Hernia Repair/GI Issues

Watchful Waiting for Inguinal Hernias

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Clinical dilemma: symptoms absent in one-third of patients who present to surgeons; traditional teaching that all hernias should be repaired because of risk for incarceration; however, risks of surgery also need to be considered, especially in asymptomatic patients

Prospective randomized trial: Fitzgibbons et al (2006) randomized 720 men with minimally symptomatic inguinal hernias to repair or watchful waiting; at 2 yr follow-up no difference in pain scores (less pain reported in both groups); 28% of patients in watchful-waiting arm crossed over to surgery; incarceration occurred in 1.8/1000 patient yr; authors concluded that watchful waiting acceptable option for men with minimally symptomatic inguinal hernias because incarceration rarely occurs; follow-up report — 254 patients followed for additional 7 yr (total follow-up of 9 to 11.5 yr); cumulative rate of crossover to surgery 68%; crossover more common in patients >65 yr; incarceration occurred in 2/1000 patient yr; pain most common reason for crossover; conclusion after updated study that watchful waiting still safe option for men with minimally symptomatic hernias; however, symptoms likely to progress and operation eventually required in majority of patients

United Kingdom trial (O’Dwyer et al, 2006): randomization of men >55 yr with inguinal hernias to watchful waiting vs repair; after 7.5 yr of follow-up, rate of crossover 72%; recommended to offer surgery for patients medically fit with painless inguinal hernias

Patients for whom repair should be offered: 2010 analysis of study by Fitzgibbons et al identified 5 features that predicted crossover to surgery, ie, pain during normal activity, chronic constipation, prostatism, lower American Society of Anesthesiology (ASA) score (ie, healthier individual), and marriage; 2011 review of Cochrane, PubMed, and Medline data — reviewed outcomes and appropriateness of repairing hernia in asymptomatic or minimally symptomatic patients; found that incarceration occurred in 4/1000 patients; features likely to be associated with acute incarceration included advanced age, ASA score >2, and short duration of signs or symptoms, so such patients should be offered repair

Suggested Reading


Laparoscopic Hernia Repair

Emanuele Lo Menzo, MD, PhD, Staff Surgeon, Digestive Disease Institute, Cleveland Clinic Florida, Weston

Paraesophageal hernia: accounts for 14% of all hiatal hernias; several studies have shown complications not especially common, so conservative management may be warranted in asymptomatic patients

Principles of repair: reduce viscera from thoracic space; removal of sac; mobilization of thoracic esophageal complex, allowing for esophagus to be brought into abdomen without tension; repair should be posterior, as anterior sutures inadequate; antireflux procedure should be performed; place of gastropexy uncertain

Laparoscopic approach: offers improved visualization; mobilization can be wider, especially in mediastinum, where large space not well visualized through small opening via open transabdominal approach; less morbidity (similar to that with other laparoscopic procedures); shorter hospital stay and faster recovery; disadvantages include higher recurrence rates (recent meta-analysis showed recurrence rates 9%-43%); overall recurrence of symptoms only 14% (recurrence determined by imaging 25%)

Technical issues: crura should be repaired without tension; tension-free repairs rely on suturing device; sutures should be permanent; prosthetic meshes — mesh, synthetic or biologic, initially showed advantages (in randomized trials, short-term recurrences rates 0% to 9%, vs 22% to 26% without mesh); some evidence of better symptomatic outcomes; however long-term follow-up lacking; Oelschlager et al compared primary repair with repair with biologic mesh (intestinal submucosa); concluded that little difference in recurrence rates; quality of life and symptoms equivalent in treatment arms; no complications from mesh; synthetic mesh vs biologic mesh — synthetic mesh likely to last longer, but concerns about erosion, dysphagia, and infection; biologic mesh potentially stronger, with ingrowth of collagen; disadvantage of biologic mesh that no longer present after 6 mo; biologic mesh more expensive

Repair of recurrences: one series reveals potential complexity of repair in which 6 esophagectomies and 3 gastrectomies (2 partial and 1 total) performed; one patient remained dependent

Educational Objectives

The goal of this program is to improve the surgical care of patients with inguinal hernia, paraesophageal hernia, acute diverticulitis, duodenal stump leak, and perianal Crohn disease (CD). After hearing and assimilating this program, the clinician will be better able to:

1. Identify patients who may be offered watchful waiting for inguinal hernias.
2. Define key elements of effective repair of paraesophageal hernias.
3. Evaluate the role of laparoscopic washout in the treatment of diverticulitis.
4. Review options for the management of duodenal stump leaks.

