sheils enema insufflation device and make sure the device is working and will maintain pressure.

Connect the other end of the air tubing to the appropriate sized large Foley catheter, usually 30 Fr.

Familiarize yourself with the fluoroscopy tower and monitor system.

Secure pt to Octostop.

Insert Foley into patient making sure retention balloon is past anal sphincter.

Tape the patient's buttock cheeks closed with foam tape to help secure the catheter in place.

Insufflate the anchoring balloon with 20-30 cc of air while watching under fluoroscopy. If retention balloon is seen within the rectosigmoid vault, slowly pull back on Foley catheter until anchoring balloon is resting against the anal sphincter.

Start insufflating the Sheils enema device. During the actual squeezing of the Sheils device the needle will transiently move above the 120 mmHG threshold, this is fine as the needle will quickly fall back down to the "resting" or true colonic pressure. Make sure the true colonic or "resting" pressure does not go above 120 mmHG.

While using the Sheils enema device, continually observe patient under fluoroscopy and capture images when you visualize the intussuscepted bowel, and intermittently along the course back to the cecum and into TI. The intussusceptum will be recognizable by a mass outlined by air.

If there is a moment when the intussusceptum is no longer moving and you have not visualized successful reduction, pause insufflating and give the patient a break. Turn the valve on the Sheils enema device to allow bowel relaxation.

After waiting 3-5 minutes try another attempt to reduce the intussusception again.

If there is an intussusception the ileocecal valve will probably be inflamed and look enlarged under fluoro. This could cause some difficulty to distinguish between intussusceptum and ileocecal valve. A successful reduction sign is visualizing air bubbling medially from the ileocecal valve into the distal ileum, as well as increased air within the small bowel, making the scout images vital to this exam.

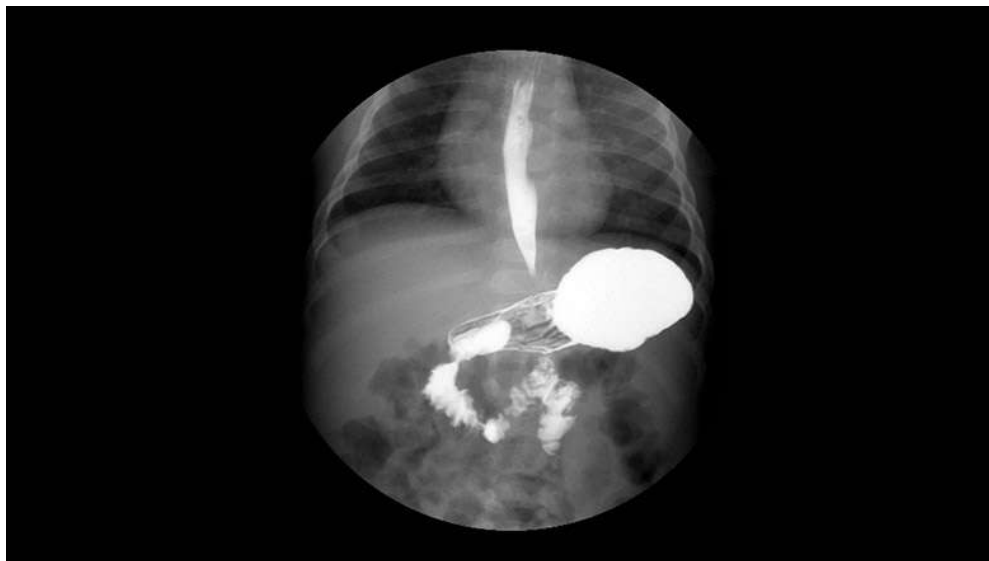
If successful in reduction obtain LT Lat Decub Post film and send patient back to ER and communicate to patient's physician.

If unsuccessful in reducing the intussusceptions after 3 non-movable attempts, obtain LT Lat Decub and send patient back to ER communicating unsuccessful reduction to ER physician.

