Project ECHO®

University of Wisconsin

The Mysterious & Troublesome Appendix

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SCHOOL OF MEDICINE AND PUBLIC HEALTH

CARS CURING KIDS

Project Echo for Pediatric Care 2018-2020
The mysterious and troublesome appendix
February 21, 2019
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Provided by the University of Wisconsin–Madison Interprofessional Continuing Education Partnership (ICEP)

Intended Audience:
Pediatric emergency care professionals

Objectives:
As a result of this educational regularly scheduled series, learners will be able to:

1. Utilize new skills and guidelines determined to be safe for children when accessing pediatric trauma.
2. Identify proper tools and standardized practices in order to improve the diagnosis and treatment of pediatric patients.
3. Define roles and responsibilities of team members who triage pediatric emergencies in order to identify communication strategies that result in effective patient care.

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Veronica Watson Coordinator	No relevant financial relationships to disclose	No
Randi Cartmill, Coordinator	No relevant financial relationships to disclose	No
Benjamin Eithun, MSN, RN, Coordinator	No relevant financial relationships to disclose	No
Kim Sprecker, OCPD Staff	No relevant financial relationships to disclose	No
Jonathan Kohler, MD, Presenter	No relevant financial relationships to disclose	No
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Accreditation Statement
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1. Create account with the UW Interprofessional Continuing Education Partnership

https://ce.icep.wisc.edu

2. During the live presentation, and in the follow-up email, you will be provided a code. Text that code to a number we provide you, using a cell phone associated with your account.

Text **WENBOH** to 608-260-7097

(save this number as **ECHO Credit**, it will never change)

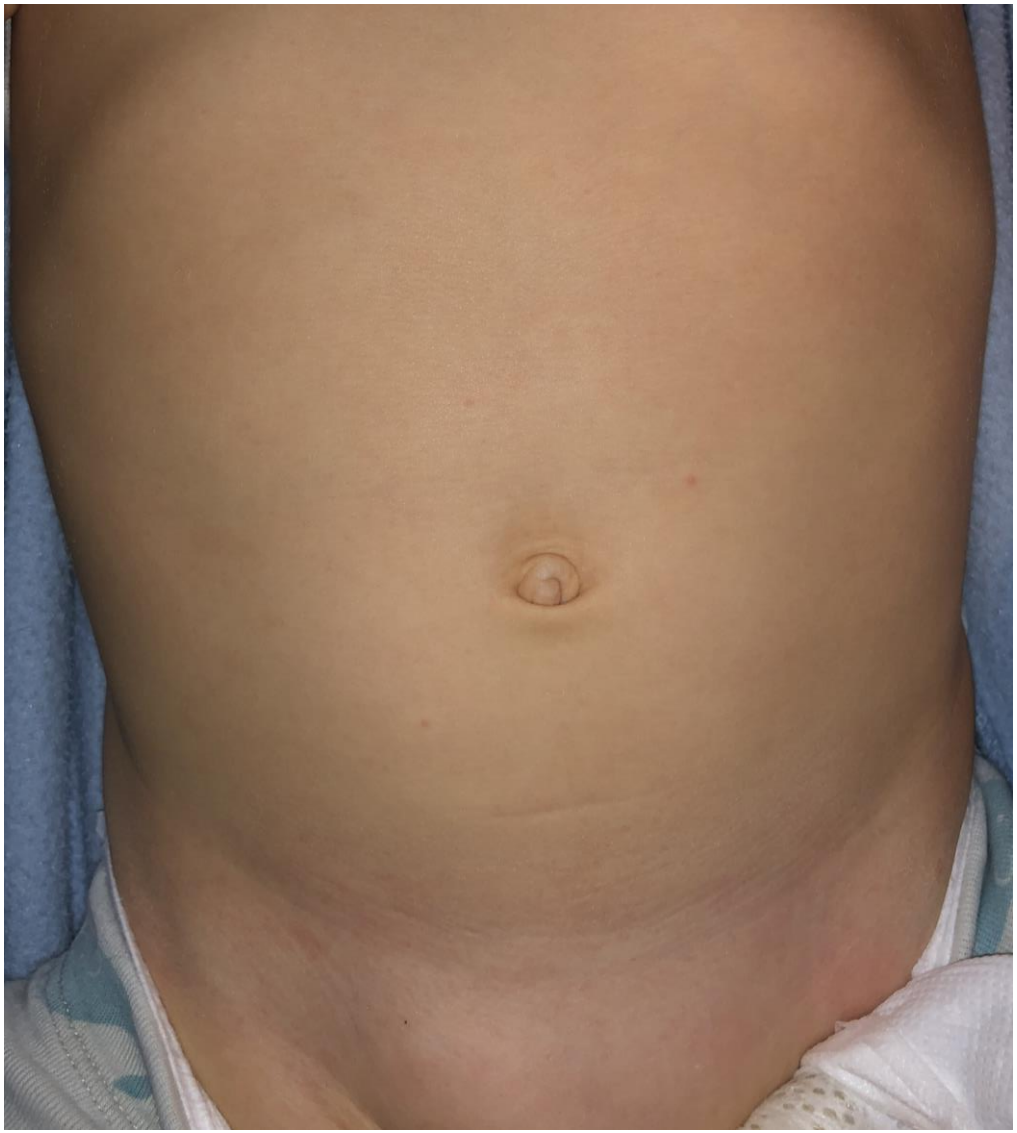
3. All done!! Log onto ICEP to view or print your credit letter.

