Gas, Bloat, Belch and Borborygmi: Controlling Emissions

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Updates in Family Medicine
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Disclosure

• None
Objectives

• What elements of history and physical are most useful in patients with gas/bloating
• What dietary changes help patients with gaseous complaints?
• Which of these patients need additional testing?
• What treatments are effective for these patients?
Clinical History: Gas/Bloating

• Describe symptom in detail

• Try to categorize into one of the following groups based on the history**: 
  • Gastric bloater
  • Small bowel bloater
  • Gas/bloat with constipation
  • Belching predominant

**Mayo Clinic Proceedings, Aug 2016. Loftus CG
Clinical History: Gas/Bloating **

- **Gastric bloater**
  - Hx: 1-30min after eat, fullness, discomfort, nausea
  - DDx: Gastric outlet, gastroparesis, Non ulcer dyspepsia, accommodation

- **Small bowel bloater**
  - Hx: 30min-hrs after eat, distension
  - DDx: IBS, Dietary, celiac, SIBO, ingestion, SBO

- **Gas/bloat with constipation**
  - Hx: Bloat, gas/flatus, decreased/hard stooling
  - DDx: C-IBS, simple constipation, pelvic floor dysfunction

- **Belching predominant**
  - Hx: Anxiety, belching when anxious, eating quickly, gulping food
  - DDX: gastric belch, supragastric belch, aerophagia

**Mayo Clinic Proceedings, Aug 2016. Loftus CG**
Physical Exam

- Belching during conversation
  - symptom absent when not being discussed
- Signs of abdominal distension
- Bowel sounds
  - Absent: ? Ileus
  - High pitched: ? Mechanical obstruction
- Digital rectal examination
  - Signs of pelvic floor dysfunction
    - (perineal descent, squeeze/relax)
Pelvic Floor Dysfunction: Exam

1) Inspect anus and surrounding tissue

2) Digital palpation and maneuvers:
   - Assess for tenderness, mass, stricture, stool
   - Assess resting and squeeze tone
     - Internal and external sphincters, respectively
   - Push and Bearing Down maneuver
     Assess relaxation with expulsion of finger:
     - perineal descent during simulated evacuation and elevation during squeeze
     - Push effort, anal relaxation, puborectalis tenderness

Talley, NJ. Am J Gastroenterol 2008

Case 1

• A 45 year old male with long standing IBS symptoms has recently been restricting his diet in an attempt to improve symptom control. He has significant abdominal bloating and pain, 1 hour after eating, which is relieved somewhat by defecation. He does not ingest excess caffeine, carbonation, gum or artificial sweeteners. He has not had abdominal surgery. Prior testing has included negative celiac serology.

• What dietary change is least likely to benefit this patient?
  • 1. The traditional IBS diet
  • 2. Lactose free diet
  • 3. Gluten free diet
  • 4. FODMAPs diet
  • 5. The Paleo diet
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  • 4. FODMAPs diet
  • 5. The Paleo diet
Small Bowel Bloating (30min-hrs after meal)

- Differential Diagnosis……additional testing
  - Irritable Bowel
  - Dietary
  - Ingestions
  - Celiac Celiac serology
  - SIBO Hydrogen breath test
  - SBO abdominal xray
What are FODMAPs?

**Fermentable Oligo-, Di-, Monosaccharides And Polyols**

- **Excess Fructose**: Honey, apples, pears, peaches, mangos, fruit juice, dried fruit
- **Fructans**: Wheat (large amounts), rye (large amounts), onions, leeks, zucchini
- **Sorbitol**: Apricots, peaches, artificial sweeteners, artificially sweetened gums
- **Raffinose**: Lentils, cabbage, brussels sprouts, asparagus, green beans, legumes
How do you manage IBS?

1. Intraluminal
   - Diet: what to eat? How to eat it?
     - Traditional diet, gluten free, FODMAPS
   - Ingestions: caffeine, carbonation, gum, sweeteners
   - If constipation: Diet Fiber, Soluble Fiber, fluid, fitness
   - If diarrhea: Soluble fiber (citrucel), bile acid binder, imodium

2. Bowel wall (anticholinergic if episodic pain)
   - Hyoscyamine (_______), 0.125mg, 1-2, 30 mins before meal
   - Dicylomine (_______), 10mg, 1-2, 30 mins before meals

