Adult Appendicitis Management Pathway*

Exclusion criteria (consider ID consult):
-Neutropenia
-Active hematologic malignancy
-Solid organ transplant within 1 year or augmented immune suppression
-Other severe immunosuppression
-Known ESBL or multi-drug resistant organism carriage within 90 days
-Bacteremia
-Severe antibiotic allergies
-Severe disease (major peritoneal soilage, large/multiple abscesses, hemodynamic instability)

UCSF antibiotic alternatives for allergy/intolerance:
https://idmp.ucsf.edu/content/inpatient-beta-lactam-allergy-guideline

UCSF surgical prophylaxis guidelines:
https://idmp.ucsf.edu/sites/g/files/tkssra4251/f/Surgical%20ppx%20guideline%20v1.2_update%204_2019.pdf

UCSF antibiotic dosing guidelines:
https://idmp.ucsf.edu/adult-antimicrobial-dosing-non-dialysis

Appendicitis based on clinical diagnosis and/or imaging findings

Pre-op Orders:
1. Antibiotics: Ceftriaxone, Metronidazole *[If pregnant see **RED** box]*
2. Pain: Acetaminophen, Dilaudid

ED:
-Ceftriaxone IV
-Metronidazole IV
If pregnant see **RED box*

-Mandatory surgical consult for any appendicitis dx

***Pregnant Patients:**
-All receive IV **Piperacillin/Tazobactam** while inpatient (if severe allergy call ID/ASP consult)
-Consult ID/ASP (clinical pharmacist) for oral therapy/discharge regimen, as needed

Acute simple/uncomplicated gangrenous (AAST G1-2)
*if appendicolith proceed with operative management

Perforated (AAST G3-5)

Non-Operative Management

Operative Management

Delayed Operative Management

Discharge:
Ciprofloxacin/metronidazole PO x 7 days total

*If pregnant see **RED** box*

*if recurrent symptoms proceed with operative management

Admission:
Ceftriaxone/metronidazole IV --> ciprofloxacin/metronidazole PO x7 days total (IV+PO)

*If pregnant see **RED** box*

Refer for outpatient follow-up +/- discussion of possible interval appendectomy +/- colonoscopy

Have patient void on call to OR
or
If foley placed, d/c at end of case
Avoid drains if possible

-Give **ceftriaxone IV** before incision if >12h since last dose
-Ensure **metronidazole IV** was administered prior to OR; give if not received or >12h from last dose

If pregnant:
-Give **piperacillin/tazobactam IV** if >8h from last dose

-Re-dose subsequent intra-operative antibiotics based on re-dosing table

Simple/gangrenous/suppurative (AAST G1-2)

Perforated +/- phlegmon/abscess +/- generalized peritonitis (AAST G3-5)
(consider leaving drain in OR)

Document AAST grade in operative report

Admit

IR drain placed?

No

Yes

Source control achieved?

Yes

No

Ceftriaxone/metronidazole IV --> ciprofloxacin/metronidazole PO x 4 days total from source control procedure (IV+PO)

*If pregnant see **RED** box*

-Continue IV antibiotics
-Consider inpatient ID consult for further antibiotic selection & duration
-Establish primary surgeon to manage patient in ambulatory setting

For those with delayed operative management, refer for discussion of indications for interval appendectomy @ 4-6 weeks +/- colonoscopy

Post-op Orders:
1. Pain: Acetaminophen, ibuprofen, oxycodone
2. Regular diet
3. SLIV
4. OK to discharge same day if tolerating PO, pain controlled, voiding, ambulating

Discharge Pain Orders:
Acetaminophen, Ibuprofen, Oxycodone

Antibiotic Regimens

Antibiotic	Standard dose	Peri-operative dosing (pre-incision & intra-operative)
Ceftriaxone	**2g IV qday**	**2g IV q12hrs**
Metronidazole	**500mg IV/PO q12hrs***	**500mg IV q12hrs**
Piperacillin/Tazobactam	**4.5g IV q8hrs#**	**4.5g IV q2hrs@**
Ciprofloxacin	**500mg PO q12hrs*^**	N/A

In addition to the re-dosing intervals suggested, consider immediate re-dosing in patients who have > 1.5 L of blood loss (>25ml/kg or > 30% blood volume loss for patients < 40kg) within a short time frame

*Needs renal adjustment with CrCl <10 mL/min

#Extended infusion dosing - Loading dose: 4.5g IV over 30 min x1, then 4.5g IV infused over 4hrs every 8hrs (starting 4hrs after loading dose), needs renal adjustment for CrCl <20mL/min

@Q2hrs x 3 doses then resume standard dosing interval

^Dosing for oral stepdown/transition, needs renal adjustment for CrCl <30 mL/min

AAST Operative Grading

Grade	Description
I	Acutely inflamed appendix, intact
II	Gangrenous appendix, intact
III	Perforated appendix with local contamination
IV	Perforated appendix with periappendiceal phlegmon or abscess
V	Perforated appendix with generalized peritonitis

Pain Medicine Regimens

Pain medicine	Standard dose	Pre-op dose x1	Discharge order/dose
Acetaminophen	1000mg IV/PO Q8hrs	1000mg PO	500mg tabs #100 1000mg PO Q8hrs
Ibuprofen*	600mg PO Q8hrs with meals	N/A	600mg tabs #42 600mg PO Q8hrs with meals
Ketorolac*	15-30mg IV q6-8hrs (if not tolerating PO)	N/A	N/A
Oxycodone	2.5 to 5mg PO Q3hrs PRN moderate pain not controlled by acetaminophen/ibuprofen	N/A	5mg tabs #10 max (can be less) 0.5 to 1 tab PO Q6hrs PRN moderate pain not controlled by acetaminophen/ibuprofen
Hydromorphone	0.2-0.5mg IV q3hrs PRN severe/breakthrough pain and/or if NPO	N/A	N/A

*Do not prescribe in patients with renal compromise
eGFR <60

*Pathways are intended to assist with clinical decision-making for common situations but cannot replace personalized evaluation and management decisions based on individual patient factors

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