Appedicitis

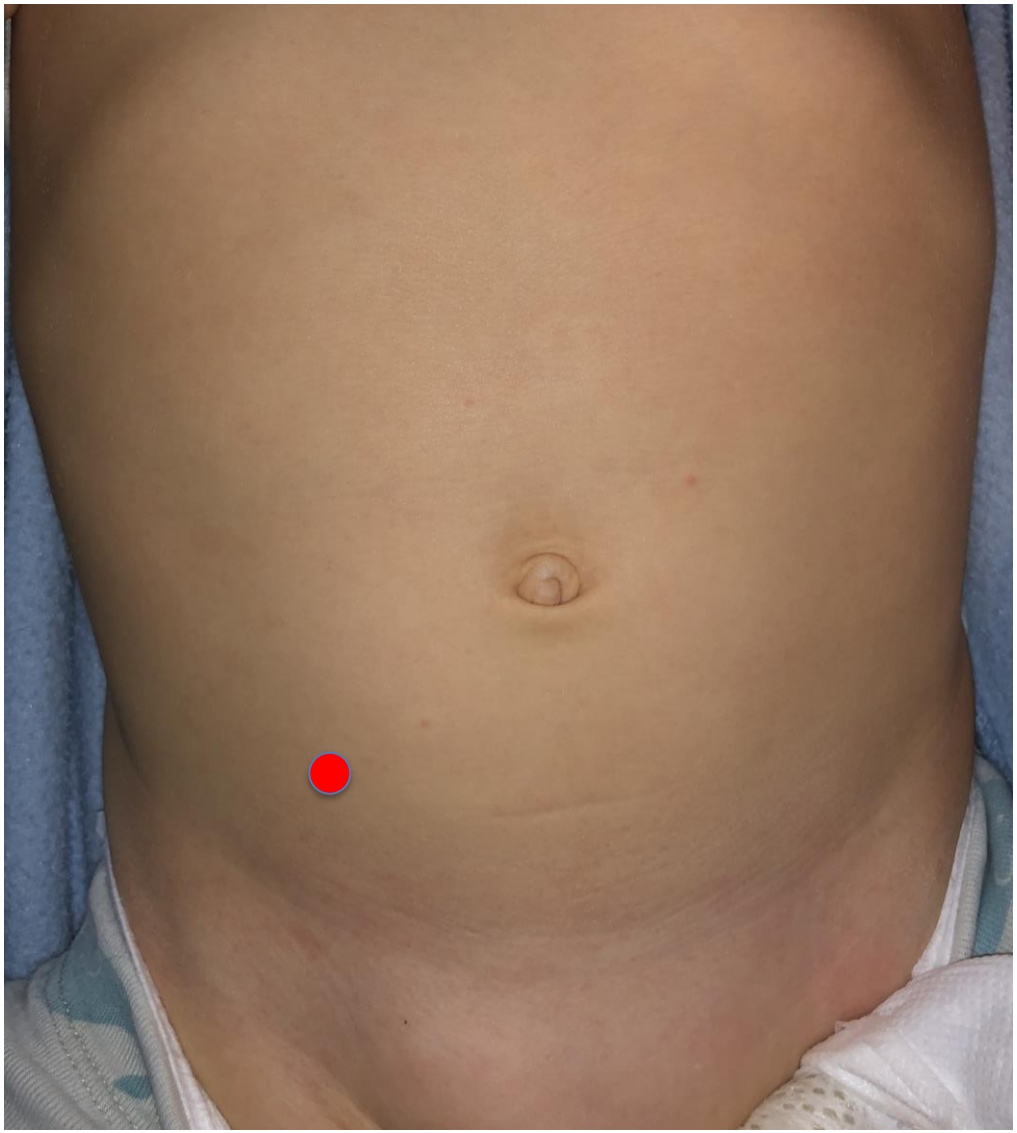
- 7-9% lifetime risk
- Appendectomy is most common urgent surgical procedure in children (and probably adults too)
- Yet it remains a mystery in many ways

