

Living with the LLSA



Diagnosing and Treating Diverticulitis



By Luis M. Lovato, MD

Author Credentials and Financial Disclosure:

Dr. Lovato is an Associate Professor for the David Geffen School of Medicine at UCLA, the Director of Critical Care for the Department of Emergency Medicine at Olive View-UCLA Medical Center, the Co-Chair for the Emergency Medicine Best Practices Committee for the Los Angeles County Department of Health Services, and a faculty instructor for the National *MegaLLSA* Review Course.

All other faculty and staff in a position to control the content of this CME activity have disclosed that they and their spouses/life partners (if any) have no financial relationships with, or financial interests in, any commercial companies pertaining to this educational activity.

Learning Objectives: After reading this article, the physician should be better able to:

1. Analyze epidemiological risk factors for developing diverticulitis to determine treatment and prevention.
2. Relate the surgical management approaches for diverticulitis as strategies for therapy.
3. Categorize the stage of diverticulitis by Hinchey Classification to formulate a treatment plan.

Article from the 2010 LLSA

Reading List Diverticulitis

Jacobs DO
N Engl J Med
2007;357(20):2057

This article is an evidence-based review on diverticulitis from the Clinical Practice series in the *New England Journal of Medicine*. It begins by clarifying several important definitions. *Diverticula* are narrow-necked, full-thickness outpouchings of the colonic wall thought to be related to abnormal colonic peristalsis and pressure. *Diverticulosis* is asymptomatic and diagnosed when uninfamed diverticula are confirmed by radiographic imaging, endoscopy, or direct visualization. *Diverticulitis* is the acute symptomatic condition resulting from the luminal obstruction of preexisting diverticula by fecal material. Subsequent bacterial overgrowth, inflammation, edema, ischemia, and ultimately perforation and sepsis can occur. *Complicated diverticulitis* implies the existence

of an abscess, fistula, obstruction, or peritonitis.

The article also highlights various epidemiological characteristics of diverticular disease, including its relative high incidence in industrialized nations, probably the result of low dietary fiber intake and lifestyle factors such as physical inactivity, obesity, and smoking. Although any portion of the colon can be affected, diverticulitis affects the sigmoid and descending colon more than 90 percent of the time. (*J Clin Gastroenterol* 1999;29[3]:241.) Diverticulitis usually manifests in the elderly, with 80 percent of cases occurring after age 50. (*Surgery* 1994;115[5]:546.) Hinchey Classification (see table) is used to stage diverticulitis, with morbidity and the likelihood of needing surgical intervention increasing with each stage.

The article reviews these methods for classifying disease, and helps clinicians expertly diagnose the condition while ruling out other serious etiologies of left lower quadrant pain, and after reading it, physicians should understand how to use sound clinical reasoning and appropriate diagnostic testing to diagnose diverticulitis, not merely order countless laboratory panels and imaging studies.

With early stage diverticulitis, patients may present only with complaints of left lower quadrant pain and constipation. Localized left lower quadrant tenderness is generally the rule with or without fullness on exam. The differential diagnosis includes other colonic entities such as infectious colitis, inflammatory bowel disease, appendicitis, or even complications of colon cancer. Genitourinary (cystitis, nephrolithiasis, pyelonephritis), obstetric (ectopic), and gynecological (cyst, torsion, pelvic inflammatory disease) causes must also be excluded. Advanced stage diverticulitis with perforation may include peritoneal signs and sepsis. Patients who are immunocompromised (diabetes, human immunodeficiency virus, immunosuppressive therapy) often present with more complicated disease, may be more difficult to diagnose, and are less likely to respond to conservative therapy.

Computerized tomography is the diagnostic study of choice in the acute setting. Endoscopic imaging to rule out other entities such as inflammatory bowel disease or malignancy is usually delayed until the acute inflammation resolves to minimize the risk of perforation.

Patients with early uncomplicated

Classic Hinchey Staging	Description	Modified Hinchey Classification
-	Left lower quadrant pain, elevated WBC, fever. No imaging.	0
I	Pericolic phlegmon Pericolic abscess	Ia Ib
II	Pelvic abscess	II
III	Generalized purulent peritonitis. No communication with bowel lumen.	III
IV	Generalized fecal peritonitis. Communication with bowel lumen.	IV
-	Colovesical, colovaginal, coloenteric, or colocutaneous fistula.	With fistula
-	Large or small bowel obstruction	With obstruction

Sources: *Adv Surg* 1978;12:85; *Am J Gastroenterol* 2005;100(4):910.

