Chapter 29
Who Needs Elective Surgery for Recurrent Diverticulitis?

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Introduction

Diverticulitis a common condition encountered by the practicing surgeon. Currently, one of the more contentious topics in the management of diverticulitis is which patients with chronic or recurrent disease should be selected for elective sigmoid colectomy. Historic dogma dictated prophylactic colectomy after two episodes for uncomplicated diverticulitis, and after one episode in patients under 40, to reduce the risk of future emergency surgery with colostomy [1–5]. The use of CT scan to gauge severity of disease, construction of larger clinical databases, and the advent of less invasive techniques (percutaneous drainage, intraperitoneal lavage), has changed the way surgeons think and manage diverticulitis [6]. As a result, current guidelines recommend a more selective approach to sigmoid colectomy after an uncomplicated episode, and in the setting of chronic recurrent diverticulitis [7–9].

Despite these recommendations the frequency of elective colectomy appears to be increasing [10]. A prospective study by Simianu et al. [11], concluded that 31 % of patients failed to meet surgical indications of either complicated diverticulitis or three or more episodes prior to undergoing elective sigmoidectomy for diverticulitis [11]. To date, there are no published randomized controlled trials comparing outcomes for elective sigmoid colectomy to expectant management after an episode of diverticulitis. This chapter will attempt to provide the clinician with up to date graded evidence based recommendations regarding treatment.

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Search Strategy

Patient population	Intervention	Comparator	Outcomes studied
Patients with recurrent diverticulitis	Resection	Expectant management	Risk of recurrence, morbidity, quality of life

We performed a systematic literature search with the aim of answering the following PICO (Patients, Intervention, Comparator, Outcome) question: "Who needs elective colon surgery for recurrent diverticulitis?" A targeted search of English language literature in MEDLINE, PubMed, EMBASE, and the Cochrane Database of Collected Reviews was performed. Key-word combinations using the Medical Subject Headings (MeSH) terms included "diverticulitis," "diverticular," "abscess," "fistula," "perforation," "complicated," "uncomplicated," "colectomy," "antibiotics," "resection," and "expectant management." Directed searches of the embedded references from the primary articles were also performed in selected circumstances. Review papers were also searched for cross-references. We decided to include exclusively those papers written in English language with a date of publication within the last 15 years in order to produce updated recommendations. The grade of both literature reviewed and final recommendation was performed by using the Grades of Recommendation, Assessment, Development, and Evaluation (GRADE) system [12, 13]. The search was carried out in November 2015.

Results

Uncomplicated Diverticulitis

Historically the recommendation was to proceed with elective resection after the second episode of uncomplicated diverticulitis, due to the presumed morbidity and mortality of subsequent attacks [1]. However close scrutiny of the evidence fails to support this practice; therefore the decision to proceed with surgery should take into account other factors. When recommending elective colectomy vs. expectant management for uncomplicated diverticulitis, the following should be considered: risk of recurrence, risk of developing complicated diverticulitis, patient comorbidities, possibility of emergency surgery, and quality of life.

Recurrence rates for uncomplicated diverticulitis treated nonoperatively vary from 8 to 48 % and are gathered from studies with varying lengths of follow up (Tables 29.1 and 29.2). The two largest series include ~181,000 [14] and ~179,000 [15] patients, and report recurrence rates of 8.7 and 16.3 %, respectively. Patients with uncomplicated disease were less likely to recur than their complicated counterparts [14, 16]. Of patients who recur, most recur within 12 months of the index admission [16, 17]. Patients who dorecur have a greater chance of yet another episode as well. Overall recurrence rates in patients with uncomplicated diverticulitis