A kid comes in with abdominal pain

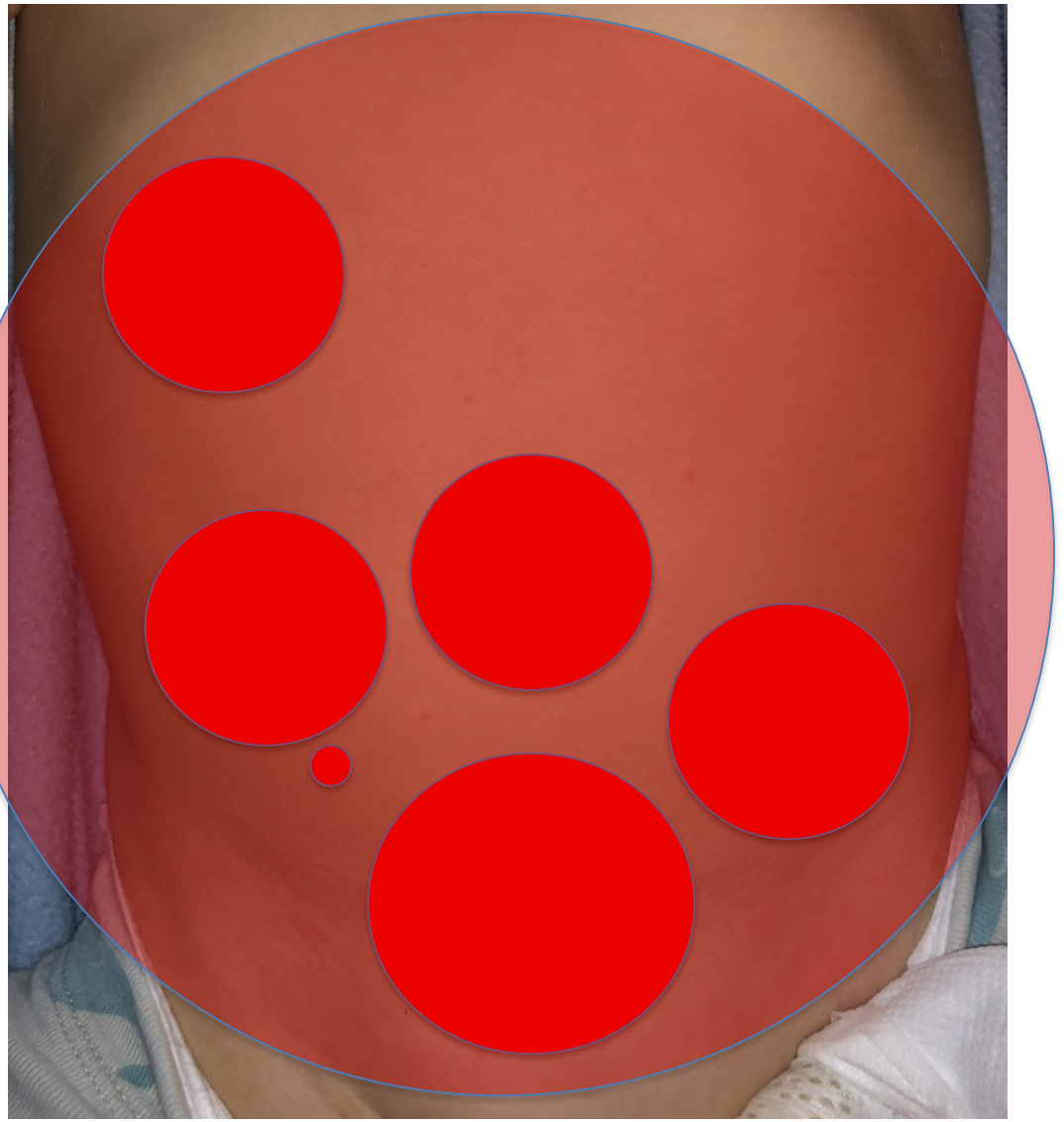
- 12 year-old otherwise healthy boy
- Started yesterday with vague peri-umbilical pain
- Moved down into the right lower quadrant
- Fevers, nausea, vomiting since the pain started
- Anorexia



The Textbooks



The Reality



A kid comes in with abdominal pain

- 12 year-old otherwise healthy girl
- Started a week ago with vague peri-umbilical pain
- Now localized in the low pelvis
- Fevers but no nausea since the pain started, diarrhea
- Poor appetite but hungry

Gastroenteritis vs. Appendicitis

- Sometimes the distinction is clear
- More often it is not
- Gastroenteritis: gets better, more systemic signs, sick contacts, WBC often normal
- Appendicitis: generally does not get better, more focal exam, WBC usually abnormal
- Toddlers are impossible

Other Badness

- Testicular torsion
- Testicular torsion
- Testicular torsion
- Bowel obstruction
- Ovarian pathology/ectopic pregnancy
- Medical disease (HUS, ketoacidosis, sickle cell, nephrolithiasis, PID, pneumonia, UTI)

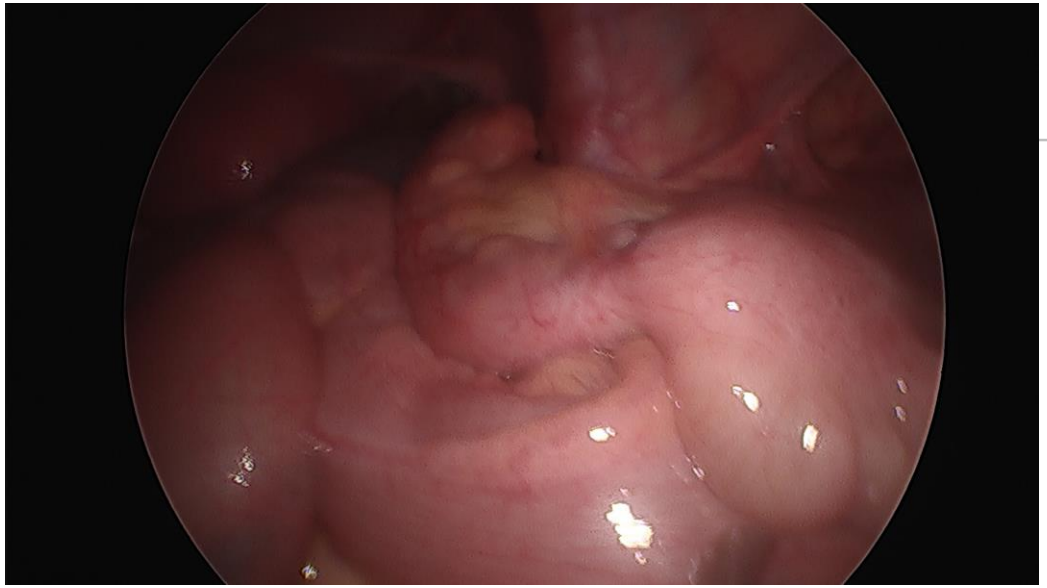
To the Answering Machine!