5. List factors that are associated with eventual proctectomy in patients with perianal CD.

Faculty Disclosure

In adherence to ACCME Standards for Commercial Support, Audio Digest requires all faculty and members of the planning committee to disclose relevant financial relationships within the past 12 months that might create any personal conflicts of interest. Any identified conflicts were resolved to ensure that this educational activity promotes quality in health care and not a proprietary business or commercial interest. For this program, members of the faculty and planning committee reported nothing to disclose.
Experience at speaker’s institution: used unidirectional barbed sutures; 64 patients; initially used either biologic or synthetic mesh in addition to barbed sutures; no recurrences; 25% had complete resolution of symptoms

10 steps for safe repair: supine position; entry to abdomen in suprabuminal location just to left of midline; reduction of hernia contents; dissection usually begins on left side by dividing short gastric vessels; dissection proceeds to left crus; in patients significantly overweight, fat present in splenogastric ligament and may be retracted by using endoloops; assistant pushes stomach medially; mediastinum then entered, making sure that sac divided on diaphragmatic side and away from esophagus; entire sac can be removed working in counter-clockwise fashion; important to be careful anteriorly because sac can be adherent to esophagus; dissection then started on right side in pars flaccida in order to expose right crus; moving in clockwise fashion, sac reduced but not divided; same plane that was made from left side entered; repair with unidirectional barbed suture; advantage of barbed suture that no need to perform intracorporeal knots; also tend to distribute forces along length of suture; use laparoscopic tie at end (not considered necessary by manufacturer); standard loose Nissen fundoplication performed

Suggested Reading

What’s New in the Management of Diverticulitis?

Nancy Baxter, MD, Associate Professor of Surgery, University of Toronto, Toronto, ON

Current trends: use of surgery has dramatically declined, and almost never performed for uncomplicated diverticulitis; surgery for complicated disease has also declined substantially, with ~50% undergoing surgery; rates not related to age

Disease requiring admission: Biondo S et al (2014; DIVER Trial) randomized patients with confirmed diverticulitis and ability to receive oral antibiotics to outpatient or inpatient care; results demonstrated that initial outpatient care did not result in increased rate of readmission; dramatic cost savings with outpatient care

Treatment with antibiotics: Chabok A et al (2012) randomized hospitalized patients with uncomplicated diverticulitis to receive or not receive antibiotics; no difference in duration of abdominal pain, fever, or tenderness, or rates of complications and readmission up to 1 yr; patients with Hinchey classification 1 diverticulitis may not need antibiotics

Operative management: Practice Parameters of American Society of Colon and Rectal Surgeons (ASCRS) no longer recommend resection after 2 attacks of uncomplicated diverticulitis because rates tend to be difficult, rates of colostomy ≤10%, patients may have residual functional complaints after resection (implying that initial pain may have been caused by irritable bowel syndrome), and can still have recurrent diverticulitis; risk for colectomy over time — patients more likely to have colectomy early; as time passes, no greater likelihood of resection; first attack generally most severe

Elective surgery: ASCRS Practice Parameters recommend resection for complicated disease (eg, abscess requiring drainage); however, in Ontario, significant number of patients do not receive surgery for complicated disease