Table 29.1 Diverticulitis outcomes

Study	N	Treatment	Results	Median F/U	QOE
Ho et al. [14] Retrospective multicenter	237,869 with diverticulitis (unspecified)	181,115/237,869 (76.1 %) treated non-surgically	8.7 % recurrence rate 23.2 % re-recurrence	Variable – NR	Moderate
Hall et al. [20] Retrospective	672 (index case of diverticulitis)	Non-surgical management	Overall recurrence 36 % Complicated recurrence 3.9 %	5 years	Low
Ambrosetti et al. [42] Prospective	542 patients with diverticulitis (unspecified)	405/542 (74.7 %) treated non-surgically	87/405 (21.2 %) had "bad outcome" (recurrence, abscess, stenosis, fistula) *Risk factors for bad outcome:* Age <50 Severity of disease as seen on CT	62 months	Low
Trenti et al. [16] Prospective	560 with diverticulitis (unspecified)	Non-surgical management	Recurrence observed in 14.8 %, Severe recurrence in 3.4 % *Risk factors for recurrence:* Chronic steroids Presence of abscess	67 months	Low
Rose et al. [15] Retrospective multicenter	210,268 with diverticulitis (unspecified)	179,569 (85 %) treated non-surgically	16.3 % recurrence rate 29.3 % rerecurrence *Risk factors for recurrence:* Complicated index episode Abscess Age <50	Variable – up to 15 years	Moderate
Anay and Elum [21] Retrospective multicenter	25,058 with acute diverticulitis (unspecified)	Non-surgical management = 20,136/25,058	19 % had recurrence 5.5 % required emergency operation at recurrence *Risk factor for recurrences:* Age <50 more likely to have recurrence (27 % vs 17 %)	Variable – NR	Moderate

(continued)

Table 29.1 (continued)

Study	N	Treatment	Results	Median F/U	QOE
Broderick-Villa et al. [18] Retrospective multicenter	3156 with acute diverticulitis (unspecified)	Non-surgical management = 2551/3156 (80.6 %)	Elective colectomy = 185/2551 Non-operative management = 2336/2551 13.3 % had recurrence *Risk factors for recurrence:* Younger patients Presence of comorbidities increased recurrence	8.9 years	Low
Klarenbeek et al. [40] Retrospective	291 patients	111 non op treatment 108 urgent/emergent surgery 72 elective surgery	Recurrence rate of 48 % in non op group *Risk of recurrence:* Complicated disease Immunosuppression Chronic renal failure Collagen vascular disease		Low
Holmer et al. [43] Prospective cohort	153 with acute diverticulitis (unspecified)	113 surgical resection 40 treated non-surgically	32 % of non surgically treated patients recurred 4 % of surgically treated patients recurred Risk factors for needing surgery: Perforated disease Recurrent episodes	32 months	Low
Li et al. [22] Retrospective multicenter	14,124 with acute diverticulitis (unspecified)	Non-operative management	9 % readmission for recurrence 1.9 % emergency surgery *Risk factors for readmission/ recurrence:* Patients with initial complicated disease Age <50 likely to be readmitted	3.9 years	Moderate

Chapman et al. [25] Retrospective	150 with prior episodes of diverticulitis Group A – Pts with 1–2 previous episodes Group B – Pts with >2 previous episodes	Non-operative and operative management	Perforation occurred more frequently in Group A Fecal Diversion occurred more frequently in Group A When needing surgery: no difference in operative morbidity/mortality	NR	Low
Eglinton et al. [17] Retrospective	502 with diverticulitis Uncomplicated = 337 Complicated = 165	Non surgical management: Uncomplicated = 320/337 Complicated = 62/165	Uncomplicated recurrence = 23.4 % Complicated recurrence = 24 % Complicated diverticulitis more likely to undergo surgical resection	101 months	Low
Lamb and Kaiser [38] Systematic review/ metanalysis	1051 patients – from 22 studies – diverticulitis with abscess formation	Urgent/emergent surgery (30 %) Elective surgery (36 %) Non-operative management (35 %)	Recurrence in patients waiting for elective resection = 39 % Recurrence in Non operative group = 18 % 28 % had no surgery and no recurrence	Variable	Moderate
Ambrosetti et al. [44] Prospective	73 patients with diverticular abscesses	Surgical and non-surgical management	22/45 (49 %) mesocolic abscesses & 8/28 (29 %) pelvic abscesses, successfully managed conservatively	43 months	Moderate
Kaiser et al. [45] Retrospective	511 patients with diverticulitis	Urgent, elective surgery Non-surgical management	Of 99 patients with abscess: 22 % required urgent operation 15 % underwent elective operation 41.2 % recurred after non operatively treatment	NR	Low

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Table 29.1 (continued)