3. Neuromodulation (for continuous pain)
   - TCAD: amytriptyline 25mg qhs, 50mg

4. Complimentary: trial of Iberogast, 20 drops TID

5. Cognitive Behavioral
Diet in patients with IBS/bloating

• Traditional IBS diet: Bohn et al, Gastro, Nov 2015
  • Focus on how/when rather than what to eat
  • 3 meals and 3 snacks, not too much/too little
  • Reduced intake of fatty foods and spicy foods
  • Reduce: coffee, alcohol, onions, cabbage, beans
  • Avoid: soft drinks, carbonation, gums, sweeteners
  • Eat fibers distributed throughout the day

• FODMAPs diet

• Gluten free diet
Risk factors for Bacterial Overgrowth

- **Structural**
  - Diverticula, strictures (Crohn’s, radiation, NSAIDs)

- **Surgical**
  - Blind loops, afferent limbs (Roux-En-Y), IC valve resection

- **Dysmotility**
  - Scleroderma, Type 1DM, medications (narcotics)

- **Diminished acid**
  - Acid suppression, achlorhydria, gastric resection

- **Other**
  - Celiac, advanced age, idiopathic
Small Intestine Bacterial Overgrowth

• **Diagnosis**
  - Aspirate and culture, >100,000 organisms/ml
  - Breath test: ingestion of substrate, monitor for hydrogen every 15-30 mins
    - Glucose (non diabetics): increase by 12ppm
    - Lactulose (Diabetics): increase by 20ppm

• **Management**
  - Treat risk factor (Crohn’s, optimize glycemic control)
  - Replace nutritional def: eg Vit B12
  - Antibiotics:
    - Ciprofloxacin 250mg bid po for 7-10 days
    - Cyclical antibiotic for first 7-10 days/month for some cases (eg scleroderma)
Case 2

- A 28 year old man presents for evaluation of pain in the upper abdomen after eating. He recently experienced viral gastroenteritis characterized by nausea, vomiting and diarrhea, but this resolved. Within 5 minutes of starting to eat he feels full and uncomfortable in the epigastrium. He does not take NSAIDS. A trial of omeprazole was not helpful. Upper endoscopy was normal. US of gallbladder was normal. HIDA scan revealed gallbladder ejection fraction of 15% (normal >35%).

- What would you recommend?

  1. Surgery consult for laparoscopic cholecystectomy
  2. Gastric emptying study
  3. CT scan of abdomen
  4. Trial of Buspirone
  5. 24 Hr PH and impedance study
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Gastric Bloating (1-30min after meal)

• Differential Diagnosis ........ additional testing
  • Functional dyspepsia
  • Gastric outlet obstruction \ EGD
  • Gastroparesis \ Gastric emptying
  • Gastric accommodation
Functional Dyspepsia

FUNCTIONAL DYSPEPSIA – Rome III Criteria *

Diagnostic criteria* Must include:

One or more of the following:

a. Bothersome postprandial fullness
b. Early satiation
c. Epigastric pain
d. Epigastric burning

AND

No evidence of structural disease (including at upper endoscopy) that is likely to explain the symptoms

• Criteria fulfilled for the last 3 months with symptom onset at least 6 months prior to diagnosis

*Drossman et al. Rome III Consensus, 2006
Recommended Treatment Algorithm for Patients with a Provisional Diagnosis of Functional Dyspepsia.

Talley NJ. NEJM, Nov 5, 2015
How do you manage the Gastric Bloater?

1. Intraluminal
   - Diet: what to eat? How to eat it?
   - Ingestions: caffeine, gum, sweeteners
   - Treat constipation: Diet Fiber, Supp Fiber, fluid, fitness
   - ?? H pylori eradication and acid suppressive therapy

2. Bowel wall
   - Prokinetic: metoclopramide (not routinely recommended)
   - Gastric accommodation: Buspirone 5-10mg bid

3. Neuromodulation
   - TCAD: amitriptyline 25mg qhs, 50mg
   - Mirtazapine: 7.5mg qhs, 15mg qhs

4. Complimentary: trial of Iberogast, 20 drops TID

5. Cognitive Behavioral
Case 3

- A 51 year old female presents for evaluation of chronic abdominal discomfort and bloating. She has also had constipation for many years, worse recently. She has used citrucel without benefit, and miralax caused excessive bloating and increased abdominal pain without helping the constipation. The patient spends lengthy periods in the restroom, straining to have bowel movement. On physical exam there is evidence of abdominal wall pain, with positive Carnet’s sign.

