CRACKCast E220 – Constipation

EPISODE CONTENT BASED ON ROSEN'S EMERGENCY MEDICINE (9TH ED.)

Italicized text is quoted directly from Rosen's.

Key Concepts:

1. *Constipation is a common patient concern and rarely has an emergent condition associated with it*
2. *Evaluation of the patient with constipation requires a detailed history (with particular attention to medication history), physical examination (including rectal examination) and rarely requires labs or imaging.*
3. *Treatment of constipation includes addressing underlying etiologies and recommending the correct agent based on the etiology.*
4. *Stool softeners (docusate sodium), although commonly prescribed, are ineffective and are rarely indicated.*
5. *Osmotic agents or stimulants can be used to treat the majority of patients who present with constipation*
6. *Patients who have a large amount of stool in the rectum can be treated with an enema, which acts by distending the rectum and helps soften the stool to facilitate passage. For some with particularly recalcitrant stool, manual disimpaction may be required.*
7. *Plain abdominal radiographs are of little or no use in diagnosing constipation or other, more serious abdominal disorders that may present as constipation, and should be used highly selectively, if at all.*
8. *Patients with opioid-induced constipation that is refractory to other standard laxatives, may benefit from peripherally acting μ-opioid receptor antagonists*

Core Questions

1. List risk factors for constipation
2. List 10 causes of constipation (Box 29.1)
3. Describe an approach to the history and physical exam of the constipated patient.
4. What ancillary testing should and should not be ordered in constipation?
5. Describe an approach to management of constipation in the ED (figure 29.1)
6. Describe 5 classes of laxative agents
7. List the lifestyle changes that constipation patients should be counselled about.

Wisecracks

1. List 5 medications that can cause constipation.
2. What agents can be considered in refractory opioid-induced constipation?
3. Describe the mechanism of action of PEG 3350.
4. Describe the mechanism of overflow incontinence.

Rosen's in Perspective

Constipation is sometimes defined as less than 3 bowel movements per week. However, Rosen's notes that this term actually refers to a complex of symptoms, and that patients and health care providers often use the term differently. Thus, constipation can be used by patients to refer to any of straining, hard/infrequent stools, painful bowel movements, bloating, or incomplete evacuation. **Chronic constipation** is defined as the presence of symptoms for at least 3 months. **Obstipation** refers to severe pain and constipation where the patient is no longer passing stool or gas, and represents a progression towards bowel obstruction.

You may be thinking to yourself, "self, constipation is rarely an emergent problem. Why would I need to know this as an emergency physician?" Well, that is where you are mistaken. Constipation is a deceptively frequent problem that we encounter both in adults and kids. We have got you covered here at CRACKCast. Next time your backed-up patient comes into the emergency room, you will know exactly how to get those bowels moving. And while this problem is rarely associated with emergent diagnoses or impending badness, it is important to know the secondary causes that must be excluded in your ED patients.

Core Questions:

[1] List risk factors for constipation

1. Female
2. Age >70
3. High BMI
4. Sedentary lifestyle
5. Low SES
6. Low fiber diet
7. Multiple medications
8. Any co-morbidities that impair neurologic and motor function

[2] List 10 causes of constipation - Box 29.1

This figure was informed by Box 29.1 – Causes of Constipation in Rosen's 9th Edition. Refer to the text for further information.

Causes of Constipation

Congenital

1. Hirschsprung's disease
2. Imperforate anus
3. Anorectal atresia
4. Aganglionosis

Primary Causes (Functional Disorders)

1. Idiopathic slow transit
2. IBS

Secondary Causes

1. Neurologic
    a. Chronic Disease (MS, Parkinson's)
    b. Spinal cord injury
2. Metabolic
    a. DM
    b. Hypercalcemia
    c. Hypokalemia
    d. Hypothyroidism
    e. Hypomagnesemia