Study	N	Treatment	Results	Median F/U	QOE
Chapman et al. [19] Retrospective	375 patients with complicated diverticulitis	Urgent, elective surgery Non surgical management	46 % had had previous episodes of diverticulitis 53 % was index episode of diverticulitis 6.5 % overall mortality rate *Risk of morbidity and mortality:* Older age Steroids/Immunodeficiency Diabetes Perforation on presentation	NR	Low
Nelson et al. [39] Retrospective	256 with complicated diverticulitis	99/256 (38.7 %) treated non-surgically	46/99 had recurrence 20/46 recurrences required sigmoid resection	14 years	Low
Gaertner et al. [41] Retrospective	218 patients treated with perc drain for complicated diverticulitis	32/218 (15 %) treated non-surgically	Recurrence rate was 42 % *Risk Factors associated with recurrence:* Abscess >5 cm	7.4 years	Low
Bridoux et al. [28] Retrospective	114 patients with Complicated diverticulitis	81/114 (71.1 %) treated non-surgically	7.4 % recurrence (median time of 12 months)	32 months	Low

Table 29.2 Quality of life

Study	N	Treatment	Results	Median F/U	QOE
Andeweg et al. [29] Systematic review/ metanalysis	1858 patients – from 21 studies – uncomplicated diverticulitis	Elective surgical vs non surgical treatment of recurrent diverticulitis	Higher QOL scores in laparoscopic surgical group Lower GI symptoms in surgical group Less chronic abdominal pain in surgical group	NR	Moderate
van de Wall et al. [30] Retrospective cohort	105 patients with diverticulitis (unspecified)	Elective surgical resection	Elective resection: Improved QOL Reduced chronic abdominal pain Decreased discomfort from defecation	1 year	Low
Forgione et al. [32] Prospective cohort	46 patients with diverticulitis (unspecified)	Elective surgical resection (laparoscopic)	36/46 patients significantly had increased GIQLI scores Patients with lowest GIQLI scores increased benefited the most from surgery	1 year	Low
Levack et al. [35] Retrospective	249 patients with diverticulitis (unspecified)	Laparoscopic and open sigmoidectomy	24.8 % reported relevant fecal incontinence 19.6 % reported fecal urgency 20.8 % reported incomplete emptying *Symptoms: risk factors* Fecal incontenence: pre-op abscess, female Urgency: divertiting ostomy, female Incomplete emptying : post-op sepsis, female	NR	Low
Pasternak et al. [31] Retrospective	130 patients with diverticulitis (unspecified)	Elective surgical resection (laparoscopic)	83 % of patients with GIQOL >100 after surgery vs before (43 %) Mean QOL score of 114 after surgery vs before (95)	40 months	Low

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Table 29.2 (continued)

Study	N	Treatment	Results	Median F/U	QOE
Scarpa et al. [33] Retrospective	71 patients with uncomplicated diverticulitis	25/71 underwent resection 46/71 non-surgical management	Cleveland global QOL: No difference in total score No difference in symptom frequency Current quality of health was lower in surgical group	47 months	Low
Egger et al. [36] Retrospective	124 patients	68 patients – elective colectomy	25 % suffered persistent symptoms: constipation, abdominal distention, abdominal cramps, diarrhea Complicated vs uncomplicated were unrelated to symptomatology Technique (open vs laparoscopic) were unrelated to symptomatology	33 months	Low

are approximately 4.7 % after the index episode, according to one study [17]. Two multicenter retrospective trials demonstrated re-recurrence risk of 23.2 and 29 % in patients who had had at least one previous recurrence [14, 18].

Most patients presenting with complicated diverticulitis do so at their index admission for diverticulitis; 89 % of patients who die of the disease have no prior history of diverticulitis [19]. These data suggest that in most cases, the first episode is the worst episode. That is not to say that patients with uncomplicated diverticulitis can't recur with a complicated form of the disease, and unequivocally will not require emergency surgery or a colostomy. However, rates of recurrent disease that is complicated range from 3 to 5 % in the literature [16, 17, 20]. Infact, most patients with a complicated or severe recurrence have had a previous episode of complicated/severe diverticulitis [16]. In addition, the risk of recurrent diverticulitis is positively associated with family history, length of colon involvement >5 cm [20], and presence of comorbidities [18]. Additionally risk of recurrence is associated with age <50 [14, 18, 21–23].

The risk of requiring an emergent colostomy after an initial episode of diverticulitis is strikingly low. A retrospective, multicenter study by Li et al. [22], described 14,124 patients treated nonoperatively, and found only 1.9 % of these patients subsequently had emergency surgery for perforation, with a median follow up of 3.9 years [22]. These findings are similar to another population-based study, which reviewed 25,058 patients where 20,136 patients were initially treated nonoperatively. While 19 % had a recurrence, only 5.5 % required a subsequent emergency colectomy [21]. The hazard ratio for emergency colectomy/colostomy was 2.2× higher in patients for each subsequent admission. According to this study, 18 patients would need to undergo elective colectomy to prevent one emergency surgery for recurrent diverticulitis [21].

