Surgery for Diverticular Disease of the Colon: Single Center Experience

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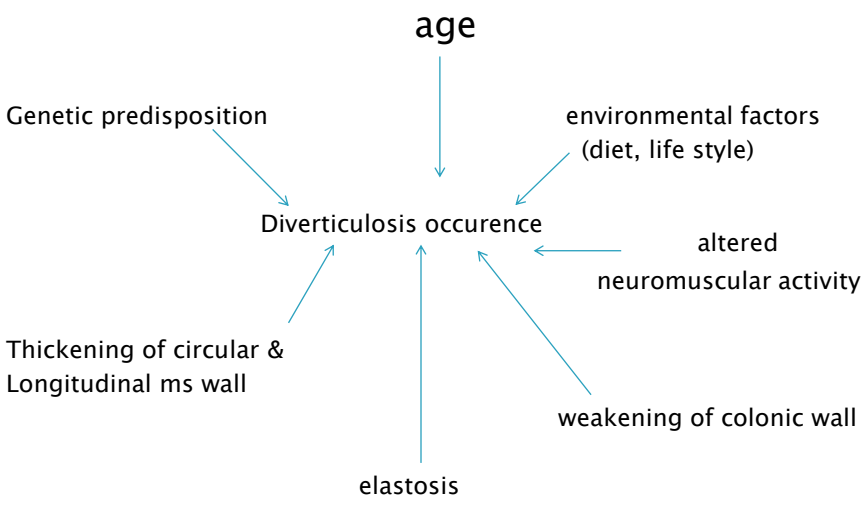
Introduction

- Diverticulosis of the colon is the presence of pockets in the wall of the colon called 'diverticula' which may, or may not, be symptomatic or complicated.
- These diverticulae are characterized by herniation of the colonic mucosa and submucosa through defects in the muscle layer at the weakest point in the colonic wall: the sites of penetration by blood vessels of the colon wall.

Tursi, A. and Papagrigoriadis, S. (2009) Review article: the current and evolving treatment of colonic diverticular disease. *Aliment Pharmacol Ther* 30:532–546.

- Diverticulosis of the colon is a widespread disease, and its incidence is increasing especially in the developing world.
- The underlying mechanisms that cause the formation of colonic diverticula remain unclear.

Tursi A. (2016): Diverticulosis today: unfashionable and still under-researched. *Ther Adv Gastroenterol*, Vol. 9(2) 213–228



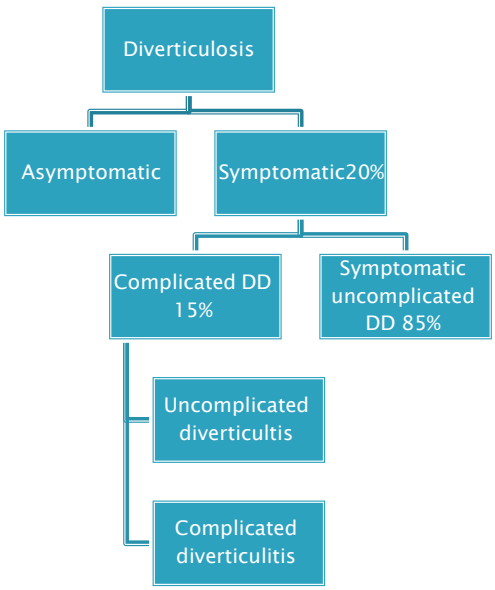
Current knowledge on the possible pathogenesis of colonic diverticulosis

- Although most people with colonic diverticulosis remain asymptomatic, about 20% of patients will develop symptoms, the so-called 'diverticular disease'.

Strate, L., Erichsen, R., Baron, et al. (2013): Heritability and familial aggregation of diverticular disease: a population-based study of twins and siblings.*Gastroenterology* 144: 736-742.e1.

- Many complications of the colonic diverticulosis may occur during the course of the disease with incidence about 15%.

Tursi, A., Papa, A. and Danese, S. (2015c): Review article: the pathophysiology and medical management of diverticulosis and diverticular disease of the colon. *Aliment Pharmacol Ther* 22 July.



