Introduction

This pathway is for use with children aged 2-18 years old with no underlying disease or co-morbidity who have a confirmed diagnosis of appendicitis (either non-perforated or perforated) by the General Surgery Team who require a surgical appendectomy or medical management. Patients are to be removed from this pathway if there are significant postoperative complications (eg. bowel obstruction or prolonged TPN) or a change in diagnosis.

Target Users

- General Surgery Surgeons, Residents, Fellow, Nurse Practitioners, and nurses on the inpatient units

Definitions

- **Non-perforated appendicitis** - Appendix is normal, injected, inflamed or suppurative. Presence of cloudy fluid +/- local fibrinous exudate, or gangrenous appendicitis but with no visible hole in appendix, abscess or free fecalith
- **Perforated appendicitis** - Visible hole in appendix, free fecalith, diffuse peritonitis with fibrinous exudate or abscess
- **Appendectomy** - Surgical removal of the appendix
- **Fever** - A fever is defined as any temperature reading greater than 38°C
Appendicitis Management Pathway

Recommendations - Printable Version

1. Child in ED with confirmed diagnosis of Appendicitis on ultrasound:
   - ED to consult General Surgery team and initiate ED Appendicitis protocol.

2. Is there a sign of perforation on ultrasound? (Perforated appendicitis is a 7-day protocol)
   - If yes, proceed to surgical management.
   - If no, proceed to medical management.

Surgical Management:
- Child placed on O.R. Priority 2 list.
- Initiate Cefazolin/Metronidazole for perforated appendicitis using Epic order set.
- Refer to Algorithm

Medical Management:
- Is perforation seen on ultrasound?
  - Yes: Proceed to surgical management.
  - No: Continue medical management.

- Initiate medical management of perforated appendicitis with IV cefazolin/metronidazole using Epic order set (Refer to Algorithm)

3. Are there intraperitoneal collections seen on ultrasound?
   - Yes: Proceed to post-op.
   - No: Proceed to post-op.

Post-op:
- Convert to oral antibiotics when child fails to have a minimum of 12 hours of bowel rest and an intraperitoneal or intravenous abscess is manageable.
- Switch to oral Cefixime (minimum 7 days) to complete additional 7 days of oral antibiotics (days include hospital stay on oral antibiotics) (Refer to Algorithm)

Post-op:
- IOT to insert percutaneous drain for collection and determine length of time until drain removal.
- Child will remain on IV Cefazolin/Metronidazole until drain is removed.

- Continuous IV cefazolin/metronidazole (Refer to Algorithm)

If the patient clinically worsens, consider upgrade to IV antibiotics (IV fluid bolus if no ultrasound within the past 2-3 days, repeat in order to evaluate for drainage collection)

*Children with a history of appendicitis may be considered for a definitive bowel-later operation.

**Antibiotic therapy should be assessed based on any available microbiological data (e.g., if cultures are obtained from an abdominal abscess aspiration)

*** A fever is defined as any temperature reading greater than 38°C (Refer to Suspect Clinical Pathway)
# Inpatient Non-Perforated Appendicitis Care Pathway

<table>
<thead>
<tr>
<th>PRE-OPERATIVE</th>
<th>POST-OPERATIVELY</th>
<th>DISCHARGE: WITHIN 24 HOURS POST-OP</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GOALS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1. Hydration maintained</td>
<td>1. Albolax</td>
<td>1. Albolax</td>
</tr>
<tr>
<td>3. Patient prepared for OR</td>
<td>3. Anti vomiting</td>
<td>3. Anti vomiting</td>
</tr>
<tr>
<td>4. Children are advised of pre-op bath</td>
<td>4. Able to tolerate diet (clear fluids to regular diet)</td>
<td>4. Able to tolerate diet</td>
</tr>
<tr>
<td></td>
<td>5. Incision dry and intact</td>
<td>5. Incision dry and intact</td>
</tr>
<tr>
<td><strong>PHYSICAL EXAM</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Obtain history</td>
<td>Complete pain assessment every 4 hours</td>
<td>Complete pain assessment every 4 hours</td>
</tr>
<tr>
<td>Complete physical exam</td>
<td>Ensure child has adequate pain control (refer to Pain Management Guidelines)</td>
<td>Ensure child has adequate pain control (refer to Pain Management Guidelines)</td>
</tr>
<tr>
<td>Assess vital signs</td>
<td>Monitor vital signs as per Bedside Bloods (refer to Renal Pathway)</td>
<td>Monitor vital signs as per Bedside Bloods (refer to Renal Pathway)</td>
</tr>
<tr>
<td>Complete pain assessment (refer to Pain Assessment Guidelines)</td>
<td>Obtain accurate in and out</td>
<td>Obtain accurate in and out</td>
</tr>
<tr>
<td>Obtain accurate in and out</td>
<td>Complete abdominal assessment</td>
<td>Complete abdominal assessment</td>
</tr>
</tbody>
</table>