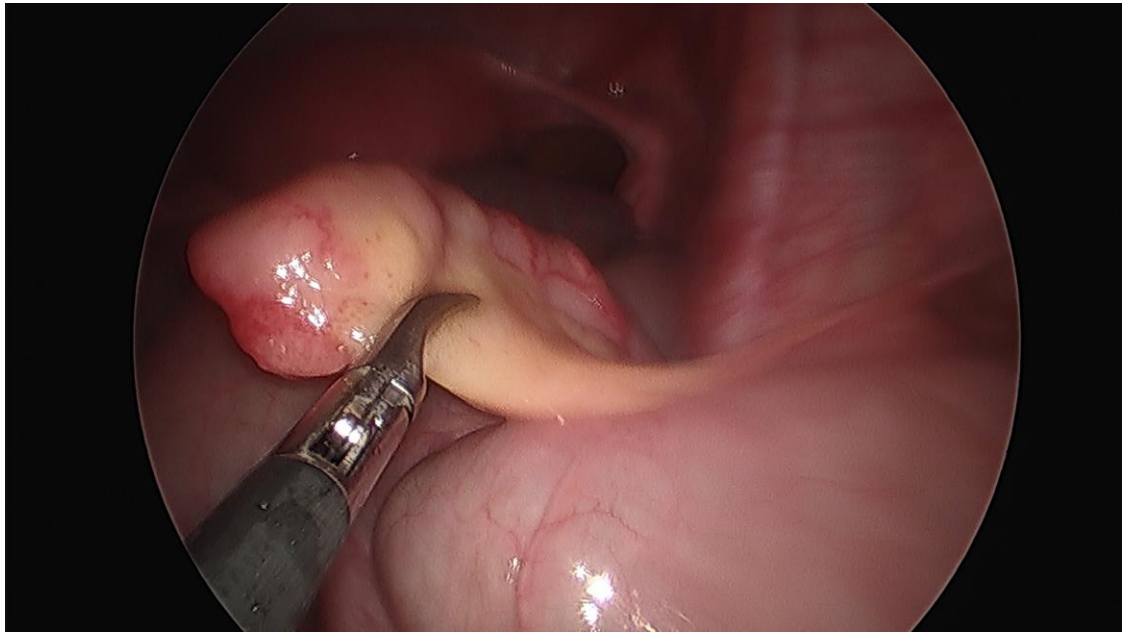
- Ultrasound
  - A flashlight in a big dark room
  - Sometimes good at seeing the appendix
  - If it does, NPV/PPV nearly perfect
  - Not seeing the appendix can be instructive too
- CT
  - A light switch for radioactive light bulbs
  - Very good at diagnosis with IV contrast only
- MRI
  - A light switch for expensive LED bulbs that not everyone has
  - Reported high success at diagnosis, but can't see appendicoliths

