ADDENDUM 1

Patient Management Flow

- For all patients in the moderate and severe categories, abdominal ultrasound should occur in the Emergency Department.
- For patients in the low severity category, ultrasound may be performed in the radiology suite; however, if positive, patient should return to the emergency room for monitoring until able to complete air enema.
- For those patients in the low severity category for whom there is a low clinical suspicion for intussusception, PIV placement and bolus administration may be held until after ultrasound confirmation. Once confirmed, if outside of weekday standard working hours, patients should return to the emergency department for PIV placement and bolus administration. During weekday working hours PIV will be placed by the radiology RN.
- In severe patient cases, where there is a clinical concern for peritonitis or free air visualized on 2 view abdominal XR, a stat surgical services consult should be made to the attending surgeon on call.
- If perforation occurs during enema reduction, a stat surgical services consult should be made to the attending surgeon on call.

Early Discharge Following Enema Reduction

Historically, many hospitals have observed patients presenting with uncomplicated intussusception in the inpatient setting for 24-48 hours to monitor for recurrence with a medium length of stay of 2 days following enema reduction. A recent Meta-analysis by Gray et al examined 69 studies of intussusception recurrence in patients aged 0-18. Studies were divided by enema modality and controlled for quality. Overall recurrence rate for contrast enema (CE) was 11.6 (CI 10%-13.3%), 6.9% (CI 5.1%-9%) for ultrasound guided air enema (UGAE), and 7.7% (CI 5.6%-10%) for fluoroscopy guided air enema (FGAE). Recurrence rate in the first 24 hours following reduction was 2.7% (CI 1.2%-4.8%), 0.9% (CI 0.1%-4.8%), and 1.5% (0-6.2%) respectively, suggesting that the majority of recurrences would not be captured in a 24-hour hospitalization. Furthermore, multiple studies support the safety of outpatient management and repeat enema for recurrence. It is therefore reasonable to admit for a short 6-hour observation period following reduction and then discharge to home if meeting discharge criteria.

Pathologic lead points

The majority of intussusceptions are caused by hyperplasia of the lymphoid aggregates in the terminal ileum. In approximately 6% of patients, a pathologic lead point may be present. The presence of PLP increases with age with 5% occurring in ages 0-11 months and 60% occurring in children aged 5-14 years. Children with >1 recurrence or >1 discrete episodes of intussusception have a higher incidence of PLP. The most common PLP is a Meckel’s diverticulum. Other common causes include duplication cysts, intestinal polyp, lymphoma, and Henoch–Schönlein purpura. Ultrasonography is a useful modality to identify PLPs and may detect up to 64% of PLPs. Due to the high prevalence of Meckel’s diverticulum acting as a PLP, a Meckel’s scan is a reasonable imaging modality if PLP is suspected but not confirmed on ultrasound. CT can be a useful imaging study; however, in a study conducted by Daneman et al, CT failed to detect PLPs that had been missed by ultrasound. Further imaging and testing should be tailored to the individual cases.

Delayed Repeat Enema

Historically, children without complete reduction of intussusception following enema have undergone surgical reduction. Although there has been a significant trend away from surgical reduction for intussusception, the rate of operative intervention has been reported to be as high as 51% in some areas of the United States. There is an increasing body of evidence that supports the use of a delayed repeat enema (DRE - a repeat enema several or more hours after initial reduction attempt) to reduce well appearing children who have had a partial reduction with enema. It is felt that the interval time relieves venous congestion and edema thus facilitating the subsequent reduction attempt. In a retrospective cohort study of 4,980 children with intussusception, 502 underwent a DRE while 1,407 children underwent operative reduction. 26.7% of children in the operative group had bowel resections while 11.8% required bowel resection in the DRE group (AOR 2.50, 95% CI 1.83–3.41, p < 0.001). The time interval between initial reduction attempt and DRE has not been rigorously studied. Patient instability, perforation, peritonitis, and failure to move the intussusception are contraindications for DRE. DRE may be attempted for well appearing children with partial reduction of intussusception with coordination between radiology and primary surgical service.
Discharge Instructions for Intussusception

Your child was diagnosed with intussusception. This is a condition where a portion of intestine slides inside another portion. This happens in the same way that parts of a telescope slide inside each other when you close it. Blood supply to part of the intestine could then become blocked. This can cause severe damage if not treated. Intussusception can happen anywhere in the bowel. It is most common where the large intestine and small intestine meet. The cause of intussusception is often unknown.

A fluid or air enema is often used to both diagnose and treat the problem. A flexible tube is used to put fluid or air into the intestine. Then, special X-rays are taken. The force of the fluid or air entering the intestine often straightens it.

Home care

- Allow your child to return to normal activity as soon as he or she feels up to it.
- Watch your child for signs that the condition has returned. Intussusception can sometimes come back.
- Feed your child a normal diet.

Follow-up care

Make a follow-up appointment as directed by our staff.

<table>
<thead>
<tr>
<th>When to call your child's doctor</th>
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<tbody>
<tr>
<td>Call the doctor right away if your child has any of the following:</td>
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<tr>
<td>Pain in the abdomen that comes and goes</td>
</tr>
<tr>
<td>Constant pain in the abdomen that does not improve or seems to be worsening</td>
</tr>
<tr>
<td>Vomiting</td>
</tr>
<tr>
<td>Extreme sluggishness, tiredness, or fatigue</td>
</tr>
<tr>
<td>Dark, mucus-like, bloody stools</td>
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<tr>
<td>Pale skin color</td>
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<tr>
<td>A rectal temperature of 100.4°F (38.0°C) or higher in an infant younger than 3 months</td>
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<tr>
<td>A rectal temperature of 102°F (39.0°C) or higher in a child 3 to 36 months old</td>
</tr>
<tr>
<td>A temperature of 103°F (39.4°C) or higher in a child of any age</td>
</tr>
<tr>
<td>A fever that lasts more than 24 hours in a child younger than 2 years or for 3 days in a child 2 years or older</td>
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<tr>
<td>A seizure caused by the fever</td>
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</tbody>
</table>
Instrucciones de alta para una intususcepción

A su hijo le diagnosticaron una intususcepción. Este es un trastorno en el cual una porción del intestino se introduce dentro de otra (se invagina) como las partes de un telescopio cuando se cierra. En consecuencia, el flujo de sangre en esa parte del intestino puede quedar bloqueado. Si se deja sin tratar, podría causar daños graves. Una intususcepción puede ocurrir en cualquier parte del intestino, pero suele ocurrir con mayor frecuencia cerca a donde el intestino grueso se une al intestino delgado. Su causa por lo general se desconoce.

Tanto para tratar como para diagnosticar el problema, suele usarse un enema de líquido o de aire. Se utiliza un tubo flexible para introducir líquido o aire en el intestino. Luego, se toman radiografías especiales. Por lo general la fuerza del líquido o del aire al entrar al intestino lo enderezan.

Cuidados en la casa

- Permita que su niño vuelva a su actividad normal tan pronto se sienta listo.
- Observe a su niño en caso de que haya señales de que su afección ha regresado, ya que a intususcepción a veces puede volver a presentarse.
- Dele a su niño una dieta normal.

Visitas de control

Programe una visita de control según le indique nuestro personal.

Cuándo debe llamar al médico

Llame al médico inmediatemente si su niño presenta cualquiera de los siguientes síntomas:

- Dolor abdominal que aparece y desaparece
- Dolor constante en el abdomen que no se alivia o parece empeorar
- Vómitos
- Lentitud, cansancio o fatiga extremos
- Deposiciones (heces) con sangre, oscuras o con mucosidad
- Palidez de la piel