

Left Lower Quadrant Pain — Suspected Diverticulitis
EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
1. Chapman JR, Dozois EJ, Wolff BG, Gullerud RE, Larson DR. Diverticulitis: a progressive disease? Do multiple recurrences predict less favorable outcomes? <i>Ann Surg.</i> 2006;243(6):876-830; discussion 880-873.	Observational-Dx	150 patients	To examine the impact of antecedent episodes of uncomplicated diverticulitis on the prognosis of patients who subsequently develop complicated diverticulitis.	Patients were separated into 2 groups for analysis: group A = those with 1 or 2 prior diverticulitis episodes (n = 118) vs group B = patients with more than 2 prior episodes (n = 32). Characteristics of the groups were similar for age and preexistent comorbid conditions. The majority of patients presented with pericolic abscess and inflammatory phlegmon. Perforated diverticulitis occurred more often in group A compared with patients with >2 episodes of diverticulitis. Because of the higher rate of perforation, patients in group A underwent surgical diversion more often than group B patients. No significant differences in operative complications, morbidity, or mortality rates were identified between the groups.	4
2. Andeweg CS, Knobben L, Hendriks JC, Bleichrodt RP, van Goor H. How to diagnose acute left-sided colonic diverticulitis: proposal for a clinical scoring system. <i>Ann Surg.</i> 2011;253(5):940-946.	Observational-Dx	124 patients with ALCD; 163 patients with other diagnoses	To assess and compare the diagnostic value of elements of the disease history, physical examination, and routine laboratory tests in patients with suspected ALCD.	Of 1,290 patients with acute abdominal pain, 287 patients were eligible for analysis. ALCD was the final diagnosis in 124 patients (43%). Age, 1 or more previous episodes, localization of symptoms in the lower left abdomen, aggravation of pain on movement, the absence of vomiting, localization of abdominal tenderness in the lower left abdomen, and C-reactive protein 50 or more were found to be independent predictors of ALCD. A nomogram was constructed based on these independent predictors with a diagnostic accuracy of 86%.	3

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3.	Ajaj W, Ruehm SG, Lauenstein T, et al. Dark-lumen magnetic resonance colonography in patients with suspected sigmoid diverticulitis: a feasibility study. <i>Eur Radiol.</i> 2005;15(11):2316-2322.	Observational-Dx	40 patients	A prospective study to assess dark-lumen MRC for the evaluation of patients with suspected sigmoid diverticulitis, by comparing the results to conventional colonoscopy.	Conventional colonoscopy confirmed the presence of light inflammatory signs in 4 patients which were missed in MRC. MRC correctly identified wall thickness and contrast uptake of the sigmoid colon in the patients with diverticulitis. In 3 of these patients false-positive findings were observed, and MRC classified the inflammation of the sigmoid colon as diverticulitis whereas conventional colonoscopy and histopathology confirmed invasive carcinoma. MRC detected additionally relevant pathologies of the entire colon and could be performed in cases where conventional colonoscopy was incomplete. MRC may be considered a promising alternative to conventional colonoscopy for the detection of sigmoid diverticulitis.	2
4.	Buckley O, Geoghegan T, McAuley G, Persaud T, Khosa F, Torreggiani WC. Pictorial review: magnetic resonance imaging of colonic diverticulitis. <i>Eur Radiol.</i> 2007;17(1):221-227.	Review/Other-Dx	N/A	To illustrate the emerging role of MRI in the diagnosis and evaluation of colonic diverticulitis.	MRI has a major advantage over CT in that there is no ionizing radiation. In one institution, MRI has increasingly been used as a complimentary imaging modality to CT in the diagnosis and evaluation of diverticulitis and its complications.	4
5.	Heverhagen JT, Sitter H, Zielke A, Klose KJ. Prospective evaluation of the value of magnetic resonance imaging in suspected acute sigmoid diverticulitis. <i>Dis Colon Rectum.</i> 2008;51(12):1810-1815.	Observational-Dx	55 patients, 2 blinded assessors	To prospectively examine patients with suspected ACD and to provide sensitivity, specificity, and interobserver agreement in a blinded trial.	The two assessors exhibited sensitivities of more than 94%, specificities of 88%, positive likelihood ratios of >7.5, and negative likelihood ratios of <0.07. The kappa coefficient showed a significant, strong correlation between both assessors (kappa = 0.68). MRI is investigator independent and provides high sensitivity and specificity for the diagnosis of ACD.	1
6.	Schreyer AG, Furst A, Agha A, et al. Magnetic resonance imaging based colonography for diagnosis and assessment of diverticulosis and diverticulitis. <i>Int J Colorectal Dis.</i> 2004;19(5):474-480.	Review/Other-Dx	14 patients 56 segments	A prospective study to assess the feasibility of MRC to assess diverticulosis or diverticulitis by comparing results with that of abdominal CT.	MRC revealed the same diagnosis as CT in all patients without ionizing radiation. Additionally, 3D-rendered models and virtual colonoscopy can be performed. This comprehensive 3D model could replace pre-surgical planning BE with concurrent assessment of the residual colon.	4

