Complicated Appendicitis: Post Operative Management

Clinical Practice Guideline

Appendectomy with a Complicated Appendix (Category 2b & 2c)

2B: Focal perforation – hole clearly in the appendix, focal collection of pus in the right gutter or pelvis, small perf created during extraction, etc.
2C: Gross contamination - purulence throughout abdomen/pelvis, fecal contamination, grossly perforated. Pus outside of RLQ. Diffuse peritonitis. Floating fecalith.

Initial Post-operative Management

Antibiotic Therapy
See table on pg. 2 for dosing schedule
- Ceftriaxone
- Metronidazole

IF PCN ALLERGY USE
Ciprofloxacin & Metronidazole

Antibiotic Step up
Therapy
- 72hrs post op if febrile, vomiting, poor po intake
- D/C Ceftriaxone & Metronidazole
- Start Zosyn unless pt. has a PCN Allergy (See table on pg. 2 for dosing schedule)

Nutrition/GI
(NG not recommended)
- Clears and advance as tolerated
- When tolerating regular diet start Miralax PO (max 17 gm) prn no stool for 24 hours (see dosing pg.2)
- Advance to oral pain medications* once tolerating reg. diet

Pain Control*
- Acetaminophen: 10mg/kg/dose po q4hr (max 500mg) for pain
- Toradol: 0.5mg/kg/dose IV q6hrs (max 30 mg/dose) Max 20 doses
- Morphine: 0.1mg/kg/dose IV q 3hr PRN pain if acetaminophen or toradol is not effective (max 5mg/dose)
- Gabapentin 10 mg/kg/dose po TID (max 300mg)

Activity/Consults
(Routine Labs not recommended)
- OOB on surgical day X1 minimally & ambulate 3x qd
- Consult Child Life
- Consult PT as needed
- Consult Nutrition as needed
- Avoid placing a Foley; if used in surgery remove on POD 1

Evaluate Fever Curve (including daily T-max), Pain response, and GI response to diet

Every Day

- Fever Curve improved, Pain decreased & ileus resolved
- Patient meets D/C Criteria

Is patient Improved?
- Yes
- No

≥ POD 7?
- Yes
- NO

Abscess Present?
- YES
- NO

Obtain Labs & Imaging US/CT per surgeon discretion

Abscess Management
(Obtain cultures from abscess when draining)

Continue Antibiotics reassess in 48-72 hrs

Are any of the abscesses ≥ 2cm?
- YES
- NO

Drain in IR or Operating Room

Drain in OR

≥ 3 abscesses?
- YES
- NO

Repeat Imaging

Abscess Resolved?
- YES
- NO

Return to OR/IR for drainage
- Consider ID Consult
- Assess susceptibility of organism to antibiotic
- Patient is off Guideline

Activity/Consults
- Discharge* Home and complete a total of 7 days of antibiotics from the day of source control. (IV & PO combined)

Discharge Criteria
- Afebrile (< 38° C) > 24 hrs
- Tolerating regular diet
  - 50% of 3 consecutive meals
- Adequate pain control with oral medications
  - Pain score is 3 or less within 1 hr. after oral medication administered
- Benign Abdominal Exam by attending surgeon/designee
- Ambulation without assistance (250 feet)
- If discharging home with a drain, include drainage care instructions

*ADVancing Oral Pain Regimen:
Once pain controlled and tolerating PO, change these medications from IV to PO:
- Toradol to Ibuprofen 30mg/kg/dose po q 6hr prn (max 400mg/dose)
- Morphine to Hydrocodone with Acetaminophen 325 mg 0.2mg hydrocodone/kg/dose po q6hr PRN pain (max 5mg hydrocodone/dose)
- If discharged on opioids also order Miralax qd X 5 days
- Consider Gabapentin as a discharge medication

* Fever Curve improved, Pain decreased & ileus resolved

Patient meets D/C Criteria
- Yes
- NO

Reassess in 24 hrs & Check WBC, CRP

WBC & CRP trending down?
- Yes
- NO

Keep on IV ABx and reassess oral tolerance in 24hr

Tolerating Oral ABx?
- Yes
- NO

Tolerating Oral ABx?
- Yes
- NO

Transition to Oral Amoxicillin/Clavulanate (if no PCN allergy)

Discharge* Home and complete a total of 7 days of antibiotics from the day of source control. (IV & PO combined)

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### Empiric IV Therapy for Appendicitis

<table>
<thead>
<tr>
<th>Indication</th>
<th>Antibiotics</th>
<th>Dose &amp; Schedule</th>
<th>Max Single Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complicated Appendicitis (CA)</td>
<td>Ceftriaxone and Metronidazole</td>
<td>75mg/kg q 24h IV</td>
<td>2000mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30 mg/kg q 24h IV</td>
<td>1500mg</td>
</tr>
<tr>
<td>Complicated Appendicitis with severe penicillin allergy¹</td>
<td>Ciprofloxacin and Metronidazole</td>
<td>15 mg/kg q 12h IV</td>
<td>400mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>30 mg/kg q 24h IV</td>
<td>1500mg</td>
</tr>
<tr>
<td>Complicated Appendicitis with sepsis</td>
<td>Piperacillin/tazobactam²</td>
<td>100mg/kg q 8h IV</td>
<td>4000mg</td>
</tr>
</tbody>
</table>

¹Type 1 allergy defined by urticaria or anaphylaxis
²Metronidazole does not need to be added to a regimen with piperacillin/tazobactam since anaerobic coverage is adequate with piperacillin/tazobactam

### PO Stepdown Therapy

<table>
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<th>Max Single Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complicated Appendicitis (CA)</td>
<td>Amoxicillin/Clavulanate Liquid 400mg/5mg for &lt;40kg</td>
<td>45/mg/kg/day divided BID</td>
<td>875mg</td>
</tr>
<tr>
<td></td>
<td>Amoxicillin/Clavulanate Tablet (875mg) for &gt;40kg</td>
<td>1 tablet BID</td>
<td>875mg</td>
</tr>
<tr>
<td>Complicated Appendicitis (CA) with Severe PCN Allergy</td>
<td>Ciprofloxacin and Metronidazole</td>
<td>15mg/kg q 12h po</td>
<td>500mg</td>
</tr>
<tr>
<td></td>
<td></td>
<td>10mg/kg q 8h po</td>
<td>500mg</td>
</tr>
</tbody>
</table>

### Miralax Dosing

When tolerating regular diet start Miralax po (max 17 gm) prn no stool for 24 hours AND if discharged on narcotics also order Miralax qd X 5 days
- Age 1-5 years 4.25 grams (1/4 capful)
- Age 6-11 years 8.5 grams (1/2 capful)
- Age 12 and up 17 grams (1 whole capful)