Abdo Pains: Common Presentations of a Common Pediatric Problem

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Disclosures & Bio

- No conflicts of interest
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- Community Pediatrician
Learning Objectives

As a result of attending this session participants will be able to:

1. Generate a pertinent differential diagnosis for abdominal pain in pediatric patients and become familiar with the most common etiologies.

2. Develop an evidence-based, age-specific approach to working up pediatric abdominal pain.

3. Become familiar with the appropriate management of the above conditions.
Outline

• Clinical Case 1
• Abdominal pain in infants
• Clinical Case 2
• Abdominal pain in toddlers
• Clinical Case 3
• Abdominal pain in school-aged children

• For all 3: DDx, work-up, focus on one common cause

• Questions and Discussion
Clinical Case 1: The Achy Baby

- 4 week old baby girl
- G1P1 healthy mother
- Normal pregnancy/US/serologies
- SVD 39+4 weeks BW 3400 g Apgar 8-9
- Breastfed exclusively, going well
- Baby is always uncomfortable
- Spits up after every feed, face turns red, arches
- Gassy +++
So, what do you want to know?

https://www.pinterest.ca/Lilady17/seinfeld-the-hamptons-5/
More History

- Feeds q 3h, good latch, occasional discomfort during feed
- Stools N, 4-6 per day
- No projectile vomit
- Regurgitates after every feed
- Usually curdled milk and smells bad
- Sometimes comes out of her nose!
Exam

- Gaining 25 g/day
- Following 40\textsuperscript{th} percentile for all growth parameters
- Regurgitates as you examine
- Normal newborn exam
DDx? RED FLAGS?

DDx

- GER/D
- Colic
- CMPI
- Pyloric Stenosis
- Malrotation
- Intussusception
- Metabolic Disorder
- Sepsis

- FTT
- Projectile vomiting
- Clinical dehydration
- Bilious (green) vomiting
- Blood in stool
- Periods of lethargy
- Developmental delay
- No meconium in first 48h of life
GER/D

- GER: Physiologic. Lower esophageal sphincter relaxation.
- GERD: Pathologic (=complications, or “troublesome symptoms”)
- 60% of infants spit up daily, and 25% more than 4 times per day
- Peaks at 4 mos, declines by 6 mos, usually disappears by 12-15 mos
Testing

• No good tests!
• **Barium study (upper GI)** not effective in diagnosing reflux
• **Ultrasound** not supported by evidence
• **PH probe and G-Scope**: no correlation between symptoms/pH/disease on scope
• **Scintigraphy** (milk scan): low sensitivity and specificity
• Even when you measure non-acid reflux, it doesn’t correlate with symptoms
Non-Pharma Treatment

- Prone and left lateral position are best, but… SIDS
- **Head of bed elevation** and left lateral positioning are recommended for older children
- **Thickening** feeds improves visible regurgitation, unclear for other symptoms
- **Modify feeding volumes and frequency** to avoid overfeeding
- Trial of **hydrolyzed formula** or maternal diet is recommended (2-4 weeks)
- **Probiotics** not recommended
Pharma Treatment

- Antacids not recommended
- H2RA or PPI not recommended for otherwise healthy infants
- Recommended 4-8 week trial of either med in children with persistent Sx (algorithm)
- Recommended frequent reassessment of therapy once initiated
- Recommend further investigation, reconsider diagnosis if not improved by 4-8 week trial
- Ranitidine 10 mg/kg/day divided bid
- Lansoprazole 1-2 mg/kg/day, or 15 mg/day if >3 mos
- Prokinetics not routinely recommended in first line cases

https://www.youtube.com/watch?v=CQDoCl1__jg
Algorithm 1. Management of the symptomatic infant.
Clinical Case 2: The Tortured Toddler

- 3 yo boy
- Previously healthy
- Fully vaccinated
- Abdo pain off and on x 3 months
- Usually quite brief
- “He’s not constipated, doc.”
- What’s wrong with him?
So, what do you want to know?

Silence is golden unless you have a toddler - then, silence is just suspicious.
More History

- Eats all food groups but pretty picky
- Doesn’t drink much water
- Milk 2 cups a day (3.25%)
- Toilet training, occasionally goes in potty
- Seems to hold it or intentionally go in diaper
- Stools is dry looking, sometimes pellets. Sometimes very very large.
- “Come to think of it, it does seem a bit painful.”
- Never any blood, no diarrhea, no vomiting
- Development normal for age
- No family history of CD, IBD
Exam

- Very well looking
- Normal growth parameters
- Abdomen is soft, maybe a little distended, feels full, maybe some stool?
- Anus looks clean
- Normal DTRs in lower limbs
- Rest of exam normal
- DRE was deferred, but if you’d done it, there might have been some stool, with good sphincter tone
DDx? RED FLAGS?

https://turbotax.intuit.com/tax-tips/irs-letters-and-notices/top-red-flags-that-trigger-an-irs-audit/L2TzIqFNe
DDx

- Constipation
- +/- Encopresis
- Celiac Disease
- Lactose intolerance
- H. Pylori
- Reflux
- Post-infectious
- Hirschsprung
- HSP
- Neurologic deficit (spinal dysraphism)
- DKA
- Hypothyroidism
- CF

- Recurrent, severe episodes of constipation
- Weight loss
- Bloody stool (without fissure)
- Abnormally placed anus
- Leg/sphincter weakness
- Sacral lesion
- No meconium in first 48h of life
Functional Constipation