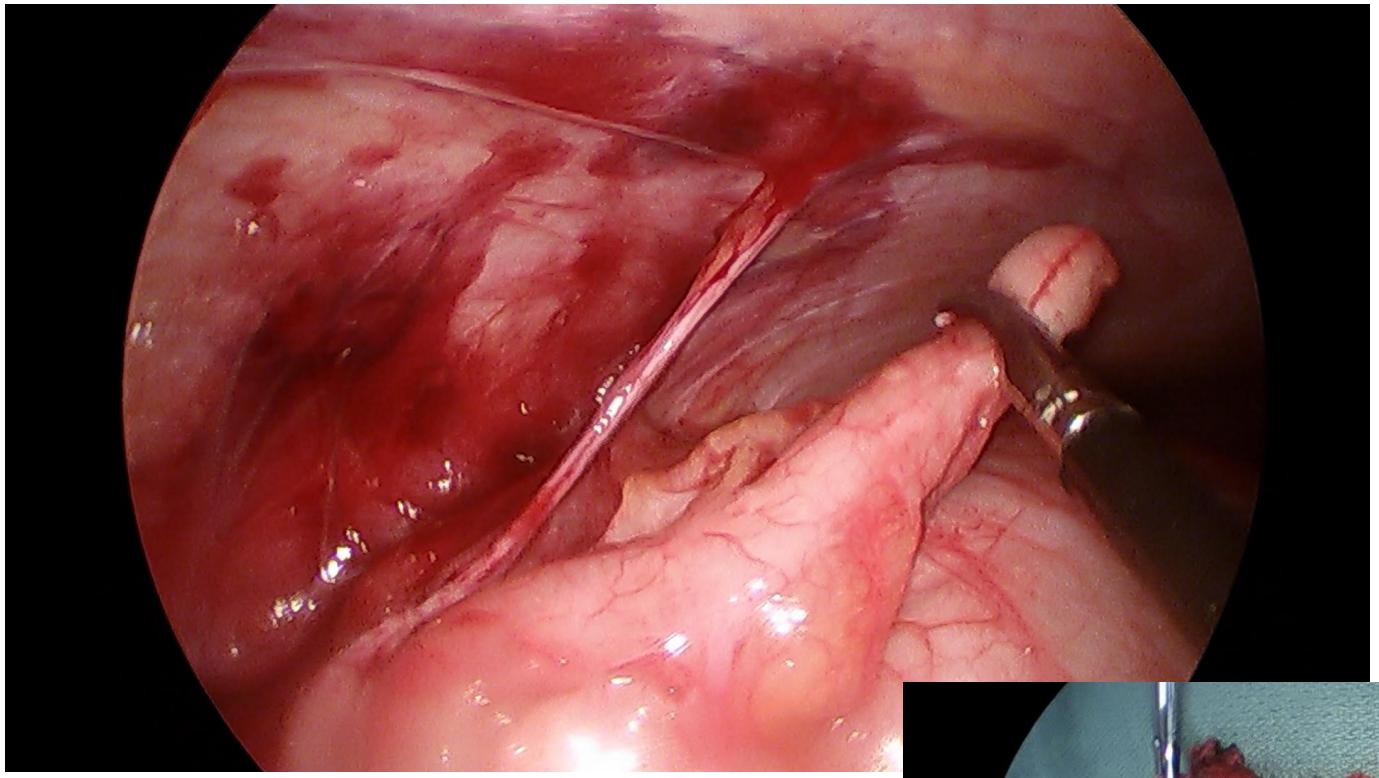
Perf vs. Non-Perf

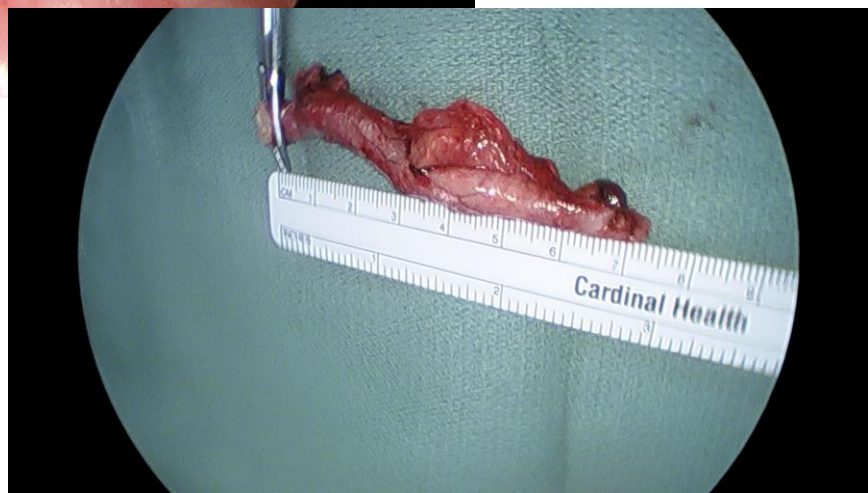
- Perforation: A hole in the wall of the appendix, an appendicolith in the abdomen, or feculent peritonitis. Abscess risk ~20%. Antibiotics until recovered, MRI if not doing well by POD 5-7.

- No perforation: Home when ready, no more antibiotics, low abscess risk (~1%?), phone follow-up if desired.