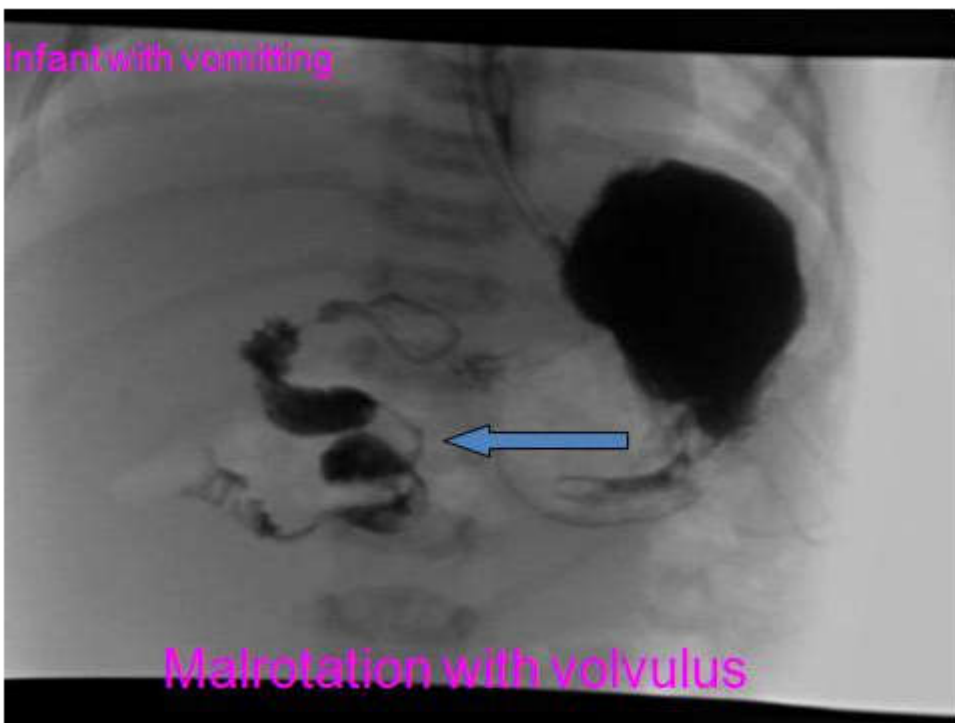
If the reduction is unsuccessful the Pediatric Surgeon might ask for a repeat attempt with the air enema 2-3 hours after initial attempt. The thought behind this 2<sup>nd</sup> attempt is the increased blood flow to the cecum

(assuming the intussusception is at the TI) will help reduce the swelling of the colon and allow the intussusceptum to be reduced.

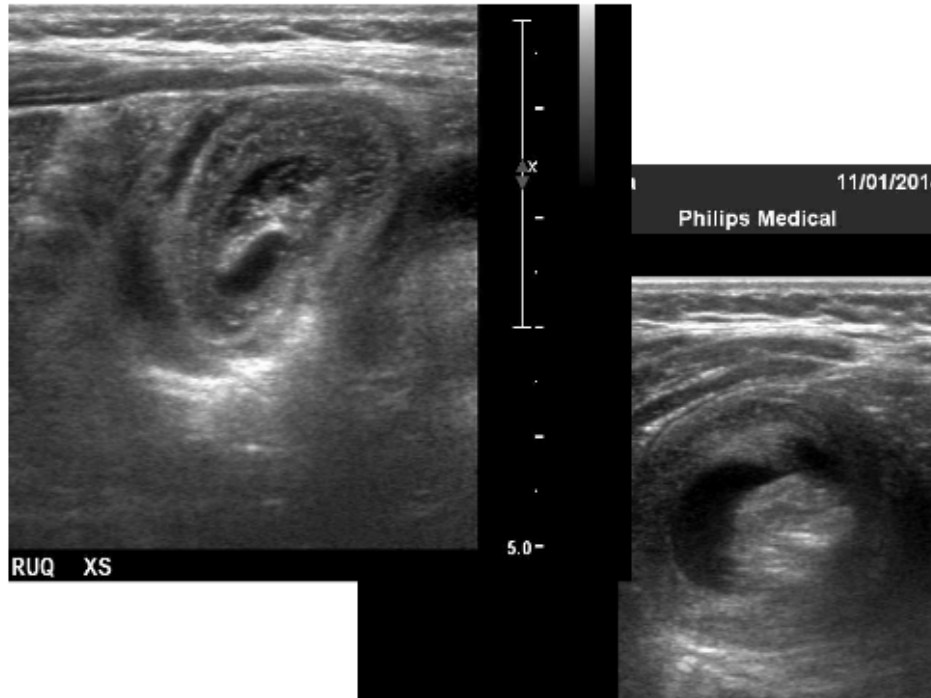
Image of normal UGI with Duodenum crossing midline and LOT near same level as Bulb.



