

SMALL BOWEL OBSTRUCTION

- Responsible for 12 to 16% of admissions to the surgical service in patients with acute abdominal pain.
- Mechanical blockage with failure of passage of bowel contents

Etiology:

Extraluminal

- Adhesions > 60%, especially after pelvic surgery.
- Neoplastic 20%. Majority are metastatic that have peritoneal implants.
- Hernias 10%. Most common are ventral, inguinal or internal
- Abscesses

Intramural

- Neoplasms
 - Adenocarcinomas: 50%, distal duodenum or proximal jejunum- ulcerate cause hemorrhage or ulceration
 - Lymphomas: 20%, non-Hodgkin's. Ileum > jejunum > duodenum. Occasionally obstruct
 - Carcinoid: >50% in distal ileum. Most asymptomatic
 - Leiomyosarcoma: >5 cm in diameter. Obstruction, bleeding, perforation is common.
- Inflammatory
 - Crohn's 5%. Acute inflammation and edema or chronic strictures.
- Infectious
- Congenital
 - Malrotation, duplication, congenital bands
Akgor reported eight patients treated for intestinal obstruction resulting from bands that have no identifiable embryological or acquired basis. Located between ascending colon and terminal ileum in 50%, ligament of Treitz and terminal ileum in 25%, right lobe liver and ascending colon 25%, right lobe of liver and terminal ileum in 25%.
Anomalies of mesenterium?
 - Others: Traumatic, Intussusception, radiation

Intraluminal

- Gallstones, enteroliths, Bezoars, foreign bodies

Presentation & Pathophysiology

- Classical presentation includes colicky abdominal pain, nausea, vomiting, abdominal distention and obstipation.
- Vomiting: In proximal obstruction vomiting is more common, however feculent vomiting indicates distal or late obstruction.

- Diarrhea: In both partial or complete obstruction, diarrhea may be present early in the course because of increased motility and contractile activity of bowel in order to propel luminal contents beyond point of obstruction.
- Increased or decreased bowel sounds: Increased early, may see peristaltic waves; later decreased or none, once bowel is exhausted
- Hypotension and shock: Bowel dilates with accumulation of water and electrolytes in the lumen and within the wall of the bowel. This third spacing leads to dehydration and hypovolemia
- Compromised ventilation: Increased abdominal pressure, decreased venous return, elevation of diaphragm
- Fever: Strangulated bowel; Closed loop obstruction has increased intraluminal pressures with decrease in mucosal blood flow. Bacterial translocation: E. coli, Strep faecalis, and Klebsiella
- Guaiac positive: malignancy, intussusception or infarction

Electrolytes

- Proximal obstruction – may have hypokalemia, hyponatremia and alkalosis
- Distal less dramatic electrolyte abnormalities
- Look for hemoconcentration as evidence of dehydration

Radiology

- Plain film: diagnostic in 50-60% of cases. Small bowel distention, multiple air-fluid levels, and decreased colonic gas and stool. Widely available and low cost
- Barium swallow and/or enema: Not useful in high grade obstruction, contrast diluted by fluid in bowel leads to poor mucosal detail. Prolonged transit time
- Enteroclysis: Nondiluted contrast directly into jejunum. Sequential infusion promotes antegrade flow beyond point of obstruction. Positive predictive value 100%, level of obstruction in 89%, cause of obstruction in 86%. Requires sedation, nasointestinal intubation, and near constant radiologist intervention.
- CT: High grade obstruction 81% sensitivity, 63% with all grades
Able to show cause of obstruction in 93-95% of cases
Reliable in showing signs of closed loop, ischemia and infarction

Treatment

- Non-operative:
 - 60-85% resolve
 - NG tube decompression, fluid resuscitation, bowel rest
 - Serial exams and electrolyte management
 - Foley
 - Broad spectrum antibiotics controversial
- Operative:
 - Complete obstruction usually does not resolve. After 12-24 hours incidence of strangulation increases significantly.
 - Fever, tachycardia, focal tenderness, leukocytosis
 - Operative treatment depends on etiology-lysis of adhesions, small bowel resection, etc.