After recovery from an initial episode of diverticulitis, the estimated risk of needing emergency Hartmann resection with stoma formation is 1 in 2000 patient-years of follow-up [24]. A study by Chapman et al. [25], grouped patients with diverticular recurrence in two categories: those with 1–2 previous episodes, and those with >2 previous episodes. Perforation and need for diversion occurred more in the group with only 1–2 previous episodes, and there were no differences in morbidity and mortality between groups. This suggests that patients with more than two episodes of diverticulitis are not at increased risk for poor outcomes [25]. To support this, a Markov model, developed by Salem et al. determined that performing colectomy after the fourth episode of diverticulitis rather than the second episode resulted in 0.5 % fewer deaths, 0.7 % fewer colostomies, and a reduction in cost per patient [26]. As practice patterns have shifted away from elective surgical management of diverticulitis, there has been an increase in the number of abscesses, but no increase in diverticular perforations requiring emergency surgery [27]. Because of this data, except in certain circumstances (see below), the current American Society of Colon and Rectal Surgeons (ASCRS) guideline states that patients with uncomplicated diverticulitis should not be counseled to undergo prophylactic elective colectomy as a means to prevent future emergency surgery and stoma creation [7].

Persistence of symptoms and quality of life is another factor to consider when recommending elective surgical resection for uncomplicated diverticulitis. In one

study of patients with uncomplicated diverticulitis treated nonoperatively, 68/81 (84%), remained asymptomatic, while 13/81 (16%) had recurrent abdominal pain at a mean follow up of 32 months [28].

Few studies are able to convincingly support elective resection for uncomplicated chronic diverticulitis. A single meta-analysis of 21 studies demonstrated higher QOL scores, fewer GI symptoms, and less chronic abdominal pain in those who had surgery for chronic and recurrent diverticulitis, compared to those who were managed nonoperatively [29]. Unfortunately none of the studies included in the meta-analysis were head-to-head comparisons of surgical vs. non-surgical management. A retrospective examination of 105 patients undergoing elective surgery for diverticulitis found that quality of life, abdominal pain, and discomfort with defecation were improved at 1 year after surgery [30]. This trend was seen in another retrospective review of 130 patients in which quality of life score was significantly improved after surgery [31]. A single prospective evaluation of 46 patients found improvement in QOL scores 3 months after surgery, which was maintained at 1 year. This study also demonstrated that improvement was most notable in patients with the lowest preoperative QOL score [32]. While these findings are worth noting, these studies only compare one subset of patients before and after surgery. In a study comparing colon resection (25/71) vs. non-surgical therapy (46/71) for uncomplicated diverticulitis, Scarpa M et al. [33], found no difference in total quality of life score or symptom frequency at median follow up of 47 months [33].

The surgeon must counsel the patient that sigmoid colectomy can negatively impact QOL as well. When compared with sigmoid colectomy for colon cancer, elective sigmoid colectomy for diverticular disease has relatively poor outcomes, and is associated with increased ostomy creation, postoperative infection, prolonged hospital stay, and increased cost [34]. A study by Levack et al. [35] found that in patients who underwent sigmoid colectomy, 24.8% reported clinically relevant fecal incontinence, 19.6% experienced fecal urgency, and 20.8% reported incomplete emptying [35]. Whether patients presented with complicated or uncomplicated disease did not seem to matter regarding persistent symptoms after elective sigmoid colectomy [36].

A Markov model simulating patients with two episodes of non-surgically managed diverticulitis found that after the third episode of diverticulitis, surgical or conservative or medical treatments provide similar quality of life adjusted years, but rates of abdominal symptoms are lower with the medical treatment strategy [37]. In the setting of uncomplicated diverticulitis, functional assessment and quality of life should be considered in deciding who would or would not benefit in elective resection surgery.

In agreement with the current ASCRS guidelines [7], the decision to recommend elective colectomy after recovery from uncomplicated acute diverticulitis should be approached on case-by-case basis [7]. The risk of recurrence, the persistence of symptoms, the patient's overall medical condition, lifestyle factors, and the quality of life should be considered against potential risks and benefits of surgery.

