Intractable Constipation: What is next when you are stuck

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Colon
• Reabsorbing water and electrolytes
• Serves as temporary storage
• Prominent mixing pattern

Nothing to disclose
Colonic motor activity can be divided into:

- **Segmental (single contractions or bursts)**

- **Propagated activity**
  - Low Amplitude Propagated Contractions (LAPC)
  - High Amplitude Propagated Contractions (HAPC)
  - Periodic Rectal Motor Activity (PRMA)

  Segmental (single contractions or bursts)
  - Accounts for most of the colonic activity
  - Waves from 5 to 50mmHg
  - Slow down colonic transit allowing optimal absorption of contents and propulsion of fecal contents over short distances
Propagated activity

• LAPC (<50mmHg)
  • Seem to be associated with passage of flatus and involved in the transport of colonic fluid contents

• HAPC (>80mmHg)
  • Usual mean amplitudes of 150mmHg migrating across at least 30cm for >10sec
  • Accounts for transport of colonic contents over large portion of colon
  • Occur about 4 to 10x per day mostly after meal, upon awakening and may be accompanied by an urge to defecate or borborygmi and precede defecation

High Amplitude Propagated Contractions

HAPCs decrease in number and segmental contractions increase during postnatal maturation of colonic manometry
• The rectum has a unique motility pattern:

**Periodic Rectal Motor Activity**

- Discrete bursts of phasic and tonic pressure waves with frequency of >3/minute
- Can migrate retrograde at night and serve as an intrinsic nocturnal brake

The anal canal forms a 90-degree angle with the axis of the rectum and during voluntary squeeze it becomes more acute

IAS: 70% to 85% of the resting sphincter pressure primarily responsible for maintaining anal continence at rest

Constipation beyond infancy...

- Common problem in children
- 3-10% visits to general pediatric clinics
- 25% referrals to peds GI
- Worldwide prevalence 0.7% to 29.6%
- Peak incidence time of toilet training
• Mean cost per patient rose by 56% ($1,474 to $2,306)
• Aggregate national cost increased by 121%

Pediatric patients with functional constipation reported a broad gastrointestinal symptom profile in comparison to uniquely matched healthy controls

What is the definition of constipation?
Rome III criteria: functional Constipation

- 2 or more of the following in a child with a developmental age of at least 4 years with insufficient criteria for diagnosis of IBS:
  
  - Two or fewer defecations in the toilet per week
  - At least one episode of fecal incontinence per week
  - History of retentive posturing or excessive volitional stool retention
  - History of painful or hard bowel movements
  - Presence of a large fecal mass in the rectum
  - History of large diameter stools which may obstruct the toilet

A thorough history and complete physical examination are usually adequate to accurately diagnose functional constipation

- PEG 3350
I have tried miralax, lactulose and Milk of Mag .......Why is it NOT working?

• Complete bowel evacuation is the first step:
  • High dose polyethylene glycol (PEG) has been proven safe and effective when given at doses of 1 to 1.5g/kg per day for 3 to 6 days

• For maintenance therapy:
  • Enough medication should be used to reach a goal of regular, soft, and painless bowel movements and avoid re-accumulation of stool in the rectum

• Constipation is not self-limiting and most children will not grow out of their symptoms without treatment.
• Maintenance treatment should continue for at least 2 months. All symptoms of constipation should be resolved for at least 1 month before discontinuation of treatment
• Treatment should be decreased gradually
• Medication should only be stopped once toilet training is established
Tried that and still NOT WORKING

• Do you have the right diagnosis?
• Are you being aggressive enough?
• Do we need further testing? Is it time for neurogastroenterology?

Constipation should NOT be BESTOWED UPON the patient it SHOULD BE COMPLAINED BY THE PATIENT

An abdominal X-ray should not be used to diagnose constipation.
Is it Constipation or IBS?

H2b. Irritable Bowel Syndrome
Diagnostic criteria* Must include both of the following:
1. Abdominal discomfort** or pain associated with two or more of the following at least 25% of the time:
   a. Improvement with defecation
   b. Onset associated with change in frequency of stool
   c. Onset associated with a change in form (appearance) of stool
2. No evidence of an inflammatory, anatomic, metabolic, or neoplastic process that explains the subject’s symptoms
* Criteria fulfilled at least once per week for at least 2 months prior to diagnosis
** “Discomfort” means an uncomfortable sensation not described as pain.
H3a. Functional Constipation

Diagnostic criteria: Must include two or more of the following in a child with a developmental age of at least 4 years with insufficient criteria for diagnosis of IBS:

1. Two or fewer defecations in the toilet per week
2. At least one episode of fecal incontinence per week
3. History of retentive posturing or excessive volitional stool retention
4. History of painful or hard bowel movements
5. Presence of a large fecal mass in the rectum
6. History of large diameter stools which may obstruct the toilet

* Criteria fulfilled at least once per week for at least 2 months prior to diagnosis
What about the 15 year old female that has not had a bowel movement in the past 30 days despite all sorts of laxatives?

