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clinical practice

Complications of diverticular disease: surgical laparoscopic treatment

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SUMMARY: **Complications of diverticular disease: surgical laparoscopic treatment.**

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Surgical treatment of complicated colonic diverticular disease is still debatable. The aim of our study was to evaluate the outcome of laparoscopic colon resection in patients with diverticulitis and with complications like colon-vescical fistula, peridiverticular abscess, perforation or stricture.

All patients underwent laparoscopic colectomy within 8 years period. Main data recorded were age, sex, return of bowel function, operation time, duration of hospital stay, ASA score, body mass index (BMI), early and late complications. During the study period, 33 colon resections were performed for diverticulitis and complications of diverticulitis. We performed 5 associated procedures. We had 2 postoperative complications; 1 of these required a redo operation with laparotomy for anastomotic leak and 3 patients required conversion from laparoscopic to open colectomy. The most common reasons for conversion were related to the inflammatory process with a severe adhesion syndrome. Mean operative time was 229 minutes, and average postoperative hospital stay was 9,8 days.

Laparoscopic surgery for complications of diverticular disease is safe, effective and feasible. Laparoscopic colectomy has replaced open resection as standard surgery for recurrent and complicated diverticulitis in our institution.

KEY WORDS: Laparoscopic surgery - Laparoscopy - Diverticulitis - Fistula - Abdomen - Complications.

Introduction

Diverticular disease of the sigmoid colon is common in the Western society and is continuously increased. The majority of the cases are asymptomatic over lifetime, and becomes symptomatic when complications occur (1-3). The incidence for diverticulosis is 33-66%. Of these patients, 10-25% will develop an acute episode of diverticulitis. True diverticula are hereditary and develop more commonly in the right colon. False diverticula are acquired diverticula due to degenerative changes of the bowel wall with aging and the lack of a high fiber diet, and they occur frequently in the left colon (4, 5). The commons complications of diverticulitis are bleeding, diverticulitis, peridiverticular abscess, perforation, stricture, and fistula formation. Reports on the complication of a sigmoid colonic diverticulosis sigmoid colovescical fistula are very rare. The advent of laparoscopic techniques for colorectal surgery in 1991 seemed to increase indications for early resection. The laparoscopic technique is not widely practiced among surgeons, particularly for diverticulitis complicated by fistula or peritonitis. The existence of faecal peritonitis is unanimously considered a contraindication to laparoscopy (6-16), even though some surgeons used to perform a 2-stage laparoscopic procedure to treat early presentation of faecal peritonitis (12, 17). Multicenter studies (8, 13) have confirmed that laparoscopic resection for diverticulitis can be performed without additional morbidity in cases with Hinchey type I and with reduced hospital stay in patients with Hinchey type I or II.

Patients and methods

From September 2004 to March 2013 we performed 33 laparoscopic resection, sigmoid colectomy

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(n.20), anterior resection (n.3), left colectomy (n.10), due to colonic diverticulitis (n.20 female and n.13 male) with a mean age of 63,4 years. Age, sex, severity of the disease, operative findings, post-operative course and follow-up were evaluated. American Society of Anaesthesiology (ASA) classification, and the severity of the disease was defined by the extent of the inflammatory process at the time of laparoscopic exploration. The indications for surgery varied from recurrent attacks of diverticulitis (n.23) to diverticulitis complicated with stenosis (n.4), perforation (n.2) or fistula (n.4). 3 patients were admitted to our institution with complains of abdominal pain and urinary frequency in 1 case and fecaluria and pneumaturia in the second case. A colovescical fistula was diagnosed by Ultrasound, abdominal CT and virtual colonoscopy. After division of the adhesion between the sigmoid colon and the bladder, the defect of the bladder wall was repaired by simple closure in one case and by quick seal glue in the second case. The colonic defect were treated with a segmental resection, including the rectosigmoid junction. The patients, after surgery, shows no evidence of recurrence of the fistula. In other two cases we performed a laparoscopic sigmoid resection for sigmoid diverticula perforation with local peritonitis. In 4 cases we performed a laparoscopic resection for a stenosis complication of diverticular diseases.

The other cases regarded patients with symptomatic diverticulosis.

Results

Laparoscopic primary resection were offered to all patients with diverticulosis syndrome and with complications of diverticulosis. The average ASA score was 2,14 with ASA 2 being the most common (54,5%), and 8 patients were ASA 3 (24.2%) and 6 patients were ASA 1 (18%) and 1 patient was ASA 4.

No intraoperative complications had occurred. The median length of surgery was 229 minutes. The most frequent procedure was sigmoid colectomy down to colorectal junction (n=18: 60,7%), the other procedures were left emicolectomy in 9 patients, anterior resection in 3 patients an Miles in 1 patient. There were 5 associated procedures, 2 colecistectomy, 1 bladder suture, 1 colon resection and 1 adherential lysis. We had 2 postoperative complications; 1 of these required reoperation with laparotomy for anastomotic leak. The other patient developed a small anastomotic leak treated successfully with antibiotics and total parenteral nutrition.

There were 3 conversions into a laparotomic technique for technical problems: in one case a ureter was not dissociable from the colon and in the other 2 cases we found a very important adhesion syndrome caused by perforation with intense inflammatory process. We did not have problems of bleeding or infection.

Temporary ileostomy was performed in 2 patients, one in anterior rectal resection and the other in sigmoid resection for colovescical fistula. Colostomy was performed in 4 patients for the Hartmann's resection.

We performed 3 intracorporeal anastomosis, 7 extracorporeal anastomosis and 18 transanal anastomosis. The nasogastric tube was removed after a mean of 3,1 postoperative day. The patients started a fluid diet on the fourth postoperative day and solid diet on the sixth postoperative day. The median length of hospital stay was 9,8 days.

Discussion

Diverticular disease remains asymptomatic in 80% of patients and in cases of acute attack, the chance for recurrent disease is 30%. Positive response to medical therapy decreases from 70% in the first attack to 6% in case of third attack (18). Operative mortality in surgery increases from 3% in the first attack to 7.7% in recurrence. The tendency is toward early treatment of complicated diverticular disease. Primary resection and anastomosis are considered the safest options for all stages of complicated diverticulitis. The main of our study is to present our results regarding treatment of diverticulitis of the sigmoid colon. This approach is very safe as it has a low morbidity and mortality rate.

Follow-up was performed and no recurrence of diverticulitis occurred in our study. The recurrence rate reported in the literature is 7% when the anastomosis is fashioned to the rectum, whereas it increases to 12% when the anastomosis is performed on the sigmoid (7, 19). We prefer to perform transanal anastomosis or perform an extracorporeal anastomosis through a minilaparotomy after laparoscopic mobilization of the colon, which is sometimes difficult in some patients. The mortality rate was zero. We had 1 case of anastomotic leak that required reoperation. In the literature this rate ranges from 0% (12) to 5,5% (20). Bleeding, infections or vascular or ureteral injuries did not occur.

Conclusion

Our study demonstrates that laparoscopic colonic resection for diverticulitis is the gold-standard for treatment of diverticular disease and in particular for complications of colonic diverticulosis like colovescical fistula, covered perforation and inflammatory stenosis.

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