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 40th percentile for all growth parameters
- Regurgitates as you examine
- Normal newborn exam

DDx? RED FLAGS?

https://turbotax.intuit.com/tax-tips/irs-letters-and-notices/top-red-flags-that-trigger-an-irs-audit/L2TzlqFNe

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

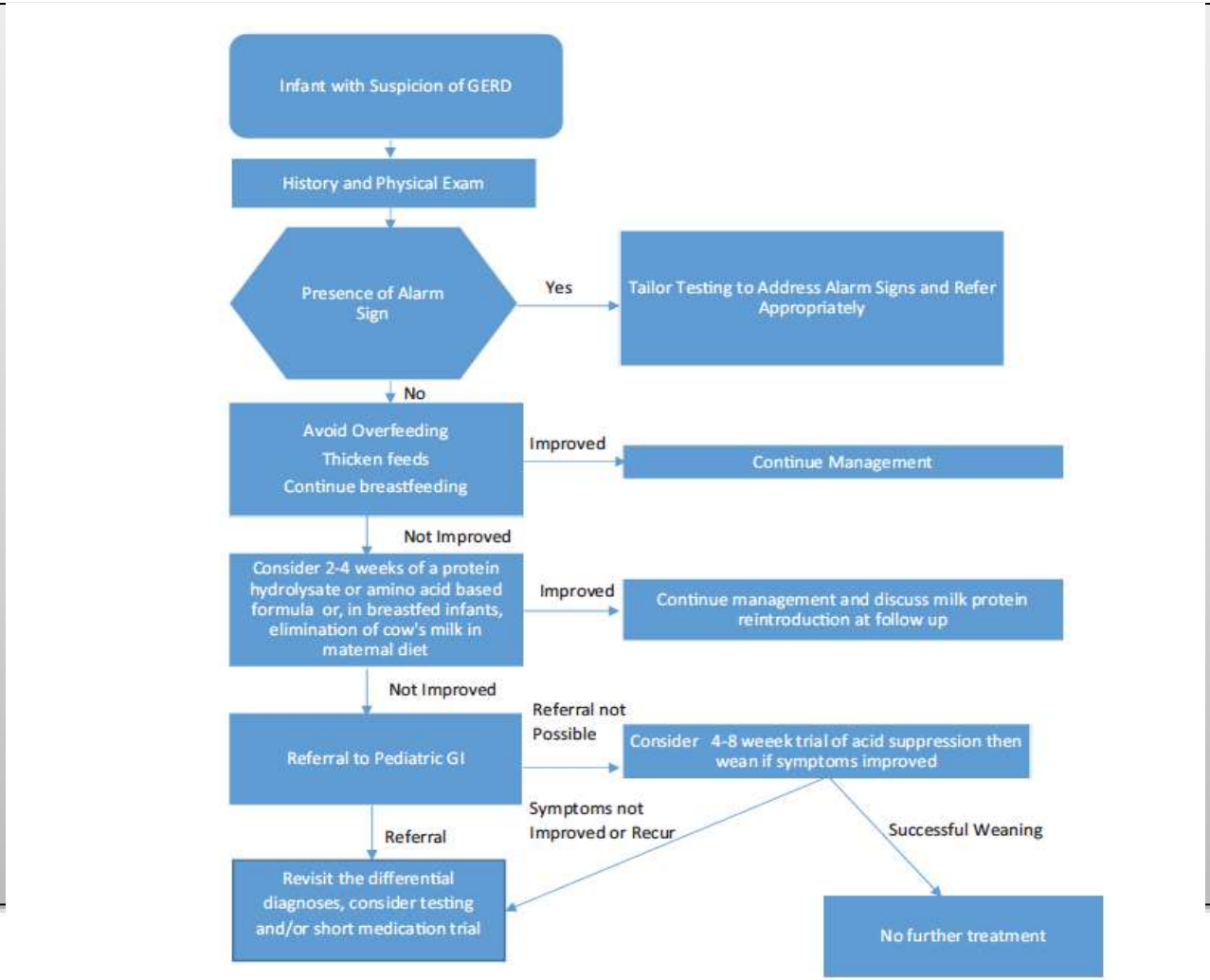
Pharma Treatment

- 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_ipg

NASHPGHN/ESPGHN Algorithm



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?

https://www.youngparents.com.sg/pregnancy-baby/mum-toddler-stomach-pain-internal-bleeding/

So, what do you want to know?

www.someecards.com

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 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

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https://turbotax.intuit.com/tax-tips/irs-letters-and-notices/top-red-flags-that-trigger-an-irs-audit/L2TzlqFNe

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

Source: Shah BR, Lucchesi M, Amodio J, Silverberg M: *Atlas of Pediatric Emergency Medicine:* www.accessemergencymedicine.com

