



# SOAPPS

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## **Non-Operative Management of Uncomplicated, Acute Appendicitis**

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Appendicitis is the most common cause for emergency abdominal surgery in childhood. Approximately 70,000 children are affected each year.

Some literature shows that antibiotics are a safe and efficacious treatment option for patients with early uncomplicated appendicitis. It is important to note that research is currently limited to 1 year following treatment. Non operative management can be discussed as a treatment option with families with a patient presenting with a clinical history, laboratory values and imaging consistent with a diagnosis of early, uncomplicated appendicitis. The management decision for these patients is shared between the provider and family. Numerous factors can be important when making this decision. Surgery may be better for patients who live in remote areas, families with overwhelming concern for recurrence or who have upcoming travel.

### **Example Patient Criteria for Non Operative Management**

- Age 7-17 years
- US or CT confirming early appendicitis (hyperemia, appendix less than or equal to 1.1 cm in diameter, no abscess, no fecalith, no phlegmon)
- WBC count > 5,000/ $\mu$ L and less than or equal to 18,000/ $\mu$ L
- Abdominal pain less than or equal to 48 hours prior to receiving antibiotics

### **Example Exclusions for Non Operative Management**

- History of chronic intermittent abdominal pain
- Diffuse peritonitis
- Pain > 48 hours prior to first antibiotic dose
- Positive urine pregnancy test
- Presence of fecalith on imaging
- Evidence on imaging concerning for evolving perforation
- Presence of abscess or phlegmon on imaging
- WBC count less than or equal to 5,000/ $\mu$ L and greater than 18,000/ $\mu$ L
- Communication difficulties (ex. Severe developmental delay)
- Antibiotic use within 72 hours of presentation for appendicitis

### **Protocol Example**

- Patient receives 24 hours of IV antibiotics

- Tylenol and Ibuprofen for pain control
- NPO x 12 hours followed by provider reassessment. If the exam is reassuring, diet can be advanced.
- Oral antibiotics trialed when patient is tolerating a diet and completed 24 hours of IV antibiotics
- Discharge if afebrile, tolerating diet and oral antibiotics, ambulating, normal abdominal exam (minimal/mild tenderness acceptable if improved from admission)
- Complete oral antibiotics for 7 days total of PO/IV antibiotics
- No follow up

### **Example of Criteria Indicating Failure of Non-Operative Management**

- Failure to improve after 24 hours of IV antibiotics
  - Patient does not exhibit clinical improvement (decreased tenderness, improved fever curve) or does not report symptomatic relief (decreased pain, nausea, vomiting or tolerating diet)
  - If there is no clinical improvement or symptomatic relief, appendectomy is recommended
  - If there is some clinical improvement or symptomatic relief, an additional 24 hours of antibiotics may be given
- Clinical status worsens
  - Increased pain, tachycardia, fever, hypotension

### **References:**

1. Minneci PC, Hade EM, Lawrence AE, Saito JM, Mak GZ, Hirschl RB, et al. Multi-institutional trial of non-operative management and surgery for uncomplicated appendicitis in children: Design and rationale. *Contemporary Clinical Trials*, 2019;83:10-7. <https://doi.org/10.1016/j.cct.2019.06.013>.
2. Minneci PC, Hade EM, Lawrence AE, Sebastião YV, Saito JM, Mak GZ, Fox C, Hirschl RB, Gadepalli S, Helmuth MA, Kohler JE, Leys CM, Sato TT, Lal DR, Landman MP, Kabre R, Fallat ME, Cooper JN, Deans KJ; Midwest Pediatric Surgery Consortium. Association of Nonoperative Management Using Antibiotic Therapy vs Laparoscopic Appendectomy with Treatment Success and Disability Days in Children with Uncomplicated Appendicitis. *JAMA*. 2020 Jul 27. Doi: 10.1001/jama.2020.10888.
3. Perez Otero S, Metzger JW, Choi BH, Ramaraj A, Tashiro J, Kuenzler K, Ginsburg B, et al. It's time to deconstruct treatment failure: A randomized controlled trial of nonoperative management of uncomplicated pediatric appendicitis. *Journal of Pediatric Surgery*, 2022;57:56-62. <https://doi.org/10.1016/j.jpedsurg.2021.09.024>.