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DIAGNOSTIC AND TREATMENT STRATEGY IN COMPLICATED COLON DIVERTICULITIS

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ABSTRACT

Acute diverticulitis is a disease with a wide clinical spectrum, ranging from a phlegmon (stage I a) to localized abscesses (stages I b and II), to free perforation with purulent (stage III) or feculent (stage IV) peritonitis. The planned therapy of colonic diverticulitis is very difficult because preoperative diagnosis uncommon and the method of treatment is usually decided at the time of laparotomy. While there is a little debate about the best treatment for mild episodes, uncertainty persists about the optimal management for severe episodes and complicated diverticulitis.

Key words: complicated diverticulitis, Hartmann's operation, Resection with primary anastomosis

The frequency of colonic diverticulosis slowly increases in last two decades. Diverticular disease is common in the Western world and is seen in more than 50% of people over the age of 60 years and in 80 % of people over the age of 80 (1). Complicated diverticular disease is defined as diverticulitis - it develops in 20 % of people with colonic diverticulosis. About 25 % of patients undergone surgical intervention. Costs for the treatment of acute diverticulitis are more than 2, 6 billion dollars only in United States, most of them are spend for surgical treatment and postoperative complications (4). The sigmoid colon is most commonly affected part of the colon. Etiopathogenesis of colonic diverticulosis still remains unclear, but some factors like overweight, low-fiber diet, colon micro flora changes are important. It has also been shown that vegetarians less commonly develop diverticulosis, also the disease is extremely rare in areas such as Africa. On the other side the heirs of the Africans living in North America are suffering from diverticulosis as often as the other Americans (3).
Complicated diverticulitis (CD) associated with 20-30 % of all cases of diverticulosis, remains a significant cause of morbidity and mortality in patients afflicted with this problem in addition to the considerable expenses for the treatment of the disease. Diverticulosis usually present with typical triad of symptoms - sharp pain, often located at a specific point of the abdomen, fever and leukocytosis, also nausea, vomiting, constipation and diarrhoea, blood in the faeces, disuria.
Clinical classification of European association of endoscopic surgeons is introduced in table 1:

The Hinchey classification has traditionally been used to distinguish four stages of acute diverticulitis. Type I and II relate to inflammatory stages of the disease – phlegmon and localized abscess, while type III(fig.3,4) and IV relate to development of purulent respectively feculent peritonitis. This classification has been modified many times later (table2).

Table 1.Clinical classification of European association of endoscopic surgeons (S. Soumian, 2008)

Clinical classification of European association of endoscopic surgeons		
stage	Clinic	Symptoms
I	Non complicated diverticulosis	Fever, abdominal pain, CT data for diverticulosis
II	Reccurent diverticulosis	Frequent fever,$$Frequent abdominal pain
III	Complicated diverticulosis	GIT bleeding Phlegmon Abscess Perforation- purulent or fecal peritonitis Strictura fistula Bowel obstruction

Table.2 Modified by Wasvery Hinchey classification of complicated diverticulitis (S.Soumian, 2008)

Modified Hinchey classification	
0	Mild clinical diverticulitis
I	Confined pericolic inflammation - phlegmon
Ib	Confined pericolic abscess
II	Pelvic, distant intraabdominal or retroperitoneal abscess
III	Generalized purulent peritonitis
IV	Fecal peritonitis
Fistula	Colo-vesical/vaginal/enteric/cutaneous
Obstruction	Large and/or small bowel obstruction

Indications for planned surgical intervention of diverticulitis change with the years. In the past the need to perform a prophylactic elective resection was admitted after two episodes of clinical presentation of non complicated diverticulitis. This recommendation is based on the assumption that after two attacks it is long odds for new ones, so there is an increased risk for complications including perforation and generalized peritonitis (5). It claims that surgical treatment will avoid complication of diverticulitis. New studies pretend that a surgical resection should be performed after three or four documented recurrences of non complicated diverticulitis (6).

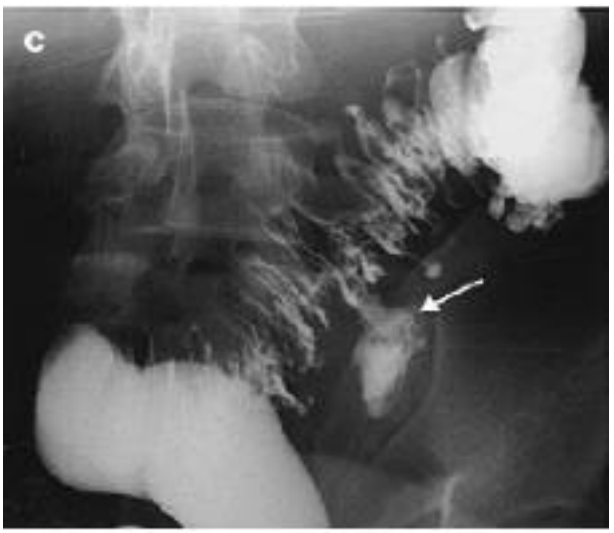

Fig.1 Contrast pours out from perforation of diverticula

According to American association for treatment of colon and rectum disease from 2006 the number of the clinical recurrences of non complicated diverticulitis is not a significant factor for surgical treatment (4). The causes for this serious change in surgeons approach to the disease are the new treatment methods – CT guided drainage and lavage or laparoscopic one. Treatment options for stages I b and II start from CT guided drainage to surgical resection if needed, basing on the progression of the disease, marked by clinical and laboratory tests.