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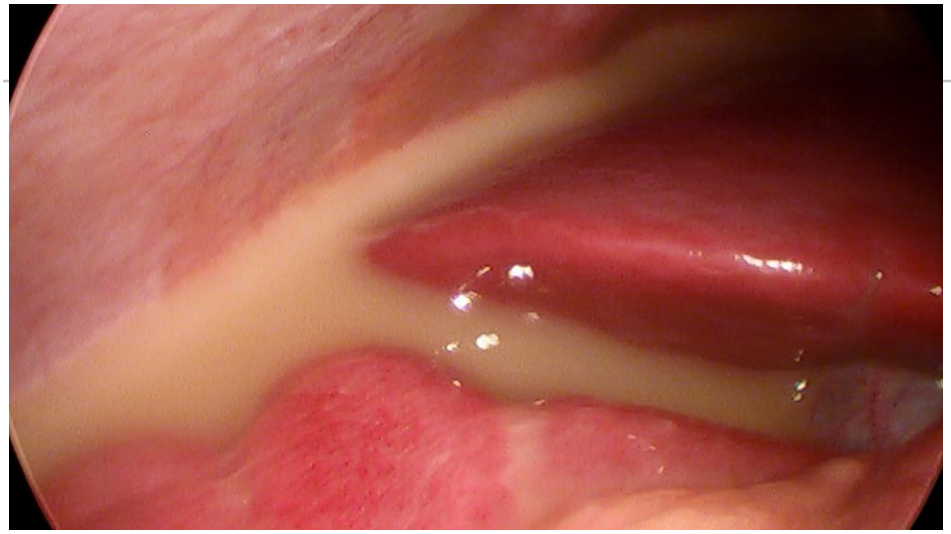
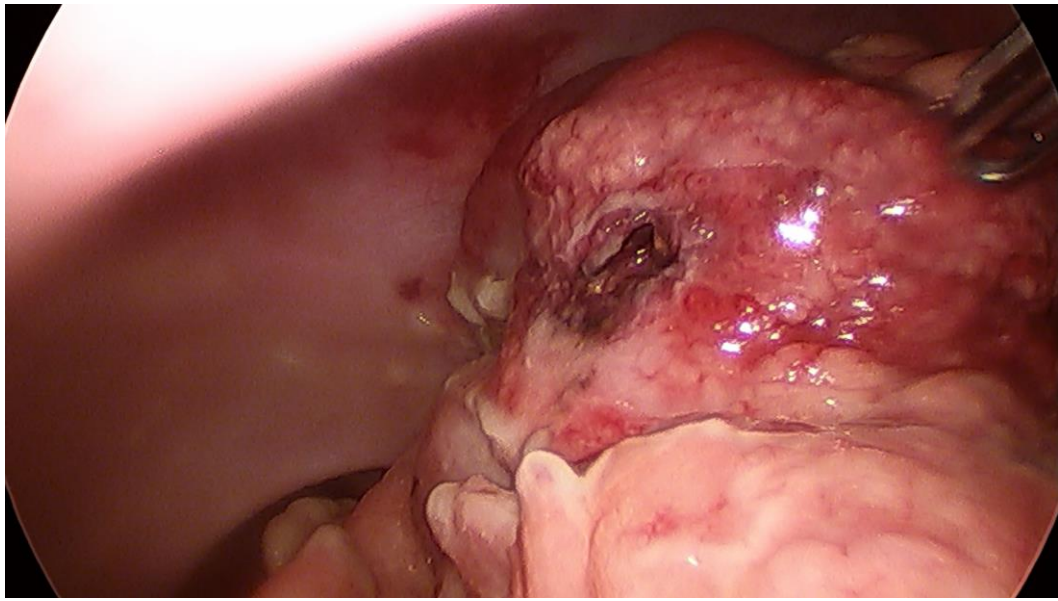
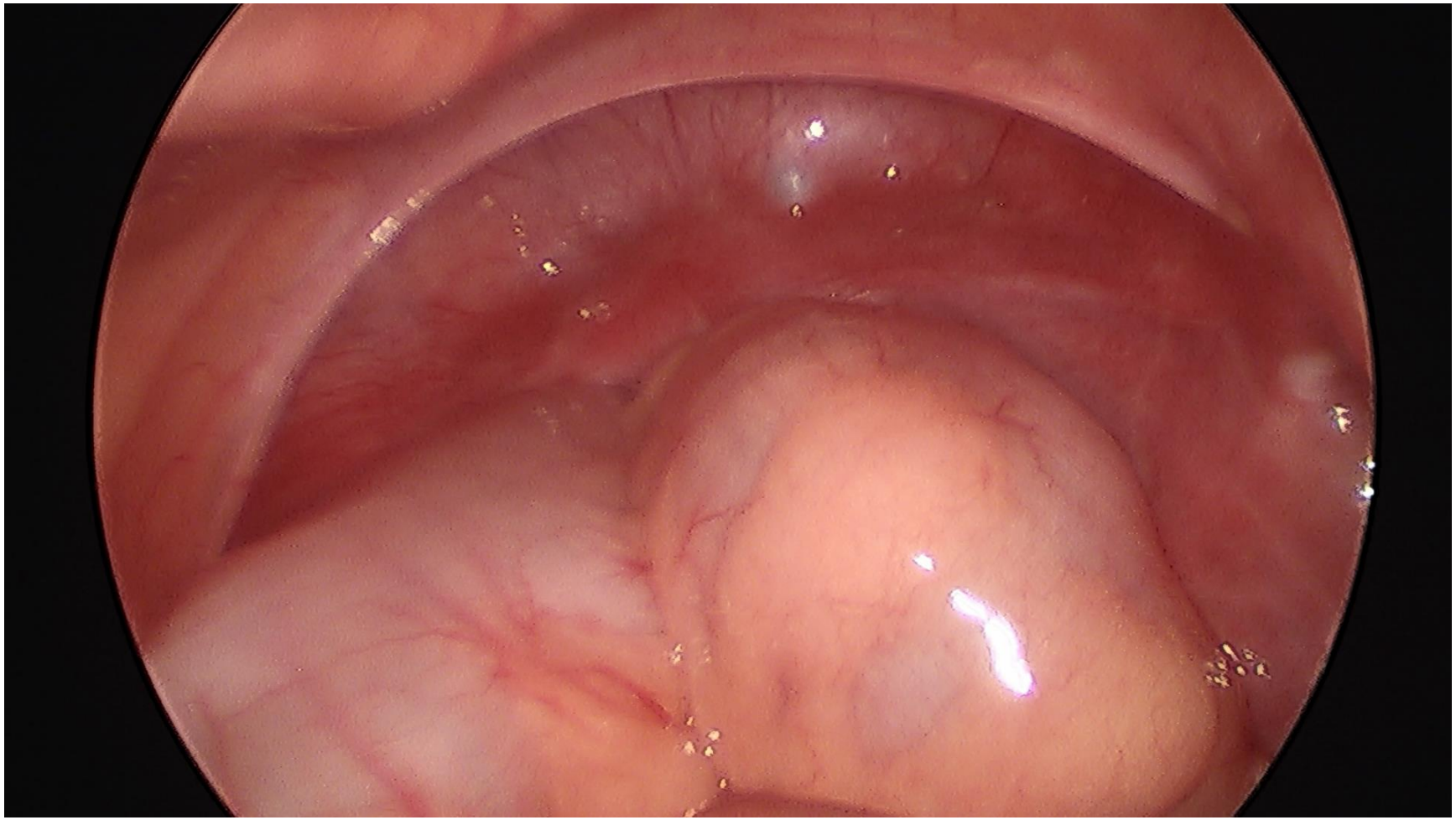