3. Myopathies
    a. Systemic sclerosis
    b. Amyloidosis
4. Structural
    a. Obstructing tumor or stricture
    b. Intussusception
    c. Rectocele
    d. Rectal Prolapse
5. Medication side effect
    a. Opiates
    b. iron/Ca supplement
    c. CCBs
    d. Antidepressants
    e. Diuretics
    f. Antipsychotics
    g. Anticholinergics
    h. Antiepileptics
    i. Antiparkinson drugs
6. Psychological
    a. Abuse
    b. Eating disorders
    c. Affective disorders
7. Other
    a. Dehydration
    b. Immobility
    c. Pregnancy
    d. Post op pain
    e. Dietary factors

[3] Describe an approach to the history and physical exam of the constipated patient.

History

- Define what the patient means by constipation
- Characterize the stools
- Ask about lifestyle and risk factors
- Clarify medication history and any recent changes (including OTCs)
- Rule out red flags:
    - Fever
    - Anorexia
    - Nausea or vomiting
    - Hematochezia or melena
    - Symptomatic anemia
    - Weight loss of over 10lbs
    - Family History of colon cancer
    - Onset of constipation after age 50
    - Acute onset of constipation in elderly patient

Physical exam

- General inspection - body habitus, nutritional status
- Abdominal exam (ensure no signs of bowel obstruction/peritonitis)
- Rectal exam
    - External inspection - fissures, hemorrhoids, prolapse
    - Bear down - can assess prolapse
    - DRE - presence of blood/melena/impacted stool

[4] What ancillary testing should and should not be ordered in constipation?

The majority of patients who visit the ED with a chief complaint of constipation do not need any testing. However, be extremely wary of elderly patients presenting with new constipation or abdominal pain, or if there is any suspicion for red flags/secondary causes. **You need to work these patients up**.

- Plain radiography = no value for constipation (fecal loading is NOT a reason to do films)
- Labs = consider if suspecting secondary cause, or with presence of abdominal pain
- Imaging = consider CT/US if considering alternate rule-out differential diagnosis (associated abdominal pain or other concerning features)
- FOBT/FIT - not generally indicated in the ED

For recalcitrant severe constipation, outpatient evaluation may include colonic transit studies, further metabolic/endocrine studies, and anorectal manometry.

[5] Describe an approach to management of constipation in the ED

This table was informed by Figure 29.1 – Management of constipation in Rosen's 9th Edition. Refer to the text for further information.

Constipation management in the Emergency Department	
Consider etiology and timeline of symptoms • Metabolic? Medication side effect? Structural? Acute vs chronic? • Enemas or manual disimpaction may be considered in refractory cases	
Chronic, recurrent	Step 1: Lifestyle modifications • Increased activity, fiber and water intake Step 2: Bulk forming laxatives • Psyllium seed, Methylcellulose, etc Step 3: Osmotic laxatives or stimulants • PEG, lactulose, sorbitol (osmotic) • Senna, Bisacodyl (stimulant)
Structural etiology (fissure, painful defecation, etc)	• Docusate stool softener or Mineral oil/glycerin • Consider manual disimpaction if volume is large
No transit problem identified, not chronic	1st line: Osmotic or stimulant laxative • PEG, Senna, Milk of Magnesium 2nd line: if no relief from 1st line • Colonic secretagogues (Lubiprostone, Linaclotide) • 5-HT(4) receptor antagonist (Prucalopride)
Metabolic or medication side effect	Be sure to manage the primary problem as well as constipation • Naloxegol or Methylnaltrexone can be used if constipation is opioid induced

[6] Describe 5 classes of laxative agents

See Table 29.1 in Rosen's 9th Edition for complete list, doses, and contraindications.

