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ADVANCES IN SURGERY

The Use of Lavage for the Management of Diverticulitis

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Keywords

- Diverticulitis Laparoscopic peritoneal lavage Purulent peritonitis
- Sigmoid resection

Key points

- Complicated diverticulitis is a disease with potential for significant morbidity and mortality.
- The gold standard for the treatment of diverticulitis Hinchey stage III, characterized as perforated purulent peritonitis, has been immediate operative intervention with colonic resection and proximal diversion to avoid primary anastomosis in a contaminated field. More than 30% of patients, however, never have their colostomy reversed, which leads to reduced quality of life.
- Over the past 20 years, laparoscopic peritoneal lavage emerged as an alternative with reduced morbidity without the need for diversion. Initial studies were promising, but results have been mixed.
- Although laparoscopic peritoneal lavage offers a less invasive means of damage control surgery, this treatment modality must be considered on an individualized basis as criteria for patient selection continue to be delineated.

INTRODUCTION

Diverticular disease is increasing in incidence in North America and Europe [1]. It is characterized by outpouchings of the colon at sites of vascular penetration. The most common site of involvement is the sigmoid colon, involved in 70% to 90% of cases, followed by the descending colon [2,3]. Although the incidence of

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diverticular disease increases with age (present in approximately 50% of the population aged 60 years or older), other contributory factors include genetics, smoking, and nonsteroidal anti-inflammatory drug use and those factors associated with developed countries, in particular obesity and the sedentary lifestyle [4].

Diverticular disease only becomes problematic for 10% to 25% of people who harbor diverticula, with the most common manifestation characterized by an acute episode of inflammation, or diverticulitis [3]. Traditional symptoms of uncomplicated diverticulitis are that of left lower quadrant pain and changes in bowel habits (constipation or diarrhea). Urinary symptoms may also be present depending on the proximity of diseased colon to the bladder. Physical examination usually yields variable left lower quadrant tenderness to palpation. Laboratory tests often reveal leukocytosis [5]. Evaluation by CT scanning, the most valuable imaging modality, usually shows diverticula with colonic wall thickening and pericolic fat stranding at least. Complicated diverticulitis manifests with greater acuity and is accompanied by the presence of abscess, fistula, obstruction, or perforation into the abdomen as identified by CT scan. The Hinchey classification, first described in 1978, is commonly used to describe the severity of complicated diverticulitis, as determined during intraoperative evaluation, in 4 stages: stage I describes colonic inflammation with localized microperforation and abscess; stage II as colonic inflammation with an associated pelvic abscess; stage III as perforation with intraperitoneal dissemination of abscess (purulent peritonitis); and stage IV as perforation with intraperitoneal dissemination of feculence (feculent peritonitis) [6]. Treatment of complicated diverticulitis is dependent on Hinchey stage, taking into account patient comorbidities, and has consisted of either resection with immediate anastomosis or resection with diversion (Hartmann procedure). Over the past decade, there has been some controversy regarding the optimal surgical management of Hinchey stage III. Although Hartmann procedure has been the gold standard of care for its avoidance of a primary anastomosis in a contaminated field, more than 30% of patients never have their colostomy reversed and subsequently experience reduced quality of life [7,8]. Thus, other less drastic options for surgical management have emerged for consideration. These include resection with primary anastomosis or laparoscopic peritoneal lavage and drainage. These strategies have emerged as safe alternatives that result in reduced stoma rate after initial hospitalization [9]. This review focuses on laparoscopic lavage with drainage for the treatment of Hinchey stage III.

EARLY STUDIES

Laparoscopic peritoneal lavage with drainage as a treatment alternative for perforated purulent peritonitis was initially described by O'Sullivan and colleagues [10] in Ireland in 1996. This small series (n = 8) described the initial management of patients presenting with generalized peritonitis secondary to perforated diverticular disease of the left colon diagnosed at the time of laparoscopic evaluation (Hinchey III). All patients were managed by lavage, intravenous fluids, and antibiotics, and average length of stay was 10 days. No

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