Emergency surgery: Hartmann procedure for diverticulitis accounts for large proportion of colectomies performed in general; reversal of Hartmann — as age increases, less likely to undergo reversal; only 56% of patients reversed laparoscopic washout: DILALA trial — randomized patients found at laparoscopy to have Hinchey 3 disease to either Hartmann procedure or laparoscopic washout; patients in laparoscopic arm demonstrated shorter length of stay and time in recovery room and similar rates of morbidity, mortality, and readmission; concluded that laparoscopic lavage safe and feasible; Ladies trial (Swank et al 2010) — aborted in 2014 because of safety concerns in patients undergoing lavage; current role for laparoscopic washout — DILALA trial criticized for selection criteria (suggestions that patients may not have been so sick and may not have needed surgery); role for washout may be when interventional radiology not available; technique — confirm absence of fecal contamination; adhesions should be left intact; use 4 to 6 L of saline irrigation in 4 quadrants until clear; leave drains; administer postoperative antibiotics and closely monitor patients; rule out malignancy in follow-up; subsequent resection not mandatory; indications for washout — patient hemodynamically stable; should not be performed with Hinchey 4 disease or obvious perforation; good indication may be when laparoscopy indicates computed tomography overestimated disease and resection not required; patient should be immunocompetent

Suggested Reading

Prevention and Management of Duodenal Stump Leaks

Anthony T. Petrick, MD, Director of Minimally Invasive and Bariatric Surgery and Associate Director, General Surgery, Geisinger Medical Center, Danville, PA

Indications for creation of duodenal stump: gastrectomy (for cancer or peptic ulcer disease), complications of bariatric surgery (requiring gastrectomy), and trauma to pancreas, duodenum, or stomach

Leak of stump: incidence of leak 1% to 3% and depends on indication for gastrectomy; mortality rates 0% to 12%; causes of leak include technical failure, poor tissue, ischemia, pancreatitis, and obstruction of afferent loop

Choices for management: include closure of leak and drainage; may be performed open, laparoscopically, or percutaneously; leaks may occur in vast array of patients, and variety of tools should be available

Management of duodenal stump: in elective cases, primary closure preferred; Nissen and Bancroft closures used for deep penetrating posterior ulcers; Burch et al (1991) reported on 200 patients undergoing closure of duodenal stumps; most patients underwent conventional 2-layer closure; Nissen and Bancroft performed in 25 and 6 patients, respectively; tube duodenostomy (TD) performed in 9 patients; leak rate after conventional closure 2.5%; no leaks after Nissen or Bancroft; tube duodenostomy resulted in leak rate of 33%; concluded that both Nissen and Bancroft techniques safe; tube duodenostomy not as reliable (but admittedly used in patients with more severe disease)

Duodenojunostomy (DJ): Vashist et al (2012) reported on patients undergoing DJ (with or without T-tube biliary diversion) or Nissen repair; results indicated statistically significant lower rate of leak and mortality with DJ; adding biliary diversion reduced mortality; concluded that DJ superior to Nissen closure and that temporary biliary diversion reduced mortality

Tube duodenostomy: Isik et al (2007) reported on patients undergo TD as primary closure of duodenal stump or for...
postoperative leak; common bile duct drainage added in select patients; concluded that TD safe, simple, and effective both for primary treatment of duodenal stump when closure of stump considered insecure and for postoperative leak

Biliary drainage: Dudek et al (2010) reported success in treating leaks and fistulas with operative placement of T-tubes; others have reported success with percutaneous transhepatic duodenal drainage (may require multiple procedures because of clogging or dislodgment of drains)

Percutaneous drainage of duodenal leak: Oh et al (2013) placed pigtail catheter in abscess for 3 wk; with mature fistula, Foley catheter placed, allowing early oral intake and discharge in 9 of 10 patients

**Suggested Reading**


**Management of Temporary Stomas**

Michael A. Valente, DO, Assistant Professor of Surgery and Staff Surgeon, Department of Colorectal Surgery, Cleveland Clinic, Cleveland, OH

**Surgical treatments:** most common techniques incision and drainage of abscess and placement of stent; fistulotomy may be done in few select cases (eg, very low simple fistula); advanced flaps, especially for rectovaginal fistulas, may be used; fecal diversion; proctectomy with end stoma

**Temporary stoma:** used to augment healing of perianal disease; temporary stomas often become permanent; various reviews report rate of closure 10% to 50%, with rate of proctectomy 25% to 70%; Galandiuk et al (2005) reported on 86 patients diverted for perianal Crohn disease (CD); 50% achieved closure of stoma with aggressive medical treatment; proctectomy performed in 41%; stricturecting disease, more distal disease (especially with rectal involvement), and increased number of procedures associated with requirement of permanent stoma; *Cleveland Clinic series* — 166 patients underwent fecal diversion for severe Crohn proctitis or perianal CD; 94% had loop ileostomy and 6% colostomy; mean follow-up 5.7 yr; closure of stoma achieved in 22%; rate of proctectomy 45%; 36 closures had to be diverted again; on multivariate analysis involvement of rectum and placement of multiple setons only factors that portended poor outcome

