Diverticulitis, Current Controversies: Review of the Literature

Abstract

Colonic diverticulosis is a frequent clinical condition with the growing prevalence. The general prevalence of diverticular disease is uncertain because the majority of patients are asymptomatic, still one out of three individuals older than 60 years old are affected. It has been estimated that 10-25% of individuals with diverticular disease will develop acute diverticulitis [1]. Recent studies suggest that the risk for acute diverticulitis for patients with diverticular disease is actually lower (4-10%) [2]. Nevertheless, with today demographic changes, the load of diseases caused by diverticulitis will keep increasing in the upcoming years. Diverticula develop at well-defined points of weakness, which correspond to where the vasa recta penetrate into the circular muscle layer of the colon. A typical colonic diverticulum is a “false” or pulsion diverticulum, in which mucosa and submucosa herniate through the muscle layer, covered only by serosa. Abnormal colonic motility is an important predisposing factor in the development diverticula. Patients with diverticulosis have exaggerated segmentation contractions in which segmental muscular contractions separate the lumen into chambers. It is hypothesized that the increase in intraluminal pressure predisposes to herniation of mucosa and submucosa. Acute diverticulitis is suspected in patients with lower abdominal pain (typically in the left lower quadrant), abdominal tenderness on physical examination and leukocytosis on laboratory testing. The diagnosis is usually confirmed by an abdominopelvic computed tomography (CT) scan, which also distinguishes complicated from uncomplicated disease. Diverticulitis is classified into complicated or uncomplicated disease based on imaging studies such as a CT scan [3]. The prevalence of each one is 4% and 15% respectively and has recurrence rates from 15 to 30% [4].

An organized search of Medline, Pubmed and EMBASE and the Cochrane Database of Collected Reviews was performed through 2008 to 2016.

Keywords: Diverticulitis; Uncomplicated; Clinical trials; Outcomes; Recurrence

Uncomplicated diverticulitis consists in inflammation confined to the mucosa, submucosa and pericolonic adipose tissue in absence of perforation, pelvic abscess, fistulization or obstruction. Characteristic clinical presentation is fever; abdominal pain localized in lower left quadrant, stable vital signs, leukocytosis and CT scan showing pericolic inflammation, fat stranding, pericolonic air or small abscess. Today’s evidence indicates that uncomplicated diverticulitis should receive conservative management with a success rate up to 95% [5]. However, there are controversies about where to treat, how to treat and for how long to treat. Traditionally, patients would receive inpatient treatment with fasting, intravenous (IV) fluids and IV antibiotics. Today, patients who tolerate diet and with no important comorbidities can receive oral antibiotics with a success rate of 94.97%, this is based on the DIVER study where only 3 patients out of 132 presented treatment failure with oral antibiotics [6]. AVOD Study Group, randomized clinical trial, analyzed 623 patients with uncomplicated diverticulitis confirmed with CT. They divided patients into 2 groups (Group 1: Hospital admission+IV antibiotic for 7 days. Group 2: Hospital admission+IV fluids) and found no significant difference between treatment failure, pain, progression to complicated disease, length of stay (LOS) or recurrence on a year follow-up in both groups [7]. Brochmann et al. [1] analyzed 177 patients with acute uncomplicated diverticulitis with no antibiotic treatment and found no significant difference between treatment failure, pain, progression to complicated disease, length of stay (LOS) or recurrence on a year follow-up in both groups [7].

The American Society of Colon and Rectal Surgeons (ASCRS) Practice Parameters last update of 2014 recommendation is the use of oral or IV antibiotics and diet modification for uncomplicated acute diverticulitis with evidence 1C and concludes that more studies are required in order to set a treatment without antibiotics [5]. There is not sufficient evidence to establish the length of antibiotic administration. Arbitrary they have been used...
from 5 to 7 days. A colonoscopy is usually indicated from 6 to 8 weeks posterior to the acute event in order to rule out malignancy. Today this posture is arguable because it is based on old clinical trials. Indication of colonoscopy is justified in the next cases: acute diverticulitis, uncertain diagnosis, change of bowel habits, rectal bleeding and patients who require screening for colorectal cancer. On the other hand, colonoscopy should be used to evaluate stenosis, inflammatory bowel diseases (IBD), ischemia, lesion of the right colon, and not only to rule out sigmoid cancer. Regarding recurrence, it has been demonstrated that diverticulitis is not a progressive disease and the onset episode is usually the most severe episode. After an uncomplicated diverticulitis episode, only 4-5% patients will develop a complicated recurrence. Patients with a family history for diverticulitis, impaction of a large colonic segment and/or retroperitoneal abscess have a higher risk of recurrent disease. These findings have to be taken into account when assessing patients on benefits of a potential prophylactic colectomy [8]. The ASCRS recommendation for prophylactic surgery for uncomplicated diverticulitis is that decision should be individualized (Evidence 1B) and that in immunocompromised patients (solid organ transplant, chronic use of steroids and HIV infection) this decision should be considered as they present a higher risk for complicated diverticulitis and higher mortality rate in emergency surgery [5].

