Acute Appendicitis Management

UNMC - Emergency General Surgery
Acute Appendicitis Management

1) **Uncomplicated appendicitis** *(appendicitis without perforation, abscess, phlegmon, or peritonitis):*
   a) Operative management (stable patient):
      i) Post case B6
         (1) if OR is readily available, patient may remain in ED and avoid admission
      ii) Pre-op IV antibiotics: Cefoxitin 2g IV within 60 minutes before incision
      iii) Proceed with appendectomy
      iv) Discharge post-operatively without antibiotics (if uncomplicated and adequate source control)
   b) Non-operative management:
      i) Contraindications to non-operative management:
         (1) appendicolith
         (2) pregnancy
         (3) suspicion for appendiceal neoplasm (appendix >15mm, mass, mucocele, etc.)
         (4) peritonitis
         (5) septic shock
         (6) evidence of free air
      ii) Counsel patient on 39% five-year recurrence rate with non-operative management and lower overall complication-free success with surgery
      iii) Admit to observation
      iv) Initiate IV antibiotics*
      v) If clinical improvement:
         (1) transition to PO antibiotics* for a total antibiotic course of 10 days
         (2) Strongly consider colonoscopy within three months if patient ≥ 40 years old
      vi) If no clinical improvement after three days:
         (1) proceed to appendectomy

2) **Complicated appendicitis** *(perforation, abscess, phlegmon, or peritonitis)*
   a) Consider surgery (especially robotic) if evidence of non-involved appendiceal base
      i) Appendix stump ≥ 2cm on CT is associated with lower operative complication rate including conversion to open and extended resection
   b) Septic / unstable patient OR free perforation/peritonitis
      i) Proceed directly to appendectomy
      ii) If source control is achieved, postoperative antibiotics* for 4 days

c) Stable patient with localized disease:
    i) Phlegmon
        (1) If appendectomy without bowel resection likely:
            (a) Proceed with appendectomy
            (b) postoperative antibiotics* for 4 days if source control is achieved
        (2) if appendectomy not feasible OR bowel resection likely:
            (a) antibiotics* for 10 days + hospital observation
            (b) if no clinical improvement after three days:
                (i) proceed to appendectomy (4 days antibiotics post-op) or operative drain placement without appendectomy (4-7 days antibiotics post-op)
            (c) follow-up in 1-2 weeks** with outpatient CT abdomen/pelvis w IV contrast
    ii) Abscess
        (1) ≥ 3cm AND amenable to drainage:
            (a) IR percutaneous drainage + antibiotics* for 4-7 days after drain placed
            (b) follow-up in 1-2 weeks** with outpatient CT abdomen/pelvis w IV contrast
        (2) < 3cm OR undrainable:
            (a) antibiotics* for 10 days + hospital observation
            (b) if no clinical improvement after three days:
                (i) repeat CT abdomen/pelvis w IV contrast
                    1. if abscess now ≥ 3cm AND amenable to drainage:
                        a. IR percutaneous drainage + antibiotics* for 4-7 days after drain placed
                    2. if abscess remains < 3cm or undrainable
                        a. proceed to appendectomy (4 days antibiotics post-op) or operative drain placement without appendectomy (4-7 days antibiotics post-op)
            (c) follow-up in 1-2 weeks** with outpatient CT abdomen/pelvis w IV contrast

3) **Interval appendectomy consideration** (6-12 weeks after discharge):
    a) Strongly consider if:
        i) Age ≥ 40 years
        ii) Appendix diameter >15mm
        iii) Mucocele or cystic dilation
        iv) Appendiceal mass
        v) Mural calcifications
        vi) Phlegmon
        vii) Lymphadenopathy
        viii) Absence of fat stranding

        Note: appendicolith and fat stranding are NOT hard indications for interval appendectomy by themselves

4) **Colonoscopy**
    a) Strongly consider colonoscopy:
        i) Prior to interval appendectomy if age ≥ 40 years
        ii) Within three months if either of the following:
            (1) Age ≥ 40 years and treated non-operatively
            (2) Abnormal imaging suspicious for neoplasm or IBD at any age

5) ***Antibiotic Selection**
    a) Intravenous
        i) Preferred: Ceftriaxone 2g IV daily PLUS metronidazole IV/PO q8h
            (1) Alternative: Piperacillin-tazobactam 4.5g q8h IV over 4 hrs
        ii) Septic shock: add amikacin 15mg/kg IV x 1 to one of the above regimens
        iii) History of intra-abdominal *Pseudomonas*: Piperacillin-tazobactam 4.5g IV q8hrs over 4 hrs
        iv) History of ESBL colonization: Ertapenem 1g IV daily
    b) Oral
        i) Preferred: levofloxacin 750mg PO daily PLUS metronidazole 500mg IV/PO q8h
            (1) Alternative: Amoxicillin-clavulanate 875-125mg PO BID

6) ****** Follow-up in EGS elective clinic (not Thursday afternoon clinic) OR Complex Care Clinic with outpatient CT abdomen/pelvis w IV contrast if:**
    - phlegmon (without surgical resection)
    - abscess (drained OR undrained)
    - any situation where a patient had an operation for appendicitis, but the appendix was not resected

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Approved 06/03/2026

Revision #2
Created 6 June 2026 18:39:59 by Maggie Baumann
Updated 6 June 2026 18:48:40 by Maggie Baumann