**Role of biologic agents:** Cleveland Clinic series (El-Gazzaz et al 2008) of patients treated with biologic agent in addition to surgery resulted in 6-fold increase in healing rates as well as improvement in symptoms; Topstad et al (2003) employed stent drainage, infliximab, and immunomodulators in 29 patients and achieved healing rate of 67%, but only 1 of 8 rectovaginal fistulas healed

**Influence of biologic agents of closure of stoma:** Hong et al (2011) reported no association between use of infliximab and closure of stoma; subgroup analysis of Cleveland Clinic series (Gu et al 2015) demonstrated trend for increased rate of closure in 49 patients receiving infliximab, but did not reach statistical significance

**Conclusions:** temporary stoma should be constructed as if permanent; uncertain whether stoma should be ileostomy or colostomy; may be role for early total proctectomy or completion proctectomy for patients with severe anal stenosis and multiple fistulas

**Suggested Reading**

1. Long-term follow-up in a prospective randomized trial by Fitzgibbons et al of men with minimally symptomatic hernias revealed that at ≥ 9 yr, the rate of crossover from watchful waiting to surgery was:
   (A) ≈ 20%  (B) ≈ 45%  (C) ≈ 70%  (D) ≈ 85%

2. According to a study by Fitzgibbons et al of men with minimally symptomatic hernias, the most common reason patients crossed over from watchful waiting to surgery was:
   (A) Pain  (B) Decreased quality of life  (C) Recommendation of physician  (D) Incarcerated hernia

3. A 2011 review of patients with minimally symptomatic inguinal hernias concluded that incarceration is more likely in which of the following situations?
   (A) Older age  (B) American Society of Anesthesiology score ≤ 2  (C) Presence of benign prostatic hyperplasia  (D) Longer duration of symptoms

4. Which of the following is a key element in the successful repair of a paraesophageal hernia?
   (A) Anterior placement of sutures  (B) Buttressing repair with mesh  (C) Antireflux procedure  (D) Gastropexy

5. In a randomized controlled trial by Chabok et al studying patients with uncomplicated diverticulitis, the use of antibiotics was associated with which of the following?
   (A) Decreased duration of pain  (B) Decreased duration of fever  (C) Decreased rate of complications  (D) No difference in readmissions ≤ 1 yr

6. Which of the following statements regarding the surgical treatment of diverticulitis is true?
   (A) Rates of surgical intervention have increased in last 2 decades  (B) Surgery more likely with increasing age  (C) Resection recommended after 2 attacks of uncomplicated disease  (D) The likelihood of surgical intervention does not increase over time

7. Laparoscopic lavage for treatment of acute diverticulitis may be indicated for patients with which of the following?
   (A) Hemodynamic instability  (B) Hinchey 3 disease  (C) Visible perforation  (D) Immunosuppressed state

8. Acceptable techniques for the treatment of duodenal stump leaks include which of the following?
   (A) Tube duodenostomy  (B) T-tube biliary drainage  (C) Percutaneous transhepatic duodenal drainage  (D) All the above

9. In a study by Galandiuk et al, requirement of a permanent stoma in patients with perianal Crohn disease was associated with which of the following?
   (A) Complex fistulas  (B) Rectovaginal fistulas  (C) Disease involving the rectum  (D) Use of biologic agents

10. In a series from the Cleveland Clinic on patients who had undergone fecal diversion for perianal Crohn disease, closure of stoma was achieved in:
    (A) ≈ 20%  (B) ≈ 35%  (C) ≈ 50%  (D) ≈ 65%

Answers to Audio Digest General Surgery Volume 62, Issue 21: 1-B, 2-A, 3-D, 4-D, 5-C, 6-B, 7-D, 8-A, 9-B, 10-D

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