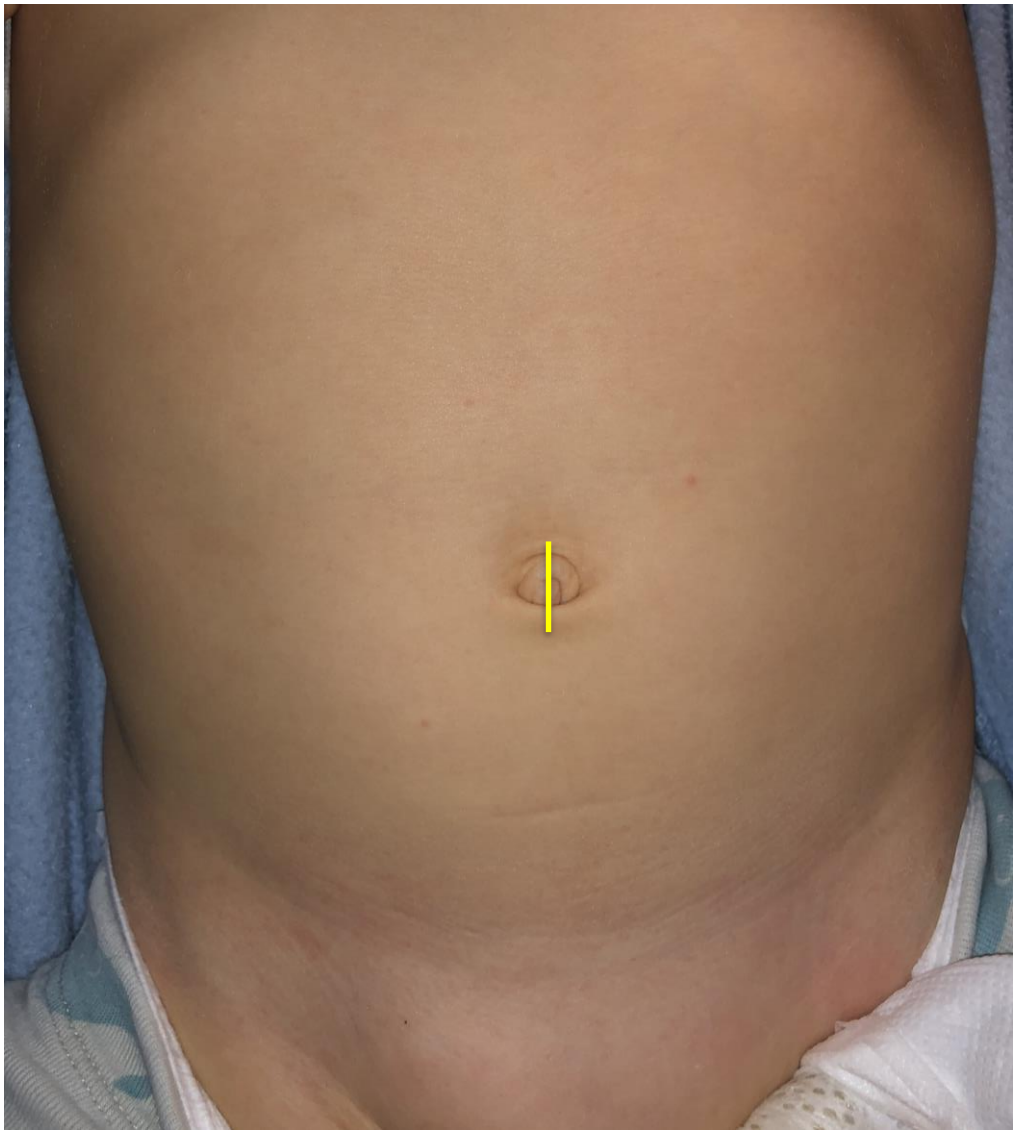
To Cut or Not to Cut?

- Non-op candidates:
  - No evidence of perforation on imaging
  - No appendicolith
  - Not septic or peritoneal
    - WBC >5,000, <18,000
  - Not advanced disease
    - < 48 hours of symptoms
    - <1.1cm diameter, compressible
  - Not pregnant

Antibiotics

- If the diagnosis is uncertain: no antibiotics
- If planning for surgery:
  - Ceftriaxone 50mg/kg to max 2g, q24 hours
  - Metronidazole 30mg/kg to max 1g, q24 hours
- Antibiotics alone:
  - Ceftriaxone/Flagyl x 2 doses or
  - Zosyn x 24 hours
  - Finish 7 days with Augmentin or Omnicef

Laparoscopic Appendectomy (SILS)



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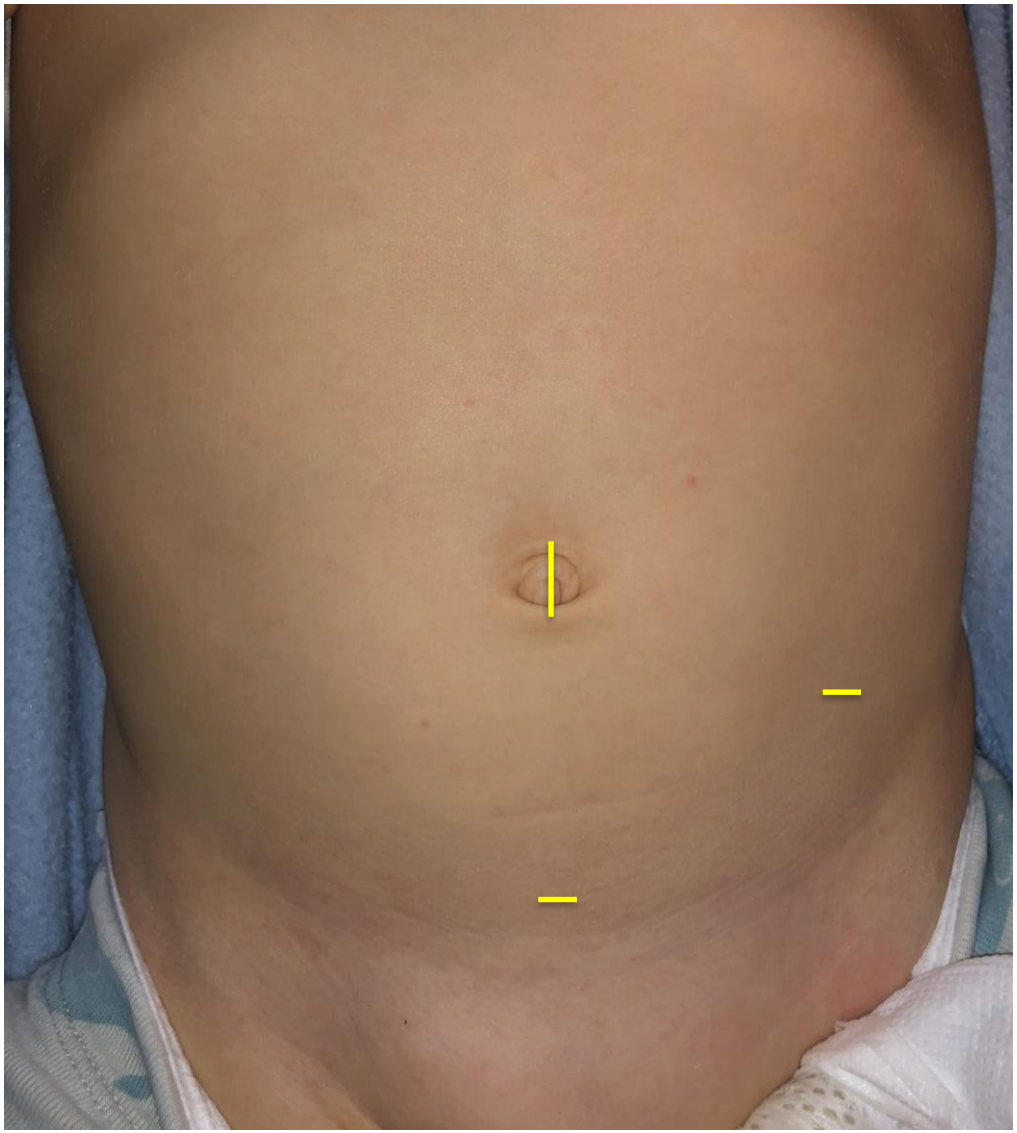
Lap Appy (3-port)