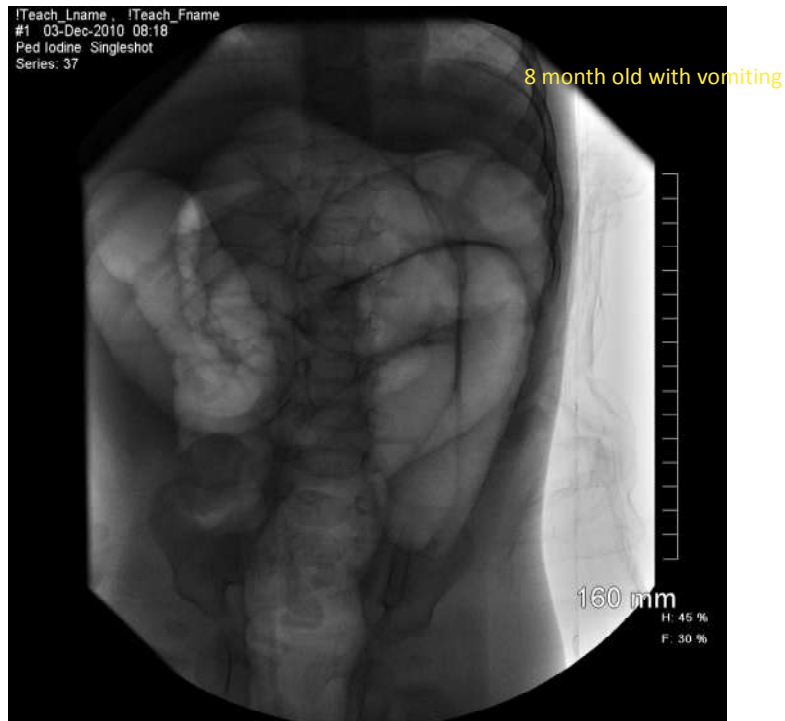
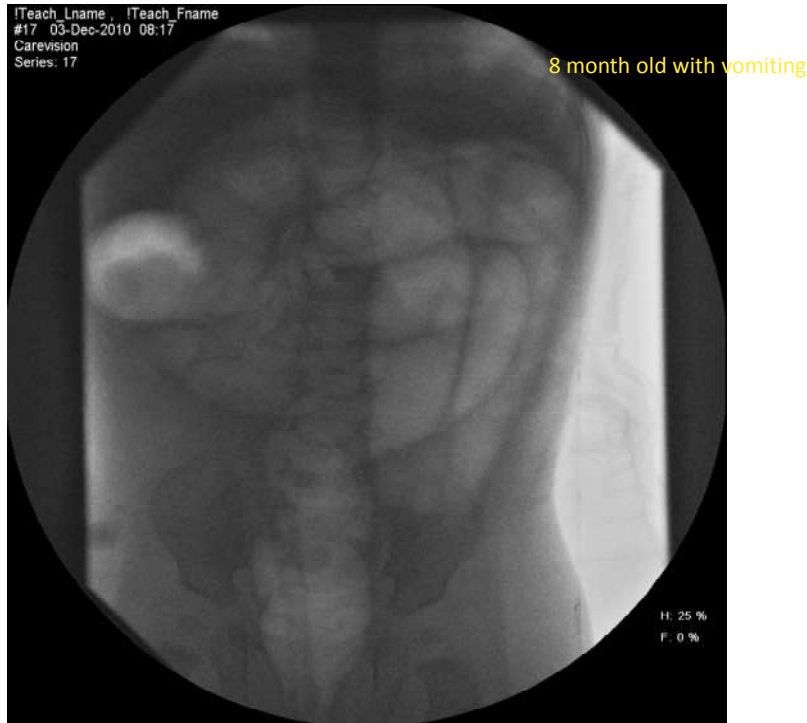
Imaging example of malrotation with volvulus.

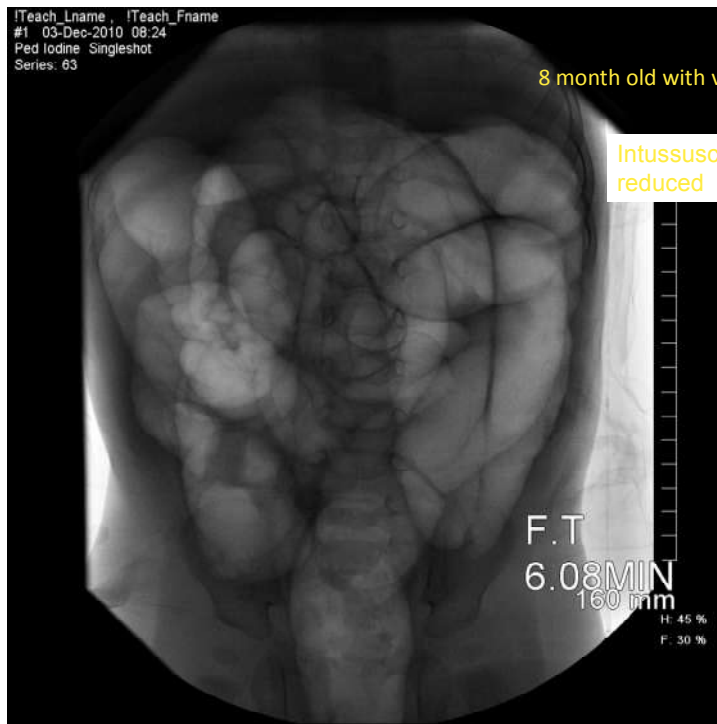


Ultrasound image of intussusception



Fluoro images of intussusception reduction





8 month old with vomiting

Intussusception reduced