

SMALL BOWEL OBSTRUCTION: UNDERSTANDING THE BASICS

Pathogenesis:

- Normal luminal flow of intestinal contents is interrupted
- Bowel proximal to obstruction dilates as intestinal secretions are prevented from passing distally
- Nausea and emesis
- Swallowed air and gas from bacterial fermentation accumulates, adding to dilatation
- Bacterial overgrowth occurs in the proximal SB
- Emesis can become feculent due to bacterial overgrowth
- Bowel wall becomes edematous and intestine's normal absorptive function is lost - more fluid is sequestered in bowel lumen
- Secretion of fluid into lumen of proximal dilated bowel increases. - transudative loss of fluid into peritoneal cavity
- Tachycardia, oliguria, azotemia, and hypotension can result from progressive dehydration
- Strangulation complicates approximately 10% of bowel obstructions, and occurs when bowel wall edema and increasing intraluminal pressure compromise perfusion to a segment of intestine
- Necrosis with concomitant fever and leukocytosis, which will eventually lead to perforation unless the process is interrupted

Causes:

- Postop or primary
- Extrinsic: Post-operative adhesions (75%), hernias, volvulus
- Intrinsic: Tumors, inflammatory stricture (Crohn's), radiation enteritis
- Normal lumen: Intussusception, gallstones, feces, bezoar, traumatic intramural hematoma

Symptoms:

- Obstipation, nausea, vomiting, abdominal pain, and bloating
- No reliable sign or symptom differentiating patients with strangulation or impending strangulation from those in whom surgery will not be necessary

Incidence:

- >300,000 hospitalizations for adhesiolysis, resulting in >800,000 days of inpatient care and \$1.3 billion in expenditures
- Postoperative adhesions/SBO occur in 5-15% of patients

Types:

- Complete
- Partial

Physical examination:

- Fever and tachycardia - associated with strangulation
- Hypotension, oliguria, and dry mucous membranes indicate dehydration
- Inspect the abdomen for surgical scars and the degree of distention
- Auscultate - high-pitched or hypoactive bowel sounds

- Tenderness to light percussion suggests the presence of peritonitis, as does rebound, guarding, and localized tenderness
- Tympany is usually present due to air-filled loops of bowel or stomach
- The presence of any abdominal mass may indicate an abscess, volvulus, or tumor
- A thorough search for inguinal, femoral, and incisional hernias
- Rectal examination may reveal an empty rectal vault and occasionally a rectal mass can be the cause of obstruction. Gross or occult blood can be found with intestinal neoplasm, ischemia, and intussusception.

Labs:

- Leukocytosis with leftward shift may indicate strangulation
- BUN, creatinine, and hematocrit can be used to gauge the degree of dehydration

Radiological Studies:

- Chest X-ray
- Obstructive series
- CT scan
- Small Bowel series

Management:

- IV access, NG tube, Foley
- Assess degree of dehydration and metabolic derangement
- Establish need for and timing of operative intervention
- Suspected impending or ongoing strangulation warrants operative intervention as soon as the patient is stable, whereas other situations may permit a period of safe observation prior to surgery
- Even if strangulation is suspected, it may be necessary to resuscitate the patient in an ICU, which can also help to prevent hypotension upon the induction of anesthesia
- "Never let the sun rise or set on a SBO" to prevent strangulation of intestine
- Several settings may lend themselves to relatively safe nonoperative management
 - Obstruction due to metastatic intraabdominal malignancy, recurrent adhesive obstruction, obstructing radiation enteritis, or during the early postoperative period
- Operative therapy should be undertaken if signs or symptoms of strangulation
- Radiologic demonstration of mesenteric ischemia or closed-loop obstruction in any patient should also warrant prompt surgical intervention

Surgery:

- The nature of the obstruction determines the type and extent of surgery
- Intraop assessment of bowel viability

Jeffrey A. Morgan, MD
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