Management of Colonic Volvulus and Acute Colonic Pseudo-Obstruction

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1

Disclosures

- None

2

Objectives

- Discuss evaluation and management of sigmoid and cecal volvulus
- Discuss management and evaluation of acute colonic pseudo-obstruction
- Review the 2021 ASCRS Clinical Practice Guidelines for Management of Colonic Volvulus and Acute Colonic Pseudo-Obstruction

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Colonic Volvulus

- Twisting of a redundant segment of colon on its mesentery that may lead to luminal occlusion in and proximal to the volvulized segment and compromise of colonic blood supply resulting in ischemia, gangrene, and potentially perforation
- 10% to 15% of all large-bowel obstructions in the United States and western Europe, although its world-wide incidence is variable with a slightly higher rate in India, Africa, and the Middle East ("volvulus belt")
- Occurs mostly commonly in the sigmoid colon (60%) and the cecum (40%)

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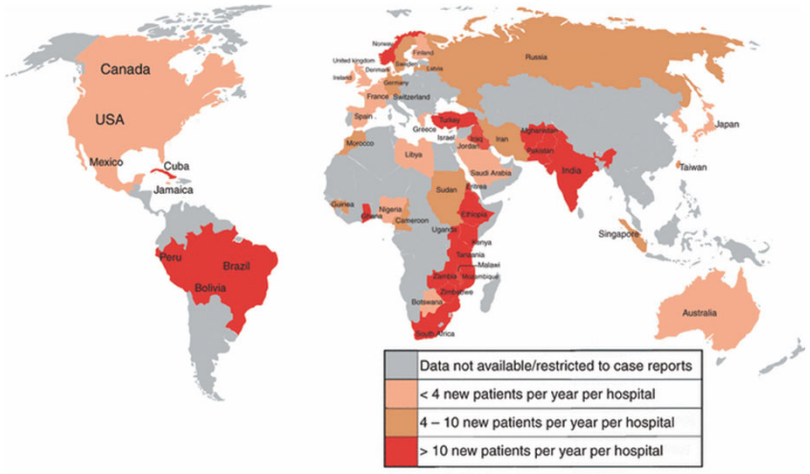
Volvulus Belt



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Presentation

- Evaluation
  - Focused history
  - Physical examination
  - Basic laboratory assessment
  - Emergency presentation, with clinical signs of peritonitis or shock related to ischemia or perforation occurs in up to 25% and 35% of patients with sigmoid and cecal volvulus

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Imaging

- Imaging
  - Plain abdominal radiographs
  - CT
    - Sensitivity 100%; Specificity >90%
  - Grade of recommendation: Strong recommendation based on low-quality evidence, 1C.

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Management

- Depends on its location and clinical presentation
- Pillars of management include:
  - assessment of colonic viability
  - relief of obstruction
  - prevention of recurrence
- Without operative intervention, recurrent volvulus rates are high, and each subsequent recurrence event risks ischemia and perforation

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Sigmoid Volvulus

- Usually Counterclockwise organoaxial rotation
- Presents: males in 6th to 8th decade
- Risk Factors:
  - Institutionalized patient
  - Chronic constipation
  - Neuropsychological impairment
  - Significant comorbidities

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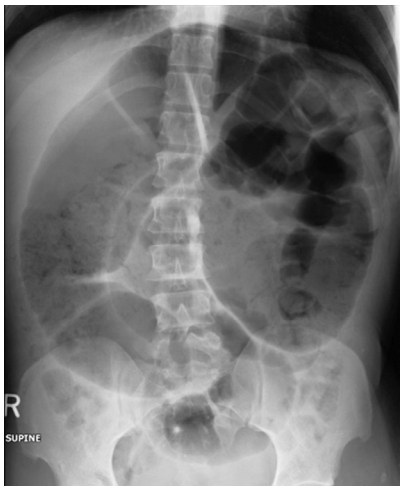
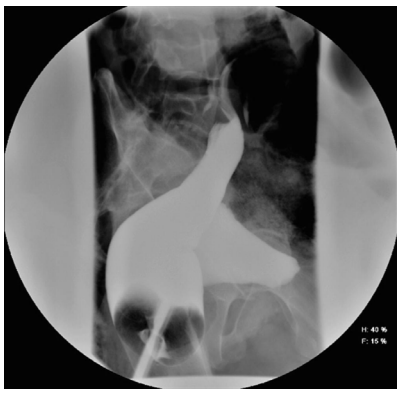


"Coffee bean" or "bent inner tube"



"Bird's Beak"