- What would you recommend for this patient?
  - 1. Trigger point injection
  - 2. CT abdomen and pelvis
  - 3. Anorectal manometry
  - 4. Stimulant laxative
  - 5. Linaclotide
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  • 1. Trigger point injection
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  • 4. Stimulant laxative
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Gas/Bloating with constipation

• Differential Diagnosis ........... additional testing
  • Simple constipation TSH, calcium
  • C-IBS
  • Colonic obstruction colonoscopy
  • Pelvic floor dysfunction AR manometry
  • Slow transit constipation Colon transit study
Pelvic Floor Dysfunction: History

• What happens when you go to the restroom?
  • 1. Prolonged straining
  • 2. Incomplete evacuation
  • 3. Manual digitation

• Worsening abdominal discomfort with osmotic laxatives

• History of physical/sexual abuse

• Environmental stressors
Lengthy restroom visits may be an indicator of pelvic floor dysfunction

Or

A means to escape the stress of everyday life
Pelvic Floor Dysfunction

- Pelvic floor dysfunction is common \(^1\)
- Can present in many ways:
  - Refractory constipation
  - Chronic abdominal pain
    - Abdominal wall pain
  - Chronic pelvic pain
  - Chronic low back pain
- Most effective intervention is pelvic floor retraining with biofeedback therapy (2 week program): 80% improvement at 6 months \(^2\)

How do you manage Gas/Bloat with constipation?

• 1. Intraluminal
  • Diet: what to eat? How to eat it?
  • Ingestions: caffeine, gum, sweeteners
  • Treat constipation:
    • 4Fs: diet Fiber, supplemental fiber, fluid, fitness
    • Osmotics: ______ 17g, 1-2 daily
      • If not better at this point, ?? Pelvic floor
    • Stimulant: __________ 10mg, 1-2 daily
      • Patients on narcotics, patients with dysmotility
  • Specific agents:
    • Linaclotide
    • Lubiprostone
  • When not responding to osmotics, think pelvic floor
Case 4

- A 35 year old male with a history of anxiety presents for evaluation of belching which has been present for 1 year. The patient states that at times he will belch up to 50 times/minute. At that point, he becomes anxious, and starts to belch, with belching lasting for 15 seconds. His wife states that he often belches when anxious and never belches while asleep.

- The most likely diagnosis is:
  - 1. Gastric belching
  - 2. Supragastric belching
  - 3. Aerophagia
  - 4. Small intestinal bacterial overgrowth
Case 4

- A 35 year old male with a history of anxiety presents for evaluation of belching which has been present for 1 year. The patient states that at times he will belch up to 50 times/minute. At that point, he becomes anxious, and starts to belch, with belching lasting for 15 seconds. His wife states that he often belches when anxious and never belches while asleep.

- The most likely diagnosis is:
  - 1. Gastric belching
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Belching

• Gastric belching
  • Involuntary, normal physiology
  • Ingested air, pressure in proximal stomach, transient lower esophageal sphincter relaxation (TLESR)
  • Normally occurs 25-30/day
  • Occasional excessive:
    • Eat slowly
    • Reduce carbonation
    • Simethicone
    • Rarely baclofen 5mg BID/TID
      • (prevents TLESRs)
    • Behavioral therapy
Belching

• Supragastric belching
  • Voluntary, learned behavior, not normal
  • Often seen if patients with anxiety disorder
  • Mechanism:
    • Diaphragm contracts, neg pressure sucks air into esophagus
    • Diaphragm relaxes and expels air
  • May occur multiple times/min
  • Worse with anxiety, better with distraction/sleep
  • Treatment:
    • Treat underlying anxiety
    • Education and behavioral therapy
    • Simethicone, baclofen not helpful
Belching

• Aerophagia
  • Excessive air swallowing
  • Association: eating fast, gulping, carbonation, CPAP
  • May be associated with gas, bloating, distension
  • Differentiate from supragastric belching by:
    • Not as strongly associated with anxiety
    • Not belching during interview

• Treatment:
  • Decrease carbonation
  • Eat slowly, no gulping
  • Simethicone may help
  • Behavioral therapy
Clinical History: Gas/Bloating

- Describe symptom in detail

- Try to categorize into one of the following groups based on the history:
  - **Gastric bloater**
    - 1-15min, NUD, gastric accommodation (Buspar)
  - **Small bowel bloater**
    - 30min-hrs, IBS, dietary, celiac, SIBO (IBS, gluten, FODMAPS)
  - **Gas/bloat with constipation**
    - Simple constipation, pelvic floor dysfunction (4Fs)
  - **Belching**
    - Gastric, Supragastric, aerophagia (simethicone, baclofen, behavioral therapy)
Thank you very much.