Aim of work

- The aim of this study was to evaluate the role of the surgical treatment of diverticular disease of the colon in high-volume referral center.

Patients and methods

- This was a retrospective study included all consecutive patients with colonic diverticulosis who were treated with surgical intervention in the period from January 2006 to June 2016 in Gastroeneterology surgical center,Mansoura university.

- Patients demographics, preoperative data and surgical details were analysed. Short-term outcome including early post-operative complications were detected.

Results

- A total 71 patients with complicated diverticular disease of the colon were surgically treated during the study period. Of 71 patients, there were 58 (81.7%) males and 13 (18.3%) females with median age 56 years, range (31- 72 years) with predominence in overweight patients (mean BMI= 27.8±3.9) The most common presentation was pain in 32 (45.1%) patients as shown in table (1).

- Table (1): Patient characteristics and preoperative data:

Variables	No=71 (%)
Sex: a. Male b. Female	 58 (81.7%) 13 (18.3%)
Age: (median &range)	56 (31-72)
CP a. Pain b. Bleeding c. Fecaluria &/or pneumaturia d. mass	 32 (45.1%) 13 (18.3%) 17 (23.9%) 9 (12.7%)

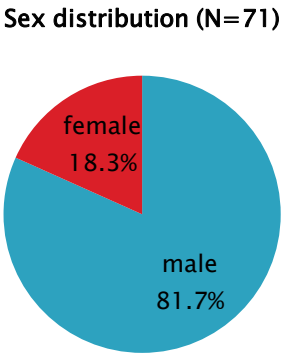


Figure (1): sex distribution in complicated diverticular disease

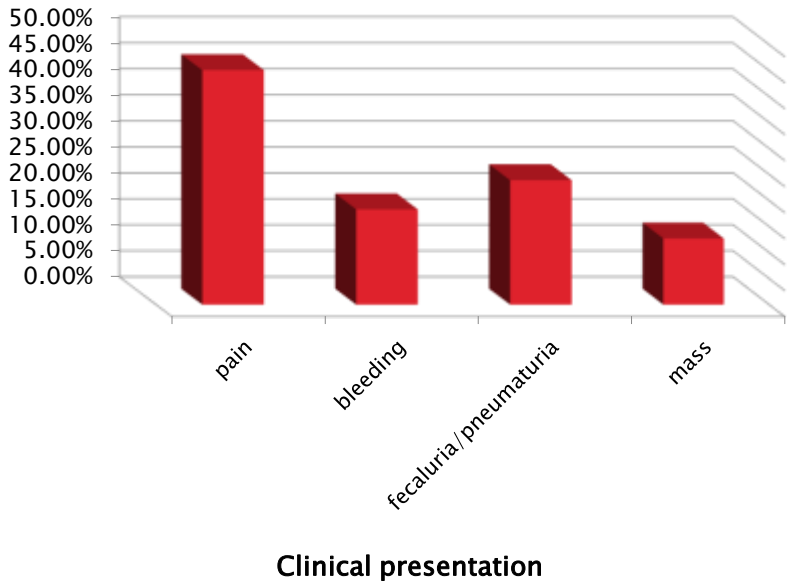


Figure (2) clinical presentations of the patients

Operative data

- The most common complications occurred and indicated for surgery are pericolic abscess (26.8%), colovesical fistula (26.8%), and bleeding per rectum with variable severity (21.1%) as shown in table (2).

- The surgery was done in one stage in most cases (47 – 66.2%) for resection only for the diseased segment without need for stoma. In the rest of cases surgery was done in either two (18 – 25.4%), three (4 – 5.6%) or four (2 – 2.8%) stages according to the severity of disease and general condition of the patient.

- Open surgery was the most common approach in 56 (78.9%) patients. Extension of the resection was dependent on the extent of the disease with predominence in the left side colon in 62 (87.3%) as shown in table (2).