disease and minimal comorbidities are usually candidates for outpatient therapy. Broad spectrum oral antibiotics should target bowel flora, especially gram-negative organisms and anaerobes. Patients with unrelenting nausea or pain, complicated disease, peritoneal signs, or other comorbidities, should be hospitalized, placed on bowel rest, and given intravenous antibiotics. Earlier stage disease can often be medically managed even when hospitalization is necessary. CT-guided percutaneous drainage may be required for select patients with large focal areas of phlegmon or abscess or if not responding to more conservative therapy. Even when not definitive, interventional drainage can often resolve acute disease enough so that surgery can be done electively as an outpatient rather than emergently. Same-admission surgical therapy is reserved only for advanced stage diverticulitis, and is required in less than 10 percent of admitted patients with diverticulitis. (*J Clin Gastroenterol* 1999;29[3]:241.) Indications for same-admission surgical therapy include failure to improve with medical management, continued peritonitis or sepsis, or advanced stage disease that is inaccessible to or fails percutaneous drainage.

Historically, surgical therapy for diverticulitis occurred as three separate operative stages: abscess drainage with placement of a proximal diverting colostomy, diseased colon resection

and primary colonic anastomosis, and colostomy takedown. The three-stage approach is expensive and time-consuming, and comes with the inherent risks of multiple operations. Depending on these risks, many patients never have their colostomies taken down, which has long-term implications on the quality of life. Now, one- and two-stage operative approaches are the norm with retrospective data suggesting acceptable outcomes. (*Am J Surg* 2002;183[5]:525.) Laparoscopic colectomy is emerging as a surgical management strategy for select cases where surgeons trained in this technique are readily available. Observational data suggest laparoscopic colectomy may result in shorter hospital stays, reduced wound complications, and fewer overall complications compared with open colectomy. (*Surg Clin North Am* 2000;80[4]:1299.)

Comment: The optimal surgical management of acute diverticulitis is evolving. Advances in interventional management have decreased the need for emergent surgery because many diverticular abscesses can be “cooled off” successfully with percutaneous drainage. When surgery is indicated, one-stage operative approaches are becoming more common even with complicated diverticular disease. Having recurrent episodes of uncomplicated diverticulitis is not predictive of future episodes with complications.



Once an episode of complicated diverticulitis has occurred, however, the American Society of Colon and Rectal Surgeons gives a Level B recommendation for elective colectomy. (Dis Colon Rectum 2006;49[7]:939.) Keep in mind that in this same statement, ASCRS emphasizes that decisions on elective colectomy should be made on a case-by-case basis. And finally, with more surgeons trained to perform endoscopic colectomy, it may be possible to avoid open surgery altogether even with complicated diverticular disease.

The article reiterates the common notion that diverticulitis in younger patients is often more severe and associated with more complications and recurrences. (Br J Surg 1992;79[2]:117), but a subset analysis of more than 500 patients in a study by Kaiser failed to show that diverticulitis in patients under age 40 had any differences in presentation, complications, or outcomes. (Am J Gastroenterol 2005;100[4]:910.)

This article supports the widespread practice of using CT as the initial radiologic examination of choice for diverticulitis. Indeed, evidence shows that CT is highly sensitive (97%) and very specific for diagnosing diverticulitis. (Br J Surg 1997;84[4]:532.) What the article does not mention is that CT is not always necessary. In the article by Kaiser looking specifically at the role of CT for diverticulitis, 19 percent of patients were diagnosed solely on clinical grounds (Stage 0 diverticulitis), and managed successfully without imaging. Opting not to scan a patient with mild diverticulitis may seem novel when knee-jerk CTs are vogue, but it is a strategy supported by some evidence. (Am J Gastroenterol 2005;100[4]:910.)

The exceptional emergency physician gets the diagnosis right, ruling out other serious etiologies of left lower quadrant pain, not by ordering countless laboratory panels and imaging studies, but by using sound clinical reasoning and appropriate diagnostic testing. He recognizes impending intra-abdominal catastrophe without delay and expertly manages the truly sick diverticulitis patient with early resuscitation, early antibiotics, and early consultation. He carries great respect for the ability of immunocompromise to mask serious disease, especially intra-abdominal infection. And when the diagnosis is readily apparent and the condition is mild, he sends the patient home without introducing the risks of radiation or contrast exposure, with a course of antibiotics, dietary education, return precautions, and appropriate follow-up. After all, there is another patient waiting to be seen.

