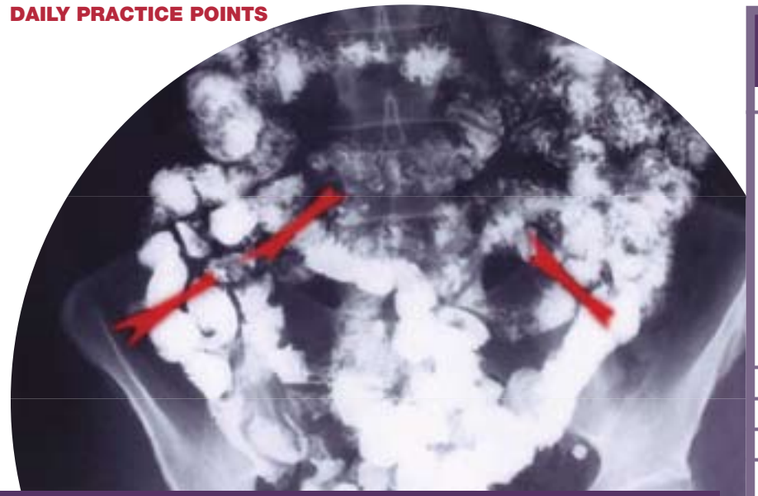

Bowel obstruction

Beware of gastrointestinal look-alikes and refer early

BY DENNIS KIM, MD

Intestinal blockage, or bowel obstruction, is a commonly encountered clinical entity which may have significant clinical sequelae if overlooked. Bowel obstruction is usually classified in a number of ways, depending on the site of the blockage, the proposed etiology, i.e. mechanical vs paralytic ileus, and whether or not the obstruction is partial or complete. High-grade or closed-loop obstructions are occluded both proximally and distally.

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Signs

- previous scars
- masses or bulges, particularly in the groin and around previous scars
- degree of distension
- on auscultation, note presence or absence of bowel sounds and their characteristics
- percussion — usually hypertympanic
- localized tenderness on palpation — rebound or rigidity are worrisome signs and mandate immediate surgical evaluation

Risk factors

- see mnemonic SHAVING:
  - **S**tricture
  - **H**ernia
  - **A**dhesions (75% of all mechanical obstructions)
  - **V**olvulus
  - **I**ntussusception
  - **N**eoplasm
  - **G**allstone ileus
- previous surgery
- diverticulitis
- inflammatory bowel disease (IBD)
- congenital malformations — e.g. malrotation, webs, duplication cysts
- previous radiation to the thorax or abdomen
- foreign body ingestion, bezoar
- electrolyte abnormalities
- cystic fibrosis
- narcotics use
- decreased ambulation

Symptoms

- nausea and vomiting
  - bilious vomiting with minimal distension — signals obstruction at or near the level of the ligament of Treitz (LOT)
  - bilious vomiting and significant distension — an obstruction distal to LOT
  - feculent emesis — large bowel obstruction, with incompetent ileocecal valve
- abdominal pain
  - often intermittent, crampy, waxing and waning in nature
  - severe, constant pain — indicative of ischemia or strangulation
- constipation
- obstipation
- fever and chills
- abdominal distention
- decreased appetite

Diagnostic investigations

- x-ray
  - initial diagnostic study of choice
  - assess for presence or absence of free air
  - abdominal series, including 3 views of the abdomen
  - rule of 3s — upper limit of normal for small bowel, large bowel and cecum are 3, 6 and 9 cm, respectively
- computed tomography scan
  - with oral or intravenous (IV) contrast, or both
  - 80-90% sensitive and 70-80% specific in detecting small bowel obstruction[1]
- barium enema — helpful in excluding large bowel obstructions
- enteroclysis, or small bowel follow-through
- rigid sigmoidoscopy
- lab tests — complete blood count, electrolytes, blood urea nitrogen, serum creatinine, lactate, urine routine and microscopic, culture and susceptibilities —mild leukocytosis is common
- digital rectal exam — assess for rectal tone, blood, mass or impacted stool

Red flags

- suspected intestinal obstruction — best managed in the acute inpatient setting
- refer early on to a surgeon or emergency department if patient presents with signs above *and* any of the following:
  - virgin abdomen — bowel obstruction and no previous history of abdominal surgery — needs vigilant and aggressive management
  - fever or abnormal vital signs
  - peritonitis or tenderness on exam
  - blood per rectum
  - severe pain progressing to absence of pain — may indicate necrotic or dead gut
  - significant or increasing narcotic requirements
  - obstipation
  - elderly age

References:

1. Suri S et al. *Acta Radiol* 1999;40(4):422-8.
2. Fischer CP, Doherty D. *Semin Laparosc Surg* 2002;9(1):40-5.
3. Brunicardi C et al. Schwartz's Principles of Surgery, 8th Ed. McGraw-Hill Professional, 2005:1030.

Treatment

- referral for surgical consult and intervention on suspicion of strangulated or ischemic bowel
- nothing by mouth
- IV fluid replacement
- nasogastric tube — low intermittent suction
- Foley catheter — ensure urine output ≥ 0.5 cc/kg/hr
- antiemetics
- antibiotics on evidence of sepsis

Partial obstruction

- conservative measures, particularly if previous intra-abdominal surgery
- daily abdominal x-rays and serial clinical evaluation
- gradual reintroduction of a fluid diet once symptoms have subsided and flatus occurs

Complete obstruction

- surgical
- no prospective randomized trials comparing open vs laparoscopic approaches — contingent on the underlying pathogenic mechanism of obstruction[2]

Follow-up

- after intra-abdominal exploration, 5% lifetime risk
- surgery for obstruction from adhesions — 20-30% chance of developing a recurrence[3]
- recurrent blockages — nutritional counselling — avoiding foods with high residue and insoluble components, e.g. popcorn, raw vegetables, corn
- multiple intra-abdominal operations — risk of chronic pain syndrome, narcotic dependence

Differential diagnosis

- gastrointestinal disorder, including peptic ulcer
- abdominal aortic aneurism
- urologic, gynecologic and obstetric disorder
- pneumonia
- myocardial infarction
- diabetic ketoacidosis