- Table (2): operative data:

Variables	No= 71 (%)
Indication of surgery	
a. recurrent diverticulitis	12 (16.9%)
b. pericolic abscess or phlegmon	19 (26.8%)
c. diffuse peritonitis	3 (4.2%)
d. bleeding	15 (21.1%)
e. rec diverticulitis + stricture	2 (2.8%)
f. colovesical fistula	19 (26.8%)
g. colocutaneous fistula	1 (1.4%)
Approach	
a. open	56 (78.9%)
b. lap	13 (18.3%)
c. failed lap	2 (2.8%)
Resection	
a. sigmoidectomy	34 (47.9%)
b. left hemicolectomy	28 (39.4%)
c. total colectomy	7 (9.9%)
d. right hemicolectomy	1 (1.4%)
e. no resection	1 (1.4%)

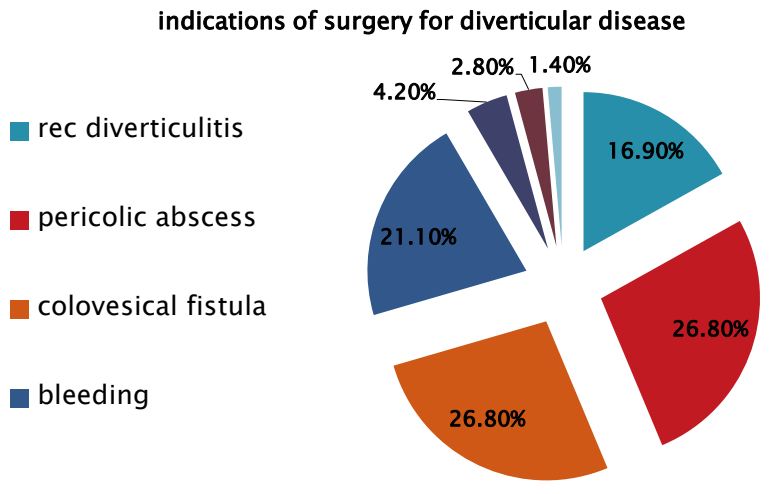


Figure (3): indications of surgery in the case series

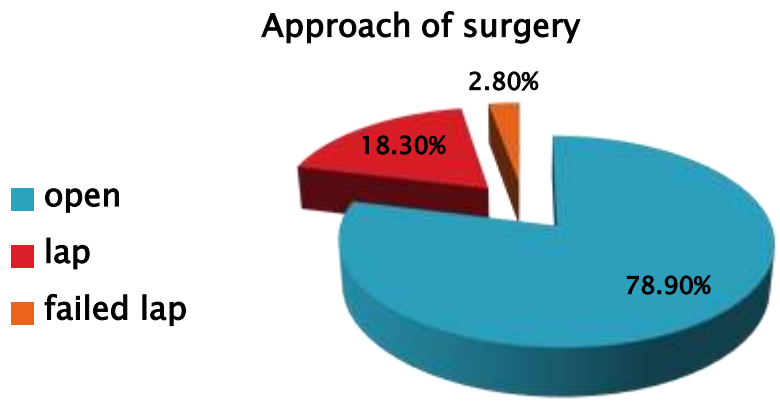


Figure (4): Approach of surgery

- Recontinuation of the colon was manual in most cases (84.5%). Usage of covering stoma was indicated in only 21 (29.6%) cases mostly as covering colostomy in 12 cases. As regard intraoperative complications, there were 3 cases of intestinal injuries during dissection due to marked adhesions and one case of complete transection of left ureteric during sigmoidectomy repaired by end-end anastomosis over stent.

Table (3): operative data (cont.):

Variables	No= 71 (%)
reconstruction	
a. manual	60 (84.5%)
b. stapler	9 (12.7%)
c. no	2 (2.8%)
Stoma	
a. yes:	21 (29.6%)
1. ileostomy	9 (12.7%)
2. colostomy	12 (16.9%)
a. no	50 (70.4%)
IO complications	
a. no	67 (94.4%)
b. intestinal injury	3 (4.2%)
c. ureteric injury	1 (1.4%)
Operative time (min) (median & range)	150 (60-300)
Blood loss (ml) (median & range)	200 (20-1100)