Complicated Diverticulitis

The decision to recommend elective surgery after resolution of an episode of complicated diverticulitis is a little more straightforward. Complicated diverticulitis includes free perforation, abscess, fistula, obstruction, or stricture. A large proportion of patients with complicated diverticulitis will ultimately undergo sigmoid resection [38] after successful medical management, where the goal is to convert an urgent or emergent operation with a high likelihood of stoma creation, into an elective procedure without an ostomy if possible.

Risk of recurrence is higher in patients with complicated diverticulitis, and has been reported as high as 46–48 % [39, 40]. If recurrence does occur, it is much more likely to be a complicated recurrence [38], and as many as 43 % who do recur will go on to require sigmoid resection [39]. A meta-analysis evaluating elective resection vs. non-operative management in the setting of diverticulitis with abscess, assessed 1051 patients across 22 studies. While 30 % of patients required urgent surgery, 35 % of patients went on to have elective surgery. Only 28 % of patients had no surgery and no recurrence [38]. In a series of 218 patients requiring percutaneous drainage for diverticular abscess, colectomy free survival was 0.17 at 7.4 years [41], meaning patients had a 17 % chance of having *no* colectomy (either emergent or elective) if they survived to 7.4 years after an episode of diverticulitis associated with abscess.

Many studies have evaluated risk factors for recurrence [22]. Risk factors include extra-luminal contrast on initial cross sectional imaging [42], abscess [38, 41, 42], extra-luminal perforation [42, 43], stenosis, and fistula [40]. One prospective study evaluated 73 patients with either mesocolicor pelvic abscesses with a mean follow up of 43 months, and found that 71 % of patients with pelvic abscess ultimately required surgery, but only 51 % of patients with mesocolic abscesses required surgery. The remaining patients were managed conservatively with success [44]. In fact presence of a pelvic abscess due to perforated diverticulitis is associated with recurrence rates up to 41 % [45].

Evaluation of subsequent morbidity and mortality due to complicated disease suggests that prior episodes of complicated disease were associated with increased risk for subsequent emergency surgery during recurrence [22]. In another large population based study, mortality for emergent resection during a second episode of diverticulitis was 4.6 % compared to an elective operative mortality of 0.3 %. Individual predictors of mortality with recurrence in this study were complicated initial presentation, age >50, and smoking [15]. These was echoed in another study where complicated diverticulitis and abscess were associated with recurrence, need for emergency surgery and increased mortality during recurrence [14].

Because of these findings including a higher risk of recurrence, and increased risk of morbidity and mortality after complicated diverticulitis, current recommendations are that elective colectomy should be strongly considered after recovery from an acute episode of complicated diverticulitis [7].

Special Populations

Historically, diverticulitis among younger patients has been associated with worse clinical outcomes, however careful review of the accumulated data does not entirely support this association. Age under 50 years does appear be associated with increased risk of recurrence [14, 18, 21–23]. However, despite a slightly higher risk of recurrence in patients <50 vs. >50 (27 % vs. 17 %) [21], younger age does not appear to predict worse outcomes [39, 46]. Specifically, risk of diverticular perforation and need for subsequent emergency colectomy in the young appears to be comparable to the risk in older age groups [23, 47]. Current recommendations are that younger patients should *not* routinely be counseled to undergo elective resection *based on age alone* [7].

While diverticulitis incidence may be similar in the immunosuppressed and the general population [48], the disease behavior is different in these groups. One systematic review [49] identified 11,966 post-transplant patients (kidney, liver, heart), across 17 different series, and evaluated the incidence of diverticulitis. It was estimated that 1.7 % of these patient experienced diverticulitis, and that approximately 40.1 % of these patients presented with complicated diverticulitis. This suggests that transplant patients are more prone to severe disease, rather than mild/moderate/uncomplicated diverticulitis [49]. Scotti et al. [50] looked at 717 kidney transplant patients, and found that while only 17 patients (2.3 %) developed diverticulitis, 9/17 (52.9 %) presented with perforated diverticulitis [50]. More severe presentation in this patient population is thought to be due, in part, to immunosuppressive medications masking early signs and symptoms of disease, and thus patients present later in the course of the disease.