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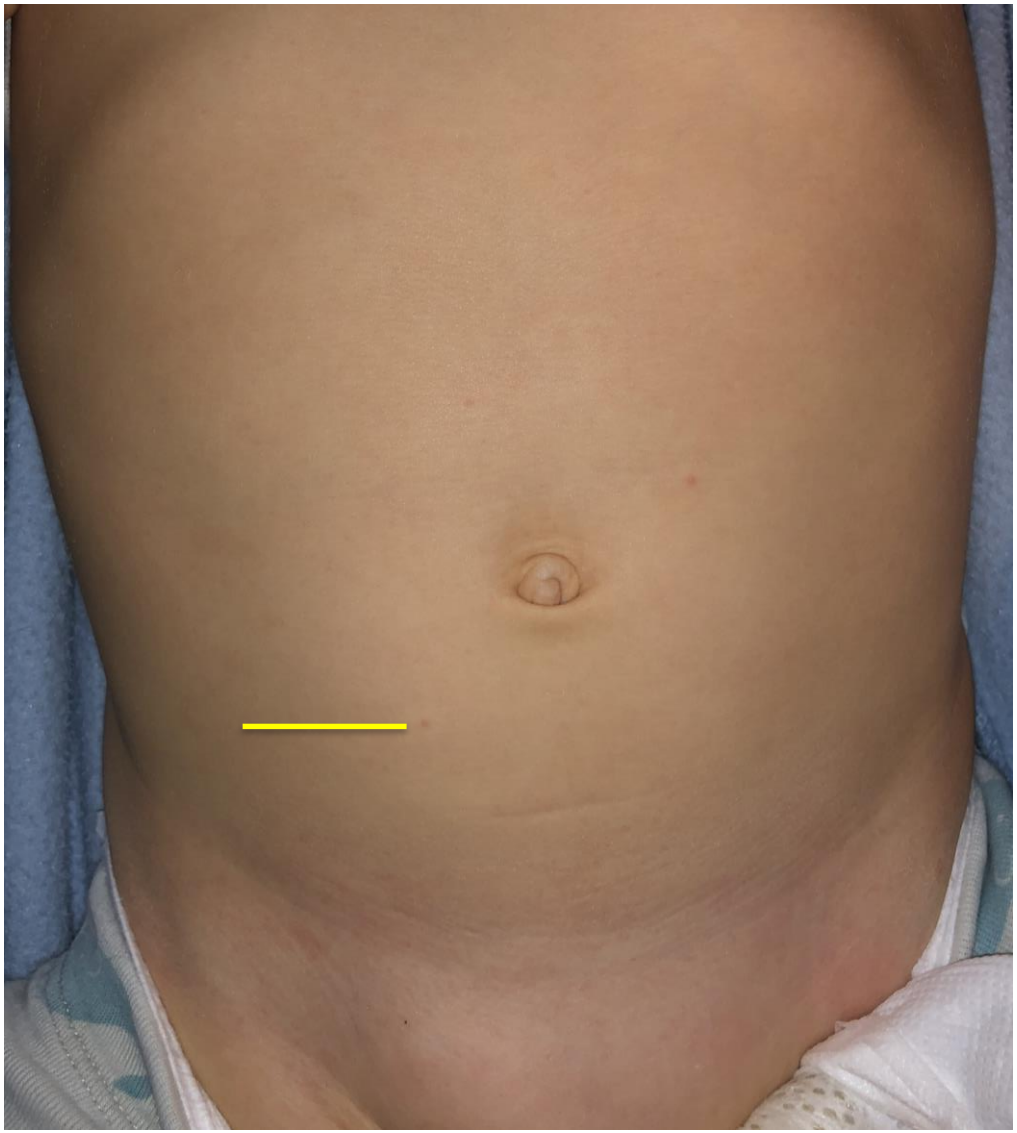
Open Appendectomy (as I recall)



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Post-operative Management

- Antibiotics only if perforated and elevated WBC
- Local anesthetic (bupivacaine) +/- ketorolac
- Absorbable sutures
- Dressing vs. glue
- No soaking for 7 days
- No firm activity restrictions
- No opioids at home
- Watch for wound infections
- Abscess formation around days 5-7

Questions & Comments!