1. Bulk laxatives: Indigestible fiber that attracts water and leads to larger, softer stools.
    - Example: Psyllium (Metamucil)
    - Caution: must be taken with plenty of water to avoid concretion and obstruction

2. Osmotic Laxatives: Draw water into intestines by creating osmotic gradient
    - Examples:
        - Milk of Magnesia
        - Fleet enema (sodium phosphate)
    - Caution:
        - Renal insufficiency is a potential risk factor as a small amount of magnesium and phosphate are absorbed

3. Poorly Absorbed Sugars: Sugars and polymers that are poorly absorbed by the small intestine and draw water into the bowels to soften stools and increase stool volume
    - Examples:
        - PEG 3350 - **THE HOLY GRAIL OF ED MANAGEMENT OF CONSTIPATION.** Peg is an organic polymer that is not absorbed by the bowels and dissolves in any liquid noncarbonated beverage.
        - Lactulose - Synthetic disaccharide, minimally absorbed. Side effects of gas and/or bloating are common
        - Sorbitol - Sugar that is poorly absorbed by small intestine. Associated with pseudohyponatremia if systemically absorbed

4. Stimulant laxatives: Stimulation of colonic secretion and motility
    - Examples: Senna, Dulcolax

5. Stool softeners: Increase water penetration to soften the stool
    - Examples:
        - Docusate - Similar to placebo in many studies
        - Mineral oil - Lubrication for stool passage. Lipoid pneumonia if aspirated

Note: Rosen's also lists several newer agents

- Lubiprostone: Chloride channel activator
- Linaclotide: Guanylate Cyclase-C (GC-C) Agonist
- Methylnaltrexone and Naloxegol: Peripherally acting μ-opioid antagonists that block the GI side effects of opioids while preserving the central effects. They do not precipitate withdrawal.

[7] List the lifestyle changes that constipation patients should be counselled about.

The constipation lifestyle program includes:

- Increased fluid intake
- Increased exercise
- Increased dietary fiber
- Additional sources of dietary bulk (think synthetic bulking agents like Metamucil - beware of the potential for concretion formation)

These will not have immediate/short term effects, but they are important to counsel your patient on for the long-term resolution of symptoms.

Wisecracks:

[1] List 5 medications that can cause constipation.

1. Opiates
2. Iron or calcium supplements
3. Calcium Channel Blockers
4. Anti-depressants
5. Diuretics
6. Anti-psychotics
7. Anti-cholinergics
8. Anti-epileptics
9. Anti-parkinson medications

[2] What agents can be considered in refractory opioid-induced constipation?

- Methylnaltrexone and Naloxegol:
    - Peripherally acting μ-opioid antagonists that block the GI side effects of opioids while preserving the central effects.
    - They do not precipitate withdrawal.
    - Supported by evidence for ED management of opioid induced constipation: **AC Ford, DM Brenner, PS Schoenfeld**: Efficacy of pharmacological therapies for the treatment of opioid-induced constipation: systematic review and meta-analysis. *Am J Gastroenterol.* 108:1566 2013 23752879

[3] Describe the mechanism of action of PEG 3350.

- Polyethylene Glycol is an organic polymer that is not systemically absorbed
- It remains in the bowel and draws water into the stool by setting up an osmotic gradient
- It is not absorbed systemically, and the body does not become dependent on PEG
- Dosing Adult = 17g PO daily titrated to 1 soft daily BM

- Dosing Peds
    - Exclude secondary cause
    - Functional Constipation dosing: **Compendium of Pharmaceuticals and Specialties says 1-1.5g/kg/day for 3 days for disimpaction, 0.4-1g/kg/day for maintenance.**
        - In practice, recommend that the dose will likely need to be individualized and titrated to effect (1 soft BM/d)
    - Education of parents and older children is key

[4] Describe the mechanism of overflow incontinence.

This occurs where small amounts of stool leak out around a large, impacted stool that distends the colon and anal sphincters (often described in children).

In functional constipation, withholding behaviour (often seen in children) leads to build up of large amounts of stool in the rectum and colon, which leads to drying/hardening of the stool and stretching of the rectum and lower colon. Small amounts of stool then leak out around the large, impacted stool. **Sometimes parents describe this as diarrhea, when in fact the true cause of the presentation is constipation**.