Suspected Appendicitis Care Guideline

CHOC Children's

Postoperative Management – p. 2
Non-operative Management – p. 3

Inclusion Criteria: children 2 - 16 yrs old with acute abdominal pain
Exclusion Criteria: history of trauma, pregnant, previous abdominal surgery

Assessment

History: inquire specifically about onset & intensity of symptoms, anorexia, nausea/vomiting, diarrhea, migration of pain
Clinical examination: guarding/rigidity, localized tenderness, presence of rebound, observe walking, note fever

Interventions

- CBC with differential, CRP, UA, HCG if > 10yrs and female
- NPO
- IV fluids/bolus for evidence of hypovolemia
- Morphine 0.1 mg/kg IV q3h PRN pain or 3 mg IV q3h PRN if > 30 kg

History, exam, labs consistent with appendicitis

- No → Non-surgical diagnosis
- Yes → Surgery consult
- Equivocal → If morbidly obese, proceed to CT scan with oral/IV contrast

Appendix ultrasound, IV NS 20 mL/kg bolus

- Negative
- Positive
- Equivocal → Phone consult with surgeon to decide re: CT scan

CT scan with oral/IV contrast

- Negative
- Positive
- Equivocal → Serial exams, temperature curve, repeat CBC, CRP

Prep for OR

- NPO
- IV 20 cc/kg NS bolus then D5½ NS w/ 20 mEq/L KCL (rate dependent on age)
- Cefoxitin 40 mg/kg IV (max dose 2000mg) **OR**
- For strong suspicion of perforation, give ceftriaxone 50 mg/kg IV or 2000 mg IV q24 h> 40 kg AND metronidazole 30 mg/kg IV or 1500 mg IV q24h > 50 kg
- Consent for laparoscopic appendectomy, possible open appendectomy, possible central line insertion

Transport to Pre-Op or Med/Surg Unit dependent on OR time

Recommendations/ Considerations

- Appendicitis is the most common atraumatic surgical condition in children who present with abdominal pain
- Most common signs/symptoms in young children are periumbilical pain with migration to RLQ, anorexia, nausea/emesis, guarding, cough/ percussion tenderness
- Laboratory findings commonly include leukocytosis and bandemia.
- Evidence supports the use of narcotic analgesics in children with abdominal pain
- For true allergy to penicillin, use gentamicin/ clindamycin

Approved Care Guidelines Committee 12-16-09
Revised 3-28-13, 7-19-13 antibiotic dose change

Reassess the appropriateness of Care Guidelines as condition changes and 24 hrs after admission. This guideline is a tool to aid clinical decision making. It is not a standard of care. The physician should deviate from the guideline when clinical judgment so indicates.

Appendectomy (Post-operative) Care Guideline

CHOC Children's

Inclusion Criteria: Postoperative laparoscopic or open appendectomy patients, Interval/delayed appendectomy for perforated appendicitis
Exclusion criteria: Incidental appendectomy

Postoperative – All Patients

- Vital signs q 1 hr x 2, then q 4 hrs, strict I/O
- OOB/ambulate QID; begin today
- IV D5½ NS + KCL 20 mEq/L
- Incentive spirometry q 1 hr x 24 hrs, then q 6 hrs while awake
- Morphine 0.1 mg/kg/dose IV q 4 hrs PRN severe pain (<50 kg) **AND +/-** Ketorolac 0.5 mg/kg/dose IV q 6 hrs x 48 hrs then PRN pain (<30kg) for 72 hrs
- Odansetron 0.1 mg/kg/dose IV q 8 hrs PRN nausea/vomiting (<40 kg)

Uncomplicated Appendicitis (acute inflammatory or suppurative) or Normal Appendix

- Clear liquid diet when awake, then regular diet by 2nd meal if clears tolerated
- Saline lock IV when taking adequate fluids

POD 1

- Discharge if criteria met

Discharge Criteria

- VS stable, afebrile x 24 hrs
- Tolerating diet
- Abdomen soft, non-distended, without significant tenderness
- Ambulating
- Comfortable on PO pain meds

Complicated Appendicitis (perforated or gangrenous)