Nonoperative management is more likely to fail in patients on chronic steroids or transplant medications, and a mortality rate as high as 56 % has been reported [51]. Not only are immunosuppressed patients more prone to a severe initial presentation, diverticular perforation in immunosuppressed patients is associated with higher morbidity and mortality (20–30 %) [52–56]. Other studies support the finding that immunosuppression leads to more severe bouts of diverticulitis and recurrence [16]. In a retrospective study, Chapman et al. [19], was able to show that steroid use, diabetes, and immunosuppression were associated with increased morbidity and mortality in patients presenting with complicated diverticulitis [19]. Another study demonstrated a five-fold risk of perforation during recurrent episodes for patients who were immunosuppressed, had chronic renal failure, or had collagen-vascular disease [40].

A recent study compared diverticulitis outcomes in immunocompetent vs. immunocompromised patients and found that immunocompromised patients presenting with a severe first episode of diverticulitis had significantly higher rates of recurrence and more severe episodes than their immunocompetent counterparts. Perioperative mortality in this study following emergency sigmoidectomy was 33.3 % in the immunocompromised group, vs. 15.9 % in the immunocompetent group [56]. This finding is consistent with another study [53] which demonstrated

that the morbidity and mortality for emergent/urgent surgery was increased in transplant patients compared to case-matched immunocompetent counterparts. In this same study, transplant patients undergoing *elective* surgery for diverticulitis had no difference in morbidity and mortality compared to case matched immunocompetent patients, although they did have a longer hospital stay [53].

Because of the high mortality of nonoperative management, high risk of complicated recurrence, and high mortality of emergent colectomy in immunocompromised and transplant patients, surgeons should consider "early" operative intervention in a semi-urgent/semi-elective manner during the first hospitalization for acute diverticulitis in these patients. Interestingly, this recommendation does not necessarily apply to patients receiving certain chemotherapies, who while more likely to recur with severe disease, also are much more likely to have post-operative complication (100 % vs. 9.1 %) and mortality compared to non-chemotherapy patients. These patients should be approached on a case-by-case basis [57].

While patients with end stage renal disease (ESRD) do have a much higher rate of recurrence of diverticulitis [40] than "healthy" counterparts, whether to pursue elective colectomy in this population remains controversial. A recent study by Mora-Atkin and colleagues [58], demonstrates that urgent/emergent surgery for patients with ESRD is associated with increased mortality, myocardial infarction, wound infection, length of stay and cost, compared with non-ESRD undergoing urgent/emergent colectomy. Surprisingly, these trends are similar to patients in this group undergoing elective colectomy as well [58]. Decreased risk of recurrence must be balanced against risk of surgery in patients with ESRD when recommending elective sigmoid colon resection.

Recommendations Based on the Data

1. Need for elective sigmoid colectomy following an episode of acute uncomplicated diverticulitis should be determined on a case-by-case basis, taking into account risk of recurrence, patient comorbidities, and patient lifestyle factors. (Moderate quality evidence; strong recommendation; 1B)
2. After recovery from an episode of acute complicated diverticulitis, elective colectomy should be considered, especially in settings of diverticulitis associated with pelvic abscess. (Moderate quality evidence; strong recommendation; 1B)
3. Recommending elective colon resection to patients under the age of 50 with uncomplicated diverticulitis should be individualized (low quality of evidence, moderate recommendation; 2C)
4. Immunosuppressed individuals should typically undergo elective colon resection either during or following an episode of acute uncomplicated diverticulitis, due to risk of more severe disease and higher morbidity and mortality (moderate quality evidence; strong recommendations; 1B)

Personal View of the Data

More and more patients are being referred to the surgeon for elective resection of diverticular disease, most likely due to the impression that laparoscopic surgery is easy and risk-free. While there may be less blood loss, shorter hospital stay, and lower rate of incisional hernia, the technique should not beget the procedure. The disease process has not changed, yet our understanding has evolved significantly. In the past we told patients that after two episodes it was safest to have surgery. Now we know their quality of life and complication rate is essentially no better after surgery in the setting of uncomplicated recurrent diverticulitis. I spend more time today talking patients out of surgery for uncomplicated disease than ever.

On the other hand, the evidence is compelling for resection after complication, including sizeable pelvic abscess, in select patients. If the patient is an acceptable risk for general anesthesia, I generally recommend it. That being said, I do try to minimize their risk for postoperative complication by insisting on smoking cessation and weight loss. I believe laparoscopic inspection for feasibility of minimally invasive resection should be done in the appropriate abdomen, if surgery is indicated. In other words, planning a laparoscopic resection for complicated diverticulitis is reasonable; if the induration or scarring is intense, a hand can be placed or the procedure can be converted to open, as long as this decision is made early in the course of the procedure.

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