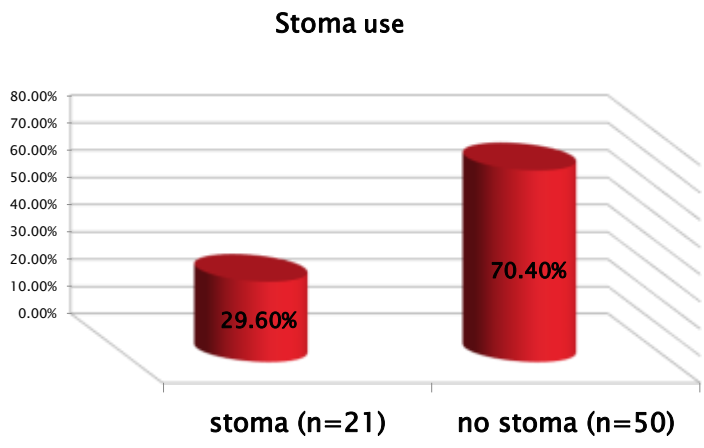


Figure (5): incidence of the stoma usage.

Postoperative data:

- Sixteen cases (22.5%) developed early postoperative complications
- The most common postoperative complications were anastomotic leakage in 6 (8.5%) cases and intra-abdominal collections in 3 (4.2%) cases. median starting oral intake was after 5 days with range (1-24 days) and median hospital stay was 7 days with range (2-27 days).

- As regard the management of postoperative complications, all cases of anastomotic leakage were explored for peritoneal toilet and lavage and covering stoma, one case of intra-abdominal collection was treated by USTD, a case of anastomotic stricture was managed by repeated endoscopic balloon dilatation and the rest of cases were treated conservatively.

- Table (5): postoperative data:

Variables	No= 71 (%)
Postop complications	
a. no	55 (77.5%)
b. yes	16 (22.5%)
Postop complications (N=16)	
a. leak	6 (8.5%)
b. collection	3 (4.2%)
c. internal haemorrhage	2 (2.8%)
d. wound infection	2 (2.8%)
e. IO	1 (1.4%)
f. Pleural effusion	1 (1.4%)
g. Anastomotic stricture	1 (1.4%)
Complication management:	
a. Conservative	5 (7%)
b. USTD	1 (1.4%)
c. Exploration	9 (12.7%)
d. Endoscopic dilatation	1 (1.4%)
e. No complication	55 (77.5%)

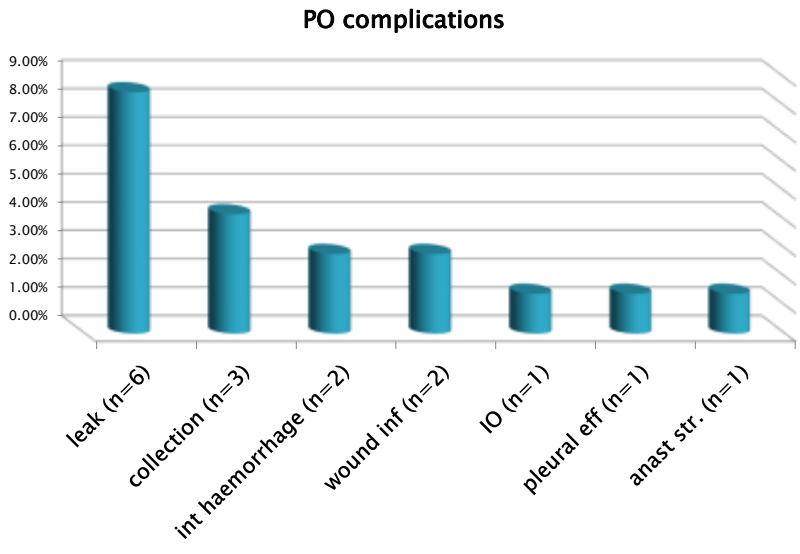


Figure (6): incidence of postoperative complications

Conclusion

- The elective surgical treatment of colonic diverticular disease is an effective and safe option. Laparoscopic approach is feasible and satisfactory. Covering stoma should be limited for high risk patients.