

# The diminishing role of surgery for acute diverticulitis

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Important changes in the management of colonic diverticulitis over the past few years include medical therapy, emergency surgical approaches and elective surgery indications. Uncomplicated diverticulitis does not need antibiotics in the absence of sepsis or a high C-reactive protein (CRP) level<sup>1</sup>. The latter indications are not as easily defined as the CT criteria, but altered sensorium, chills/rigors, tachycardia or a CRP concentration higher than 150 mg/l would be examples of indications for antibiotic therapy in this context. Can some patients be managed in an outpatient setting? Appropriately healthy and robust patients without symptoms, signs or laboratory findings suggestive of sepsis could consider conservative management at home provided they have good support and an ability to maintain oral hydration. If not, or the scans (often CT in many countries, although ultrasonography may suffice) suggest even minimally complicated disease, admission is more sensible. It may be that high-resolution CT can rule out malignancy, suggesting that routine colonoscopy may not be mandatory except in those with complicated disease or suspicious imaging results<sup>2</sup>. However, colorectal cancer may coexist in a small proportion of patients so endoscopic evaluation should remain advisable in the majority unless a recent evaluation excluded neoplasia.

The number of elective operations for diverticulitis is dropping, even in areas where there had been cultural acceptance of numerical thresholds (3 strikes and it is out). Should patients with a first episode of complicated

diverticulitis with free air or abscess that responded successfully to medical treatment undergo elective resection? On the back of successful laparoscopic, non-resectional approaches, observational studies<sup>3,4</sup> found that non-operative treatment of perforated disease without generalized peritonitis was possible (where the volume of distant intraperitoneal gas was small). The belief that the presence of free intraperitoneal air or an abscess was an indication for elective resection (if emergency operation had been avoided) is now defunct.

A recent population-based study<sup>5</sup> of 10 342 patients treated with elective colectomy or conservative management following diverticular abscess demonstrated that surgery had few advantages. One-third of the patients (3176) underwent surgery within 30 days with a 4.7 per cent in-hospital mortality rate, and the majority had a defunctioning stoma. Another 1660 patients had an elective colectomy within 6 months. Recurrent diverticulitis (mostly uncomplicated) occurred in 24.8 per cent of the 5412 patients treated with non-operative management, with a low rate of emergency surgery at 5 years. Elective colectomy had a higher cost, longer diverticulitis-related inpatient stay, and greater risk of stoma. Similar results have been observed in other studies<sup>6,7</sup> of extraluminal gas or abscess initially managed conservatively or with a drain.

The majority of patients do not require either drainage or elective surgery and urgent surgery is

rarely needed. Indications for elective surgery should be personalized and not based on strict parameters or absolutes. For example, three uncomplicated episodes over a long period without intervening symptoms is a totally different scenario to having three episodes in less than a year with persistent symptoms. In this latter situation, differentiating between subacute, unresolved diverticulitis and early recurrence is difficult. Functional symptoms may be difficult to distinguish from diverticular problems, but unresolved inflammation causing ongoing symptoms can be identified by persistence of the following: palpable mass, increased CRP level and endoscopic evidence of diverticulitis. Thus, patients with early recurrence and/or recalcitrant symptoms not consistent with irritable bowel syndrome need follow-up CT and colonoscopy to confirm the diagnosis and exclude other pathology. Elective operation is an option to avoid further episodes or prevent complications like fistula or stenosis. Elective resection may even improve the patient's quality of life if recurrent diverticulitis had caused persistent abdominal complaints, and it could be also cost-effective<sup>8</sup>, but a balanced discussion of risk–benefit ratios and patient selection are key.

Observational studies<sup>9,10</sup> showed that laparoscopic peritoneal lavage can provide successful sepsis control in selected patients with perforated diverticulitis, with low mortality and stoma risk. RCTs also reported better mortality and stoma rates with laparoscopic peritoneal lavage *versus*

resection, but absolute superiority was not shown for the primary outcomes tested because some patients in the lavage group needed reintervention (mainly interventional radiology drainage). Immunosuppressive drugs and ASA grade III or higher may be associated with failure of laparoscopic peritoneal lavage, showing the importance of patient- rather than procedure-related factors. In the SCANDIV (Scandinavian Diverticulitis) trial<sup>11</sup>, a larger number of patients in the lavage group underwent unplanned reoperations, but the resection group needed more planned reoperations (stoma reversals). Not surprisingly, therefore, laparoscopic lavage is more cost-effective than resection<sup>12</sup> and follow-up of the DILALA (DIverticulitis – LAParoscopic LAvage *versus* resection (Hartmann's procedure) for acute diverticulitis with peritonitis) trial<sup>13</sup> found a 45 per cent reduced risk of undergoing one or more operations in the lavage group.

If laparoscopic lavage represents a valid option in Hinchey III peritonitis, the challenge is to correctly identify those without overt or risk of faecal peritonitis due to a persistent breach in the colonic wall. Experienced surgeons consider air-leak testing and, if unsure, then the default position of resection is reasonable. Hartmann's procedure (non-restorative sigmoid resection with end colostomy) is acceptable in an unstable patient, but the rest should have resection with anastomosis and a loop stoma. Regrettably, several patients in the RCTs of laparoscopic lavage underwent Hartmann's procedure for non-faeculent perforated diverticulitis, an outdated and non-expert operation in this author's opinion. If resection with anastomosis (with or without a defunctioning stoma) had been the alternative operation in all trials, the results may have been different. It

is clear that modern management of complicated diverticulitis should tailor the operation according to the type of patient, the associated medical risk, the severity of the condition, and the expertise of the surgeon. In this context, the role of laparoscopic and emergency surgical training is crucial for expert decision-making in colonic emergencies.

### Disclosure

The author declares no conflict of interest.

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