**NURSING**
- Ensure that child is NPO
- Administer D5W and 0.45% NaCl with 20mmol KCl at maintenance
- Bulits as indicated
- Refer to Fluid and Electrolyte Guidelines

**MEDICATION**
- Ceftriaxone/ Metronidazole IV if allergy then Clindamycin or Clindamycin & Metronidazole. Refer to the e-formulary
- Pain medication as needed, morphine acetaminophen NDAOs. Refer to the e-formulary

**ACTIVITY EDUCATION**
- Diet: Advance diet as tolerated
- Pain: Acetaminophen and ibuprofen (if not contraindicated) for 48 hours then as needed
- Incontinence care: Leave ster-ips in place for 6 hours after surgery

When to call surgeon's office:
- Wound infection
- Vomiting
- Fever
- Pain

Follow-up:
- Confirm need for follow-up with Primary Surgeon
- Family doctor/pediatrician in 1-2 weeks

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## Inpatient Perforated Appendicitis Care Pathway

### DAY OF ADMISSION
1. Hydration maintenance
2. Adequate pain control
3. Patient prepared for OR if surgical management required
4. Abdominal distention treated if needed

### DAY # 1
1. Analgesia
2. Adequate pain control
3. Antibiotics
4. Able to tolerate clear fluids immediately post-op
5. Insert intra-abdominal drain(s) if required
6. Use of nasogastric tube to prevent further progression of fluid from intestinal tract

### DAY # 2 - 3
1. Analgesia
2. Adequate pain control
3. Antibiotics
4. Able to tolerate regular diet
5. Incision dry and intact
6. Vital signs as per PEARLS (Refer to Sepsis Clinical Pathway)
7. Pain assessment (focus on abdomen) every 4 hours
8. Accurate I & O
9. Wound assessment (remove surgical draping, leave sterile strips)

### DAY # 4
1. Analgesia
2. Adequate pain control
3. Antibiotics
4. Able to tolerate regular diet
5. Incision dry and intact
6. Maintenance until adequate oral fluid intake and then TKO

### DAY # 5
1. Analgesia
2. Adequate pain control
3. Antibiotics
4. Able to tolerate regular diet
5. Incision dry and intact
6. Diet as tolerated
7. If NPO, ensure that child is receiving IV fluids with D5W
8. Assess need for PN Therapy

### Related Documents

- E-formulary
- Sepsis Pathway
- Pain Management Guidelines
- Pain Assessment Guidelines
- Fluid & Electrolyte Guidelines

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References


6. Children’s Hospital of Philadelphia: Appendicitis with Known GI Disease Clinical Pathway- Emergency

7. Children’s Hospital of Philadelphia: Appendicitis Clinical Pathway- Inpatients

8. Cincinnati Children’s Hospital: Emergency Appendectomy Clinical Pathway


14. Inpatient and Surgical Care: Appendectomy for Ruptured Appendicitis or Generalized Peritonitis Care Guideline


28. University Hospitals of Cleveland: Pediatric Appendicitis/Simple Laparoscopic/Open Technique Care Path


Guideline Group and Reviewers

Guideline Group Membership:
1. Monping Chiang, NP, General and Thoracic Surgery
2. Dr. Joshua Ramjist, Fellow, General and Thoracic Surgery
3. Dr. Augusto Zani, Surgeon, General and Thoracic Surgery
4. Dr. Annie Fecteau, Surgeon, General and Thoracic Surgery

Internal Reviewers:
1. Kealey Clarke, RN, Quality Leader- 5B General Surgery
2. Sabrina Boohan, Clinical Pharmacist- 5B General Surgery
3. Christine McGovern, Sr Clinical Manager- 5B General Surgery

Attachments:
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appendicitis algorithm.pdf
Non perforated appy pathway.pdf
Non perforated appy pathway.rtf
Perforated appy pathway.pdf
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