It is important to make reference that in these cases the mortality is about 5-10 %, reaching to 25 % in cases with urgent surgical intervention.

The clinical assessment of the patients with acute diverticulitis is the best indicator to establish the need of emergency operation. At the same time with getting the medical history and patient's general condition, immediate preoperative procedures should be done – an appropriate antibiotic, balance the blood vessels volume, hypotony and intoxication. Diagnostic methods can be reduced to abdomen X-ray radiography, which can confirm the presence of pneumoperitoneum or large bowel obstruction (fig.1). Even though CT using p.o. or i.v. contrast remains best diagnostic method with low level of fake results (fig.2). In most clinical cases this is best method for assumption the gravity of the disease and gives opportunity of choosing the appropriate treatment strategy for each patient.

Fig.2 CT - a pericolic abscess from perforated diverticula

URGENT SURGICAL INTERVENTIONS

Hartmann's operation (HO) – the surgical treatment of CD depends on: stage of the inflammation before the operation, patient general condition, complications and surgeon's experience. Most patients underwent urgent surgical intervention are in stages III and IV – purulent or feculent peritonitis. Usually a Hartmann's operation is done, which is golden standard for this stage of CD. This operation is described by Anri Hartmann in 1923, who used it in treatment of obstructive large bowel cancer. Last studies for the patients underwent Hartmann's operation show significant complications, including wound infection to 29%, insufficiency of the anastomosis at the second part of the operation – more than 25% and respectively again stoma, high mortality – 15-25%. Except this about in 35-40% of pa-

tients with stoma cannot be made anastomosis, which leads to alternative operative methods for reducing postoperative complications and mortality and increasing quality of life (8).

Fig.3 Colon resection with acute diverticulitis-Hinchey III

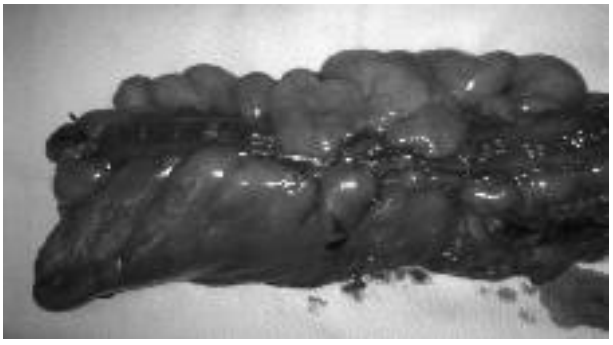

Fig.4 Multiply diverticula with complicated diverticulitis - Hinchey III

Resection with primary anastomosis (RPA) – one-stage operation for colon resection is becoming an admitted alternative of HO in treatment of CD. It is presented for the first time by Velding in 1957, accomplished in three patients with peritonitis caused by diverticulitis, without insufficiency of the anastomosis. RPA become popular after its successful using in large bowel penetrating injuries. Following cases with RPA, with or without protective stoma and intraoperative lavage are presented as successful in treatment of CD and are confessed many advantages of the method. Resection with primary anastomosis saves technical difficulties in recovering bowel integrity, reduce additional expenses and hospital stay and do not allow disturbance of presence of stoma (7).

The decision of doing a RPA, RPA with protective stoma or HO is based on multidisciplinary, prospective, randomized studies; this decision is still subjective and depends on surgeon assumption of the operation risk.

Laparoscopic lavage – a large number of studies present very good results of using laparoscopic lavage in treatment of acute diverticulitis. This procedure is first described before more than 12 years and is done with 4 litters warm physiological solution, followed by fixation of a 2 drainage.This method leads to good results – low morbidity (4%) and mortality (3%). The definition of the appropriate for these procedure patients is still individual and there are no generally accepted indications and contraindications. This surgical intervention can be optimally used in relatively healthy and clinically stable patients (8). It can serve as useful intervention for decreasing the gravity of the disease or as a transition to a radical surgical intervention.

CONCLUSIONS

The opportunities for choosing a surgical strategy in the treatment of CD are still increasing. Better understanding complexity of the disease is the base, on which the surgical strategy is developing.

It is necessary to create a model for risk assumption in colorectal operations, which can serve as method for standardize the preoperative risk in relation of decreasing morbidity and mortality and following choice of operative method.

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