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

https://www.theromefoundation.org/assets/pdf/19_RomeIII_apA_885-898.pdf

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

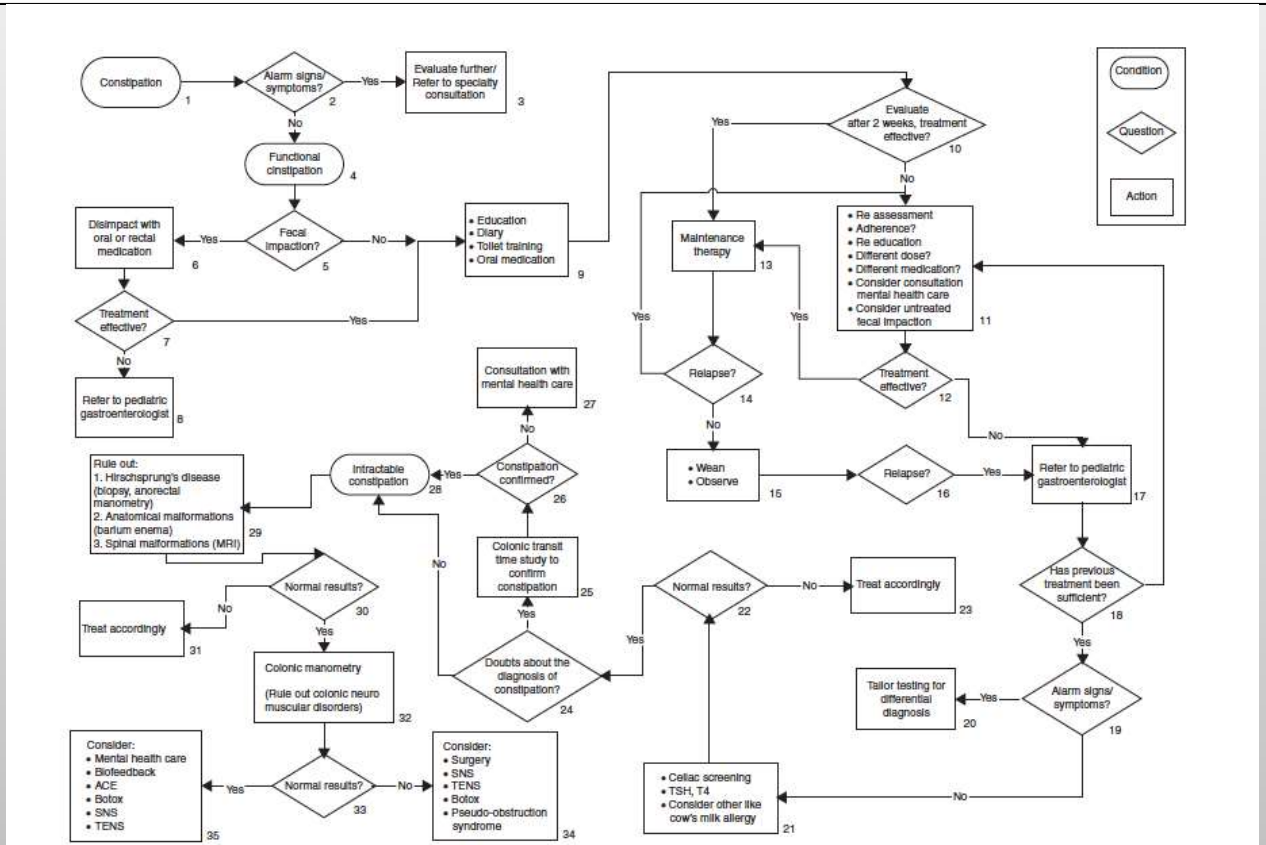

FIGURE 2. Algorithm for the evaluation and treatment of infants ≥6 months of age. ACE = antegrade continence enema; MRI = magnetic resonance imaging; SNS = sacral nerve stimulation; TENS = transcutaneous electric nerve stimulation; TSH = thyroid-stimulating hormone.

OR…


Well at
Walgreens
ORIGINAL
PRESCRIPTION STRENGTH
Smooth LAX®
Polyethylene Glycol 3350
Powder for Solution
Osmotic Laxative
• Softens stool
14
ONCE-DAILY DOSES
NET WT
8.3 OZ (238 g)
Compare to MiraLAX® active ingredient*

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)

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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

Functional Abdominal Pain

How do you screen quickly for disease?

- Very common complaint: 1/10 kids see MD for recurrent abdo 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 abdo pain meets criteria for fuctional 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

Testing – With Alarm Signs

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 peds
- 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

- Canadian Paediatric Society, Community Paediatrics Committee Rowan-Legg Anne. "Managing functional constipation in children." Paediatrics & child health 16.10 (2011): 661-665.
- Hyams, Jeffrey S., et al. "Childhood functional gastrointestinal disorders: child/adolescent." Gastroenterology 150.6 (2016): 1456-1468.’
- Hyman, Paul E. "Chronic and Recurrent Abdominal Pain." Pediatrics in review 37.9 (2016): 377.
- Rosen, Rachel, et al. "Pediatric gastroesophageal reflux clinical practice guidelines: joint recommendations of the North American Society for Pediatric Gastroenterology, Hepatology, and Nutrition and the European Society for Pediatric Gastroenterology, Hepatology, and Nutrition." Journal of pediatric gastroenterology and nutrition 66.3 (2018): 516-554.
- Rosen, Rachel. "Gastroesophageal reflux in infants: more than just a pHenomenon." JAMA pediatrics 168.1 (2014): 83-89.
- Tabbers, M. M., et al. "Evaluation and treatment of functional constipation in infants and children: evidence-based recommendations from ESPGHAN and NASPGHAN." Journal of pediatric gastroenterology and nutrition 58.2 (2014): 258-274.
- Zeevenhooven, Judith, Ilan JN Koppen, and Marc A. Benninga. "The new Rome IV criteria for functional gastrointestinal disorders in infants and toddlers." Pediatric gastroenterology, hepatology & nutrition 20.1 (2017): 1-13.