Complicated diverticulitis

It is referred in patients who develop extended abscess, perforation, fistulization or stenosis; it is presented in 15-20% of patients with diverticulitis. There are many controversies in this section. One of them is that elective colectomy is typically considered after patient recovery of a complicated acute diverticulitis episode; nevertheless Li et al. [9] demonstrated in a multicenter study a decrease in the number of elective colectomies, especially in patients younger than 50 years old and in patients with a precedent of complicated acute diverticulitis. The associated factors related to elective colectomy, in a logistic regression analysis, were: medical comorbidities, hospital readmission and complicated diverticulitis [9]. Other controversy is related on patients who develop abscess and are treated with percutaneous drainage, these patients are usually treated with elective colectomy after the acute episode, however there is evidence supporting that surveillance of these patients without surgical treatment is safe and represents no higher recurrence rate. This has been demonstrated by Gartner et al. in their study where they analyzed 218 patients treated with percutaneous drainage in which 15% of patients didn’t undergo elective colectomy. The Odds Ratio (OR) for recurrence at 7.4 years of follow up was 0.58 (Confidence Interval [CI] 95% 0.42-0.73). Recurrence was significantly associated with an abscess larger than 5 cm. The OR for survival free of colectomy at 7.4 years of follow up was 0.17 (CI 95% 0.13-0.21) [10]. On the other hand, Devaraj et al. [11] reported high recurrence (60%) and need of surgical intervention (36%) during 12 months follow up of patients with acute diverticulitis and abscess who were only medically treated. In the same study, 69% of patients who underwent percutaneous drainage developed recurrence especially those who had abscesses larger than 5.3 cm (5.3 vs 3.2 cm, $p<0.001$). The authors concluded that complicated acute diverticulitis with abscess require colectomy [11]. The only meta-analysis for these two alternatives of treatment reports a healing rate of 28% for conservative management in a cohort of 1051 patients with no statistically significant difference, hence authors recommend elective surgery posterior to recovery as a standard treatment [12]. In conclusion, evidence is variable and there is not sufficient evidence to establish a standard treatment. Larger abscess apparently lead to higher recurrence of acute diverticulitis. It is well established that recurrent episodes with important comorbidities, persistent symptoms, symptomatic fistulae and symptomatic stenosis are clear indications for elective surgery. The ASCRS Practice Parameters recommend elective colectomy posterior to an episode of complicated acute diverticulitis (Evidence 1B) [5]. New surgical techniques have recently been described for complicated diverticulitis therapeutic management. One of them is the laparoscopic lavage for Hinchey III diverticulitis. This technique, described in 1996, is justified by authors referring a decrease in mortality of a Hartmann procedure. Peritoneal lavage consists in lavage of the four abdominal quadrants and drains placement. Since its initial description, many studies have tried to demonstrate its utility. In 2008, Myers et al. [13] reported in 100 patients a morbidity of 4% and mortality of 3%. Two patients presented recurrence during follow up. Authors concluded that laparoscopic lavage for Hinchey III diverticulitis is safe to use and has a low rate of complications [13]. In 2010, a meta-analysis including 231 patients reported a mortality rate of 1.7% and morbidity of 10.4%. This treatment failed in the control of an acute episode in 10 patients (4.3%) and 10 patients developed recurrence [14]. Nevertheless the quality of methodology in the studies included in the specific review was not acceptable (2 prospective cohort, 9 retrospective studies, 2 case reports). The DILALA study (prospective, randomized and multicenter) reported in 2016 during follow up of 12 months no difference between open surgery vs laparoscopic lavage regarding mortality and number of severe adverse events. The quality of life in both groups was the same and the frequency of reoperation in the group of laparoscopic lavage was 12 out of 43 patients [15]. Something arguable of this study is the fact that not all patients with clinical suspicion of diverticulitis were included since Hinchey classification was made only by diagnostic laparoscopy. The SCANDIV study (prospective, multicenter) compared 101 patients undergoing laparoscopic lavage vs 98 patients undergoing colectomy. There was no significant difference regarding reoperation 30.7% vs 26% respectively. Authors concluded that laparoscopic lavage does not decrease number of postoperative complications compared to colectomy [16]. Finally, the LADIES study divided patients into two branches (LOLA [Laparoscopic lavage vs sigmoidectomy] and DIVA [Hartmann procedure vs sigmoidectomy]), was promptly terminated by the board of supervision and safety due to high mortality in the LOLA group (39% vs 19%) and short term reoperations (28 out of 47) [17].

Conflict of interest

The authors declare no conflict of interest.

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None.
References