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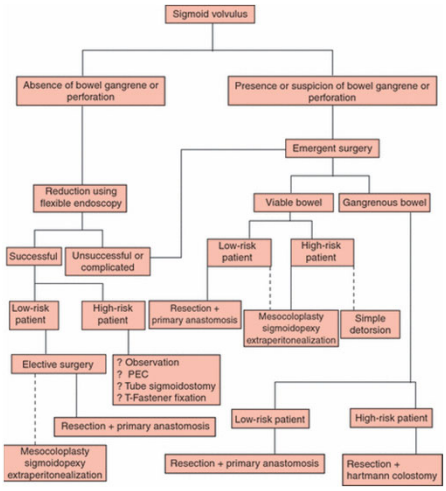
Management



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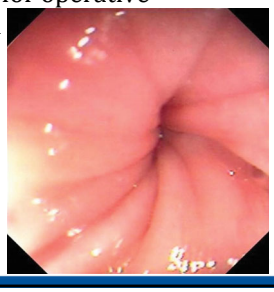
Non-operative detorsion

- Endoscopic detorsion – first line therapy
  - Rigid proctoscopy vs flexible sigmoidoscopy +/- rectal tube
  - Effective in 60-95%
  - Recurrence rate 43-75%
    - High recurrence rate and morbidity and mortality with each recurrent episode support recommendation for operative intervention during index admission or soon
  - Mortality rate 3%



12

Surgery

- Partial colectomy
  - End colostomy
  - Primary anastomosis (possible side-to-end Baker-type anastomosis)
- Subtotal colectomy if cecal perforation or proximal colonic ischemia

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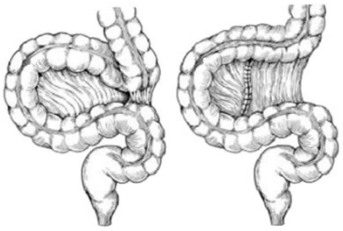
- Mesosigmoidoplasty
  - A. Longitudinal peritoneal incision is made in elongated narrow mesentery
  - B. Incision is then closed transversely , broadening mesenteric base and shortening height of the sigmoid loop
- Sigmoidopexy
  - Higher rates of recurrence



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- Percutaneous Endoscopic Colostomy (PEC)
  - Endoscopic fixation to abdominal wall
  - Patients with prohibitive operative risk
  - High mortality rate

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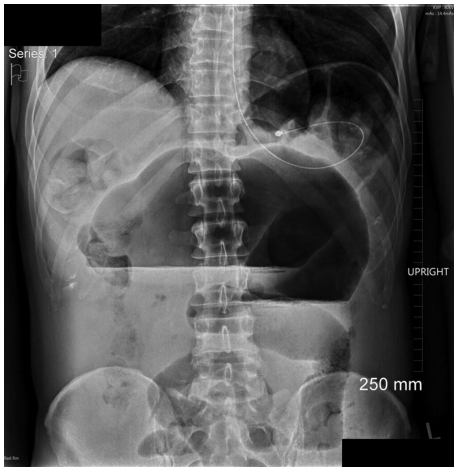
Cecal Volvulus

- Presentation:
  - Acute
  - typically presents in younger patients and has a female predominance
  - Nonviable or gangrenous cecum is present in 18% to 44% of patients with cecal volvulus and is associated with a significant mortality rate



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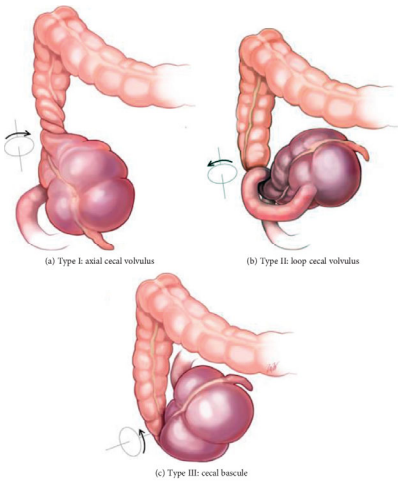
16

- Cecal volvulus
  - axial torsion across the mesenteric axis
  - Usually clockwise
- Cecal Bascule
  - rare, the caput of the cecum is displaced anteriorly and folds over the ascending colon closing off the cecum



Shetty, Tushar et al. "Is Loop Ileostomy in Patients with Cecal Bascule a Viable Option?" *Case Reports in Surgery* 2019 (2019): n. pag.

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Management

- Surgical Resection
  - Ileocolectomy +/- anastomosis vs ileostomy/mucous fistula
- Surgical resection is the preferred treatment (1C)
  - Retrospective study utilizing ACS NSQIP data evaluated risk factors for complications following segmental colectomy and primary anastomosis for cecal volvulus. Overall morbidity was 45.7%. Anastomotic leak rate was 4.1% and the mortality rate was 3.3%.
- Attempts at endoscopic reduction of cecal volvulus are generally not recommended. (1C)
  - Aggregate data from multiple small, retrospective studies from 1978 to 2012 included a total of 51 patients in whom endoscopic reduction was attempted reported successful detorsion in only 7 patients (14%).

