Pediatric Surgical Emergencies
What’s New?

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OVERVIEW

• What’s new

• What’s different

• What’s surprising
Pyloric Stenosis

*Presentation and Evaluation*

- Younger age of presentation
- Less frequent electrolyte anomalies
- Primary role of ultrasound
Pyloric Stenosis

Risk Factors

• Maternal smoking
• Bottle feeding
• Erythromycin/azithromycin
  – Maternal exposure
  – Administration in first two weeks
• NOT birth order
Pyloric Stenosis

Treatment

• Role of pediatric centers
  – Fewer false-positive ultrasounds
  – Laparoscopic procedure more likely
  – Lower complication rate
  – Shorter LOS

• Laparoscopic procedure

• Postoperative feeding
Intussusception

Evaluation and Treatment

• Ultrasound for diagnosis

• Pre-reduction role of surgeon-needle decompression

• Repeat attempts
  – Reduction to ileocolic
  – Success – 50%

• No indication for antibiotics

• Sonographic vs. fluoroscopic guidance
Intussusception
Who Should be Treating?

• Pediatric hospitals
  – Lower risk of needing surgery
  – Lower risk of bowel resection

• Transferred patients-repeat study

Intussusception

Short Stay

• Recurrence after reduction
  – 24 hrs: 2%-4%
  – 48 hrs: 3%-7%

• Need to hospitalize 26 pts for 24 hrs for 1 recurrence

• Criteria:
  – Afebrile
  – Hemodynamically stable
  – Tolerating oral hydration
  – Pain-free
  – Good social situation/easy access to transportation

Appendicitis

Initial Evaluation

Appendicitis

**MRI**

- **Performance**
  - Sensitivity - 96.8 %,
  - Specificity - 97.4 %
  - PPV - 92.4 %
  - NPV - 98.9 %
  - False-positive rate - 3.1 %

- **Disadvantages**
  - MRI availability
  - Scan time
  - Motion sensitivity
  - Cost

## Appendicitis

### Non-operative Management

<table>
<thead>
<tr>
<th>Year</th>
<th>Author</th>
<th>Origin</th>
<th>Study design</th>
<th>Comparison study</th>
<th>$N$</th>
<th>Success rate (%)</th>
<th>Length of FU (months)</th>
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Appendicitis

Non-operative Management

- Identifying children at high-risk for failure
- Weighing longer LOS and duration of antibiotic use
- Consideration of low and high surgical risk
Appendicitis

- What is the risk that surgical delay will lead to rupture?

- What is the risk that rupture will lead to serious complications or death?
NON-SURGEON’S VIEW

SURGEON’S VIEW
Appendicitis

Complications

• Simple
  – Abscess 2%
  – Wound infection 2%

• Perforated
  – Abscess 16%
  – Wound infection 2%
  – Readmission 2%
Appendicitis

Delayed Appendectomy

• No differences in perforation rate

• No difference in outcome
  – Postoperative wound infection
  – Intra-abdominal abscess
  – Reoperation
  – Readmission

<table>
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<td>Beach accidents</td>
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Short-stay Appendectomy

• Average 5 hrs postop (range 1-12 hrs)
• Lower cost
• No change in:
  – Complication rate
  – Readmissions
  – Patient/parent satisfaction
Trauma Evaluation

FAST
Value of FAST

• Cochrane review:
  “At best, (FAST) has no negative impact on morbidity and mortality.”

• Multi-center study
  “FAST has a low sensitivity for intraabdominal injury”

Non-operative Management of Abdominal Injuries

- **Spleen**
  - Physiology not grade based
  - Shorter ICU stay/LOS

- **Pancreas**
  - Non-op: longer LOS/TPN, secondary procedures
  - Op: uncertain long-term risk
Laparoscopy for Abdominal Trauma

Identifying IAA
Accuracy - near 100%
Missed injuries - <2%

Indications and contraindications for minimally invasive surgery in pediatric blunt and penetrating trauma

Indications
Penetrating injury abdominal wall
Suspected diaphragm injury
Thoracoabdominal trauma
Suspected hollow viscus injury
Worsening abdominal examination

Contraindications
Absolute
Hemodynamic instability
Relative
Increased intracranial pressure
Congestive heart failure
Uncorrected coagulopathy
Peritonitis
Evisceration
Multiple organ injury

THE END