Indications for elective sigmoidectomy in diverticular disease

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Outline

- Case presentation
- Definitions
- Pathogenesis of diverticulosis
- Diverticulitis
- Indications for elective surgical management
- Surgical management
Case Presentation - HPI

- 81 yo female PMH/PSH significant for HTN, CAD, CKD, diverticulosis and hysterectomy
- History of recurrent diverticulitis over the past several years, the last episode complicated by pericolonic abscess requiring percutaneous drainage
- Patient underwent elective robotic assisted laparoscopic sigmoid colon resection
- Unremarkable recovery with passing flatus evening of POD #1
QUESTIONS

- who?
- what?
- when?
- knowing
- investigation
- clues
- how
- why?
- ask
- discovering
- questions
- asking questions

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Definitions

- Colonic diverticulum: pseudodiverticulum, protrusion of mucosa through the muscular layers
- Diverticulosis: presence of diverticula
- Contributing factors: diet, age
- Location: the sigmoid colon (50%), the descending colon (≈40%), the entire colon (5% - 10%)
Pathogenesis

- Location at sites of penetration of the muscular wall by arterioles
- Increased intraluminal pressure is responsible for the herniation of mucosa through the anatomically weak point
- Hypertrophy of the muscular layers of the colonic wall is associated with diverticulosis
Diverticulitis

- Diverticulitis is an extraluminal pericolic infection
  - a perforation of a colonic diverticulum
  - the extravasation of feces
- Symptoms: left lower quadrant abdominal pain, alterations in bowel habits, fever, chills, and urinary urgency
- Physical findings: tenderness of the left lower abdomen, mass in the left lower abdomen (a phlegmon or abscess), abdominal distention associated with the ileus or small bowel obstruction secondary to the inflammatory process
Diagnosis of diverticulitis

- CT of the abdomen/pelvis - preferred
- MRI
- Abdominal ultrasound
- Water-soluble contrast enema, increase in colonic pressure

- Diverticulosis may be diagnosed by colonoscopy
Classification

- Uncomplicated diverticulitis: no free intraperitoneal perforation, fistula formation, or obstruction
- Complicated diverticulitis: presence of the above

- Hinchey classification
  - Stage I: Pericolic or mesenteric abscess
  - Stage II: Walled-off pelvic abscess
  - Stage III: Generalized purulent peritonitis
  - Stage IV: Generalized fecal peritonitis
Reasoning behind elective surgical management

- The American Society of Colon and Rectal Surgeons practice guidelines from year 2000
  - Recurrence rate after every episode is around 33%
  - Every recurrence has a higher risk of perforation
  - Complicated diverticulitis is associated with high morbidity and mortality

- Elective surgery
  - Prevents septic complications
  - Avoids risks associated with emergent surgery
  - Minimizes need for colostomy
Focus on elective surgery

- The second episode of diverticulitis is no longer an indication for surgery!
- In uncomplicated diverticulosis less than 25% will have a second attack
- The individualized approach considering frequency, severity of the attacks, and impact on quality of life
150 patients stratified into 2 groups:

- Group A with 1 or 2 prior episodes of diverticulitis
- Group B with more than 2 episodes of diverticulitis

Results: more perforation in group A, more surgical diversions in group A, no significant difference in operative complications and mortality rates

Conclusion:

“Patients with multiple (>2) episodes of diverticulitis are not at increased risk for poor outcomes if they develop complicated diverticulitis. Morbidity and mortality rates are not significantly different between patients with multiple episodes of diverticulitis compared with those with 1 or 2 prior attacks.”
A cohort analysis included 291 patients: 111 (38%) conservative treatment, 180 (62%) surgical treatment (72 patients elective operation, 108 patients acute operation).

Conservative treatment had recurrence rate of 48%

Indications for elective surgery:

- Attacks of diverticulitis with persistent complaints
- Stenosis
- Fistula
- Persistent abscesses
- Recurrent diverticular bleeding

Risk factors for perforation in recurrent episode (36% vs. 7%)

Klarenbeek BR, Samuels M, van der Wal MA, van der Peet DL, Meijerink WJ, Cuesta MA.
Sources: National Guideline Clearinghouse, PubMed, and Cochrane databases for studies on the management of diverticulitis from January 1, 2000, to March 31, 2013

Findings:
- 68 studies, most of them observational
- Complicated recurrence rate after a prior uncomplicated episode of <5%
- Age younger than 50 years during the first episode and 2 or more recurrences do not increase the risk of complications
- 5% to 22% of patients may have persistent symptoms after resection

Conclusion:
“The prior standard for proceeding with elective colectomy following 2 episodes of diverticulitis is no longer accepted. Decisions to proceed with colectomy should be made based on consideration of the risks of recurrent diverticulitis, the morbidity of surgery, ongoing symptoms, the complexity of disease, and operative risk. Laparoscopic surgery is preferred to open approaches.”
Treatment of Sigmoid Diverticulitis (Revised) 2014

- “The decision to recommend elective sigmoid colectomy after recovery from uncomplicated acute diverticulitis should be individualized. Grade of Recommendation: Strong recommendation based on moderate-quality evidence, 1B”
- “Elective colectomy should typically be considered after the patient recovers from an episode of complicated diverticulitis. Grade of Recommendation: Strong recommendation based on moderate-quality evidence, 1B.”
- “Routine elective resection based on young age (<50 years) is no longer recommended. Grade of Recommendation: Strong recommendation based on low-quality evidence, 1C.”
Surgical management

- Goal:
  - Excise the diseased/abnormally thickened sigmoid colon
  - Create an anastomosis between the descending colon and rectum

- A major cause of recurrent diverticulitis: failure to remove the entire abnormally thickened bowel

- Recurrent diverticulitis rates 12% with remainder of the distal sigmoid compared to 6% when anastomosing to the top of the rectum

- A growing trend in elective surgery: laparoscopic sigmoidectomy
Sigmoidectomy

- Mobilization of the left colon superior to splenic flexure inferior to the rectosigmoid junction
  - Transection the line of Toldt
  - Identify the left ureter (stents placement)
Sigmoidectomy-continued

- Division of the colon mesentery between sigmoid and descending colon (ligation of IMA and IMV)
- Proximal transection (GIA stapler)
- Distal transection (TA)
Sigmoidectomy—continued

- Handsewn vs. stapled
  - CIA+TA vs. EEA
- Leak test
- Elective use of diverting/protective ostomy
Summary

• The second episode of diverticulitis is no longer an indication for elective surgery

• Indications for elective surgery:
  ○ Attacks of diverticulitis with persistent complaints
  ○ Stenosis
  ○ Fistula
  ○ Persistent abscesses
  ○ Recurrent diverticular bleeding

• Risk factors for perforation in recurrent episode
  ○ Immunosuppression therapy
References


http://doctorguidelines.com/2017/02/22/hinchey-classification-for-acute-diverticulitis/

https://www.fascrs.org/publication/treatment-sigmoid-diverticulitis-revised