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- Non-resectional operative procedures
  - Simple detorsion
  - Cecopexy
  - Cecostomy
- For cecal volvulus with viable bowel, the use of non-resectional operative procedures should be limited to patients who are considered unfit for resection. (2C)
- Rabinovici et al compared surgical outcomes of 561 pooled patients with cecal volvulus from case series published between 1959 and 1989
  - higher rates of morbidity and mortality with resection than with cecopexy, 29% and 22% versus 15% and 10%; however,
  - cecopexy was associated with a 13% recurrence rate, whereas the resection group experienced no recurrences.
  - The authors recommended against cecostomy, which was associated with the highest morbidity, mortality, and recurrence rates (52%, 32%, and 14%)

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Ileosigmoid Knotting

- While rare in the United States, this entity is more common in volvulus belt.
- Multiple configurations of knotting have been described, but all involve the ileum and sigmoid colon wrapping around each other in some fashion causing obstruction and frequently progressing to ischemia in one or both segments.
  - This "double-loop" obstruction is associated with a poor prognosis, and patients present commonly with an abdominal catastrophe; the mortality in these cases can be as high as 73%
- Diagnosis: cross-sectional imaging or at the time of surgical exploration. The combination of imaging demonstrating sigmoid volvulus with a secondary small bowel obstruction and inability to reduce the sigmoid volvulus endoscopically may raise the suspicion of ileosigmoid knotting.
- Operative treatment depends on the specific anatomic variant encountered and often involves a double resection of the involved anatomy with or without restoration of bowel continuity depending on the anatomy and the circumstances.

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Acute Colonic Pseudo-obstruction

- Acute colonic pseudo-obstruction (ACPO), or Ogilvie syndrome, is a non-mechanical, functional cause of LBO thought to be a consequence of dysregulation of the autonomic impulses of the colonic enteric nervous system
- Incidence: estimated 100 of every 100,000 admission annually in US
- Etiology: pathophysiologic mechanism unclear but autonomic dysregulation is likely multifactorial

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Acute Colonic Pseudo-obstruction

- Presentation
  - older, hospitalized, or institutionalized patients who have comorbid conditions, have an infection, or are recovering from surgery or trauma
- Evaluation
  - Focused history and physical examination
  - Baseline laboratory values
  - Diagnostic imaging
    - CT scan
    - Water soluble contrast enema

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Initial Management

- Initial treatment is supportive and includes eliminating or correcting conditions that predispose patients to ACPO or prolong its course. (1C)
- The management of ACPO includes ambulation, bowel rest, alternating positioning (knee-chest or prone) to promote GI motility, and decompression with nasogastric and/or rectal tubes.
  - Correction of serum electrolyte abnormalities, fluid resuscitation, avoidance or minimization of narcotics, avoidance of anticholinergic medications (eg, oxybutynin or benztropine), and identification and treatment of any concomitant infection. Oral osmotic and stimulant laxatives should be avoided
  - Serial physical examinations and daily abdominal radiographs facilitate continuous reassessment to determine if patients with ACPO are responding favorably or worsening.
  - When serial examinations and abdominal radiographs do not suggest colon ischemia, perforation, or impending perforation, a nonoperative approach should be continued with the expectation that it will lead to resolution of ACPO in 70% to 90% of patients

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Medical Treatment

- Pharmacologic treatment with neostigmine is indicated when ACPO does not resolve with supportive therapy. (1B)
  - IV in bolus doses of 2 to 2.5 mg vs continuous infusion
  - Side effects: transient abdominal pain (50%–73%), sialorrhea (23%–38%), vomiting (10%–20%), and bradycardia (5%–9%)
  - Success rate of 60% to 94%
  - Recurrence rate of 0% to 31%
  - Overall long-term response of 69% to 100%
  - For initial nonresponders or partial responders, a 2nd neostigmine dose effective in 40% to 100% of patients.

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Endoscopic Treatment

- Endoscopic colonic decompression should be considered in patients with ACPO in whom neostigmine therapy is contraindicated or ineffective. (1B)
  - initially successful in 61% to 95% of cases
  - 70% to 90% of patients experience sustained decompression
  - More than one endoscopic decompression procedure and/or endoscopic placement of a decompression tube is often required
  - Perforation rate of 1% to 3%

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Operative Treatment

- Operative treatment is recommended for ACPO complicated by colon ischemia or perforation or ACPO refractory to pharmacologic and endoscopic therapies. (1C)
  - Persistent colon dilation refractory to nonoperative measures occurs in about 10% of patients.
  - Colon ischemia or perforation occurs in 3% to 10% of patients with ACPO and is more common in patients with cecal diameter >12cm and/or duration of dilation >6 days.
  - Mortality rate: approximately 30%

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26

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Thank You

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28