- NPO until awake
- NGT to low intermittent suction (if placed) -note amount & color of drainage
- JP drain (if placed) – note amount & color of drainage
- Central line care (if placed)
- Ceftriaxone 50 mg/kg IV q24h or 2000 mg IV q24 h> 40 kg AND
- Metronidazole 30 mg/kg IV q24h or 1500 mg IV q24h > 50 kg

NPO Patients

Clear liquids and advance diet as tolerated, once ileus resolved

POD 2

- Transition to oral pain meds

POD 4

- Repeat labs if CRP on POD 3 was ≤70 but > 50 mg/L
- Discharge if criteria met

POD 5

- CBC, CRP
- Discharge if criteria met

NGT Patients

DC NGT, start clear liquids and advance diet as tolerated, once ileus resolved

POD 4

- Transition to oral pain meds

POD 5

- CBC, CRP
- Discharge if criteria met

Discharge Criteria

- Improving CRP
- VS stable, afebrile x 24 hrs
- Tolerating diet
- Abdomen soft, non-distended, without significant tenderness
- Ambulating
- Comfortable on PO pain meds

Recommendations/ Considerations

- For abscess formation, culture and consider use of Zosyn (high dosing)
- Central line care should be performed per CHOC procedure (Mosby – CVAD)
- Pain Assessment and Management per CHOC procedure (Mosby – Pain Management)
- For true allergy to penicillin, use gentamicin/ clindamycin

Patient/Family Education

- Postop care; discharge instructions, signs/ symptoms for complications, diet, bathing & wound care, activity restrictions, pain management, medications, return to school, follow up appointment

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Previous version 11-05

Non-Operative Management of Perforated Appendicitis Care Guideline

CHOC Children's

Inclusion Criteria: children 2 - 16 yrs old with:
- Symptoms ≥ 5 days
- CT confirmed appendicitis

Interventions

- **If drainable abscess on CT scan** - percutaneous drainage by Interventional Radiology
- Culture drainage
- **If no drainable abscess** -> PICC line placement by PICC RN or Interventional Radiology
- IV D5½ NS + KCL 20 mEq/L
- Diet for age as tolerated
- Clear liquids if unable to tolerate solids; advance as tolerated
- Morphine 0.1 mg/kg/dose IV q 4 hrs PRN severe pain (<50 kg) **AND +/-** Ketorolac 0.5 mg/kg/dose IV q 6 hrs x 48 hrs then PRN pain (<30 kg) for 72 hrs
- VAD care
- Arrange Home Care for IV Antibiotics (RN visits, meds, supplies, labs)

Antibiotics

- Ceftriaxone 50 mg/kg IV q24h or 2000 mg IV q24 h> 40 kg AND
- Metronidazole 30 mg/kg IV q24h or 1500 mg IV q24h > 50 kg

Continued Considerations

- CBC and CRP when afebrile and tolerating regular diet
- Adjust antibiotics based on culture results and evaluate for transition to oral route when clinically appropriate
- If uncontrolled sepsis or bowel obstruction develops, consider proceeding to appendectomy
- If a drain was placed, assess for removal
- Change antibiotics to single agent home regimen before discharge; give a minimum of one dose (if requires IV route)
- Discharge on oral antibiotics, if culture results available, for 14 day total course

Recommendations/ Considerations

- There are no randomized trials comparing different antibiotic regimens for the nonoperative treatment of perforated appendicitis in children. The Surgical Infection Society recommends either multi-drug therapy or monotherapy as long as adequate Gram-negative and anaerobic coverage is provided.
- If abscess not drainable, use of Zosyn is recommended.
- For true allergy to penicillin, use gentamicin/clindamycin
- Central line care should be performed per CHOC procedure (Mosby – CVAD)
- Pain Assessment and Management per CHOC procedure (Mosby – Pain Management)

Parent/Patient Education

- CVAD care
- Wound care

Discharge Criteria

- Afebrile x 24 hours
- Tolerating regular diet
- CRP trending down
- Ambulating
- Comfortable on PO pain meds

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Revised 3-28-13

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