CME Participation Instructions

To earn CME credit, you must read the article in *Emergency Medicine News*, and complete the evaluation questions and quiz, answering at least 80 percent of the questions correctly. Mail the completed quiz with your check for \$12 payable to Lippincott Continuing Medical Education Institute, 530 Walnut Street, 8th Floor East, Philadelphia, PA 19106. Only the first entry will be considered for credit, and must be received by Lippincott Continuing Medical Education Institute by February 28, 2011. Acknowledgment will be

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Questions:

- Which statement regarding the epidemiology of diverticulitis is correct?
 - A. The transverse colon is the site of acute diverticulitis approximately 20 percent of the time.
 - B. Eighty percent of cases occur in individuals over age 50.
 - C. Diverticulitis is much more common in developing nations.
 - D. All of the above are correct.
- Which of the following statements regarding diagnostic studies for diverticulitis is correct?
 - A. Flexible endoscopy is often helpful in diagnosing acute diverticulitis.
 - B. CT is the imaging modality of choice for diverticulitis.
 - C. A CT is required for the diagnosis of diverticulitis.
 - D. Ultrasound is widely used in the United States to diagnose diverticulitis.
- A 52-year-old woman presents with constipation, fever, and severe left lower quadrant pain for the past 24 hours. She has a temperature of 99.7°F, and her blood pressure and pulse are stable. She has only mild focal tenderness in the left lower quadrant without guarding or rebound. Pelvic exam is unremarkable. Her medications include metformin for diabetes and prednisone for systemic lupus erythematosus. She is tolerating POs without problem. Her WBC count is 12.7, blood sugar is 180 mg/dl, and urinalysis is negative. What is the most appropriate next step?
 - A. Diverticulitis can be diagnosed clinically, and a trial of outpatient antibiotics is warranted.
 - B. Flat plate abdominal series to rule out obstruction.
 - C. CT abdomen to stage diverticulitis and rule out complicated diverticular disease.
 - D. Transvaginal ultrasound to rule out a gynecologic etiology.
- Which of the following statements is true about the surgical management of diverticulitis?
 - A. Most patients admitted to the hospital for diverticulitis get definitive surgery during the index hospitalization.
 - B. A three-stage operation described in the article by Jacobs is still the most common form of surgical management for diverticulitis.
 - C. Laparoscopic colectomy is now widely available for the surgical treatment of diverticulitis.
 - D. The American Society of Colon and Rectal Surgeons gives a Level B recommendation for elective colectomy after an episode of complicated diverticulitis managed conservatively.
- A patient is found to have multiple diverticula on CT with pericolic stranding, phlegmon, and a 5 cm pelvic abscess. According to Classic Hinchey staging, this patient has:
 - A. Stage I diverticulitis.
 - B. Stage II diverticulitis.
 - C. Stage III diverticulitis.
 - D. Stage IV diverticulitis.

Directions

Your successful completion of this activity includes evaluating it. Please indicate your responses below filling in the blanks or by darkening the circles with a pencil or pen.

Please rate your confidence in your ability to achieve the following objectives, both before this activity and after it: 1 (minimally) to 5 (completely), to these:

	Pre					Post				
	1	2	3	4	5	1	2	3	4	5
Analyze epidemiological risk factors for developing diverticulitis.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Relate the surgical management approaches for diverticulitis.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Categorize the stage of diverticulitis by Hinchey Classification.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please indicate how well the activity met your expectations: 1 (minimally) to 5 (completely)

	1	2	3	4	5
Was effective in meeting the educational objectives	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Content was useful and relevant to my practice	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Please address the practical application of this activity below

How many of your patients may be affected by what you learned from this activity? _____

Do you expect that the information you learned during this activity will help you improve your skill or judgment within the next 6 months? 1 2 3 4 5
 1 2 3 4 5

(1-Definitely will not change, 5-Definitely will change)

How will you apply what you learned from this activity? (Mark all that apply.)

- In diagnosing patients
- In monitoring patients
- In educating students and colleagues
- To confirm current practice
- For maintaining board certification
- In making treatment decisions
- As a foundation to learn more
- In educating patients and their caregivers
- As part of a quality/performance improvement project
- For maintaining licensure

Please complete these overall activity assessment questions.

Did you perceive any bias for or against any commercial products or devices? Yes No
 Yes No

Compared with other educational activities in which you have participated over the past year, how would you rate this activity? 1 2 3 4 5
 1 2 3 4 5

(1-Needs serious improvement, 5-A model of its kind)

Future activities concerning this subject are necessary. 1 2 3 4 5
(1-Strongly disagree, 5-Strongly agree) 1 2 3 4 5

My biggest clinical challenges related to this topic are: _____

Please use the space below to provide any additional information that will help the activity planners and faculty evaluate this activity.

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