- Very common (5-27% prevalence)
- High prevalence in toddlers (median age of onset 2.3 years)
- Almost always functional
- Undertreated
- Significant morbidity: abdo pain, decreased appetite, encopresis, low self-esteem, family disruption
- Related to stool withholding/toilet training
Testing

None to be done routinely
- DRE
- Stool culture
- TTG (w IgA), CRP, fecal calprotectin, TSH, CBC, lactose breath test, urea breath test
- AXR (yes if suspected impaction)
- AUS

Only if you have another reason
FYI: Rome IV Criteria

- 2 or fewer stools (in toilet) per week
- At least 1 episode of fecal incontinence per week
- History of retentive posturing or excessive volitional stool retention
- History of painful or hard bowel movements
- Presence of large fecal mass in rectum
- History of large diameter stools that may obstruct toilet
- 2 or more of above for 1 month if at least 4 yo

Treatment

- Diet changes: adequate fibre and water intake
- Sorbitol containing fruit juices (prune, pear, apple)
- Limit milk if excessive, but no need to cut entirely
- No evidence for fibre or water supplements
- **PEG 3350** for disimpaction (1-1.5 g/kg/day x 3 days) and treatment (0.4 - 1 g/kg/day)
- Treat at least 2 months, stop gradually if 1 month sx free
- Titrate dose for effect
- Other alternatives possible (lactulose is first line)
- Docusate: no evidence in kids
- Digital disimpaction not recommended
- Regular toilet sitting
Algorithm

FIGURE 2. Algorithm for the evaluation and treatment of infants ≥6 months of age. ACE = antegrade continence enema; MRI = magnetic resonance imaging; SNS = sacral nerve stimulation; TENS = transcutaneous electric nerve stimulation; TSH = thyroid-stimulating hormone.
OR...
Clinical Case 3: The Frail Fifth Grader

- Previously healthy 10 year old boy
- Belly pain for last 3 months
- Peri-umbilical, 6-9/10
- No vomiting or nausea
- No constipation or diarrhea, stools normally
- Eats normally
- Happens several times a day
- Lasts a few minutes, then goes away
So, what do you want to know?
More History

- Eats normally
- No weight loss or fatigue
- No joint pains/oral ulcers/eye pain/rash
- No recent viral illness
- Pain not associated with stooling
- No bloody stool
- No urinary Sx
- No family history of celiac/IBD/GI disease
- Family history of migraines
- When has pain sometimes misses school or gets to go sleep in her parents’ room
- Good student with some performance anxiety
- Has pain on weekends, but maybe less than during the week
Exam

- Following his growth curve, no weight loss
- Very well looking
- Abdomen soft, no masses. Mild peri-umbilical tenderness, no guarding/rebound tenderness
- Genitalia normal
- Special maneuvers negative
- All other aspects of physical exam N (incl eyes, oral mucosa, joints, skin)
DDx? RED FLAGS?

DDx

- Functional abdo pain
- Constipation
- CD
- IBD
- GERD/esophagitis
- Mesenteric adenitis
- H. Pylori
- UTI
- Appendicitis
- Testicular torsion/detorsion
- HSP
- Other functional GI disorders (abdominal migraine, cyclic vomiting syndrome)

- Weight loss
- Bloody stool
- Extra-GI signs of IBD
- Family history
- No school absenteeism or secondary gain
How do you screen quickly for disease?

- Very common complaint: 1/10 kids see MD for recurrent abdominal pain
- Duration of episodes (< 5 minutes), even if many times a day
- Peri-umbilical = reassuring
- Usually felt upon awakening or before going to sleep, less so during the day
- School absenteeism/secondary gain
- 87% of chronic/recurrent abdominal pain meets criteria for functional GI disorder (Norwegian study)
- Only 1-2% go on to have disease
- IBD 1/1000 prevalence
- CD 1/150 prevalence, but mostly asymptomatic
- Multiple different functional disorders in childhood
Chronic Pain

- Sensitization of Primary visceral afferent nerves to pressure and stretch
- Amplification of pain messages by the brain
- Frontal inhibition can help modulate these pain signals
- In patients with past pain, poor coping skills, expectations for pain, anxiety/depression, this may not happen
## TABLE 2. Alarm Signs and Symptoms Prompting Testing for Disease

- Pain localized to the right upper or right lower quadrants
- Blood in the stools
- Weight loss
- Slow or delayed growth and delayed puberty
- Odynophagia
- Dysphagia
- Persistent vomiting
- Family history of inflammatory bowel disease or celiac disease
- Fevers
- Arthritis
- Perianal disease: skin tags, fissures, fistulae
Testing – Suggested Approach

- If clearly, functional, trial of education on functional pain, close follow-up
- If prolonged, severe, or likely negative work-up deemed helpful:
  - Abdo ultrasound (+/- upper GI if vomiting)
  - Basic bloodwork including CBC, CRP, ESR LFTs, TTG, IgA, **fecal calprotectin (for ruling out)**
  - Consider H. Pylori testing
  - Consider lactose breath test
Treatment

- Acknowledge the pain and explain what functional pain is (ie it is real)
- Reassure the patient does not have a disease
- Reassure it will get better
- Suggest comfort measures
- Psychology
- Provide follow-up
- No evidence for diet changes, probiotics or other interventions
- Response to placebo is 40% in studies
- Treatment is available for functional issues, but not first line
Conclusions

- Lots of functional disorders in pediatrics
- Don’t treat reflux with H2RAs/PPIs most of the time
- Thickening/formula change
- Treat constipation!
- Chronic abdominal pain in school-aged children is usually functional
References