Radiopaque Markers

- Patients must be willing to stop all laxatives for 5 days during the procedure
- Unknown effect of bowel cleansing vs not prepared on transit time
- Different protocols
  - The most simple is an X-ray on day 5 only
A normal colonic transit study equates to the passage of at least 80% of the markers (19 of the 24 markers) at 5 days.

Radiopaque markers can help differentiate between retentive and NON retentive fecal incontinence.

Fecal incontinence

- Involuntary leakage of stool associated with:
  - Low self esteem
  - Bullying at school
  - Punishment by parents

- The primary reason for FI in constipation is fecal retention
- Study primary care setting in USA children 4 to 7 years prevalence of 4.4% of which 95% had underlying constipation
- Prevalence of fecal incontinence is higher (85%) in patients referred to a subspecialty clinic (J Pediatr 2002)
Functional constipation + fecal incontinence, compared with functional constipation alone, significantly reduces child and family quality of life and general functioning.

Children with constipation related fecal incontinence do not wait longer than those with constipation before seeking medical help.

Tried that and still NOT WORKING

- Do you have the right diagnosis?
  - Not constipated
  - IBS
  - Non retentive fecal incontinence

- Are you being aggressive enough?

- Do we need further testing? Is it time for neurogastroenterology?
Stimulant laxatives (senna and bisacodyl) are widely available and likely underutilized.
3 rules

• Take the medicine EVERY DAY at the SAME TIME
• Sit on the toilet After breakfast, after dinner and if belly cramps
• Call to adjust regimen if any accidents, no stool in 48 hours, too hard or too loose
• Once doing well I continue treatment for 6 months and then follow up with a slow wean

To the rescue!!!

Tried that and still NOT WORKING

• Do you have the right diagnosis?
  • Not constipated
  • Functional constipation vs IBS
  • FNRFI

• Are you being aggressive enough?
  • Stimulants
  • Higher dose
  • Compliance

• Do we need further testing? Is it time for neurogastroenterology?
Anorectal Manometry

Indications
1. Diagnose non-relaxing internal anal sphincter
2. Assess anorectal motility in children with chronic constipation and/or fecal incontinence with persistent symptoms despite treatment
3. Persistent symptoms (incontinence or obstruction) after surgery for Hirschsprung disease and to evaluate need for botulinum injection to sphincter
4. Evaluate anorectal function in patients with imperforate anus repair
5. Biofeedback therapy

Measurements
1. Resting Anal Pressure
2. Recto-Anal Inhibitory Reflex (RAIR)
3. Squeeze Pressure
4. Rectal Sensation Testing: first perception, desire to defecate, severe urgency
5. Defecation Dynamics: *Challenging to perform in younger children!*

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RAIR

- Rectal distension is associated with a decrease in anal resting pressure, known as the rectoanal inhibitory reflex (RAIR).
- Mediated by the myenteric plexus.

Dose Response

- 10ml, 20ml, 30ml, 40ml, 50ml
Colonic Manometry

• Evaluates the intraluminal pressure activity of the colon and rectum
Indications

1. Select medical and surgical treatment when conventional and behavioral treatments have failed
2. Colonic involvement in chronic intestinal pseudo-obstruction
3. Clarify the pathophysiology of persistent symptoms after:
   • Removal of the aganglionic segment in patients with Hirschsprung disease
   • Repair of other colorectal disorders (imperforate anus)
   • Antegrade Continence Enemas
4. Evaluate the function of a diverted colon before possible closure of a stoma or in those undergoing intestinal transplantation

Observe the behaviors associated with the HAPC:
   • Requests to use the bedside commode or defecation into a diaper, stoic retentive posturing, screaming, etc.
   • When queried subjects with retentive posturing initially denied sensation
Absence of Propagation of HAPC
Wide variation:

- Reported Outcome
- Success is defined
- Time spent in toilet
- When to administer
- What to administer
- When to wean
- How to wean
Colon motility improves after ACE