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7.	Kircher MF, Rhea JT, Kihiczak D, Novelline RA. Frequency, sensitivity, and specificity of individual signs of diverticulitis on thin-section helical CT with colonic contrast material: experience with 312 cases. <i>AJR Am J Roentgenol.</i> 2002;178(6):1313-1318.	Observational-Dx	312 patients	To determine sensitivity and specificity of helical CT for diverticulitis.	CT had a sensitivity of 99%, a specificity of 99%, and an overall accuracy of 99% for detection of diverticulitis. The two most frequent signs of diverticulitis were bowel wall thickening (96%) and fat stranding (95%). Less frequent but highly specific signs were fascial thickening (50%), free fluid (45%), and inflamed diverticula (43%).	3
8.	Niebling M, van Nunspeet L, Zwaving H, Eddes EH, Bosker R, Eeftinck Schattenkerk M. Management of colovesical fistulae caused by diverticulitis: 12 years of experience in one medical centre. <i>Acta Chir Belg.</i> 2013;113(1):30-34.	Observational-Dx	31 patients	To evaluate diagnostic and surgical management of colovesical fistulae at our medical center.	The most common presenting symptoms were pneumaturia, urinary tract infections, abdominal pain, and fecaluria. CT identified colovesical fistulae in 28 patients (92.2%), cystoscopy in 4 patients (23.5%), and BE in 3 patients (13.6%). Surgical management was resection of the diseased colon segment with primary anastomosis in 29/31 patients. The bladder fistulae were oversewn and an omental plasty was placed between bowel anastomosis and bladder. There was only one postoperative leak and one case of mortality (3.2%).	3
9.	Destigter KK, Keating DP. Imaging update: acute colonic diverticulitis. <i>Clin Colon Rectal Surg.</i> 2009;22(3):147-155.	Review/Other-Dx	N/A	To review diagnostic imaging for acute colonic diverticulitis.	Because the incidence of colonic diverticulosis is high in the general population, incidental asymptomatic diverticulosis is commonly seen on radiology imaging studies. However, diagnostic imaging performed specifically for diverticular disease is essentially limited to imaging of suspected ACD and its complications. The clinical diagnosis of ACD can be challenging, and imaging has become an essential tool to aid in diagnosis, assess severity of disease, and aid in treatment planning. CT has replaced contrast enema as the imaging procedure of choice for diverticulitis. US has also been successfully used for diagnosis, and MRI has significant potential as a radiation-free imaging test for ACD.	4

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10. Mazzei MA, Cioffi Squitieri N, Guerrini S, et al. Sigmoid diverticulitis: US findings. <i>Crit Ultrasound J.</i> 2013;5 Suppl 1:S5.	Review/Other-Dx	N/A	To discuss the US findings of diverticulitis and the role of US in its diagnostic management.	US and CT are both useful in diagnosis of diverticulitis, and their sensibility and specificity are similar. However, CT may be more likely to identify alternative causes of abdominal pain and it is essential for investigating complicated diverticular disease especially where there are diffuse signs and clinical suspicion of secondary peritonitis. Instead in most uncomplicated cases the experienced sonographer may quickly confirm a diagnosis guided by the clinical signs. US is to be recommended in premenopausal women, and in young people to reduce dose exposure.	4
11. Sai VF, Velayos F, Neuhaus J, Westphalen AC. Colonoscopy after CT diagnosis of diverticulitis to exclude colon cancer: a systematic literature review. <i>Radiology.</i> 2012;263(2):383-390.	Review/Other-Dx	10 articles	To estimate the prevalence of underlying adenocarcinoma of the colon in patients in whom acute diverticulitis was diagnosed at CT and to compare that to the prevalence of colon cancer in the general population.	10 articles met the inclusion criteria. Data from these articles included only 771 patients who underwent surgery, colonoscopy, or BE study within 24 weeks of diagnosis. 14 patients were found to have colon cancer, for a prevalence of 2.1% (95% CI: 1.2%, 3.2%). This compares to a calculated estimated prevalence of 0.68% among U.S. adults >55 years.	4
12. Kaiser AM, Jiang JK, Lake JP, et al. The management of complicated diverticulitis and the role of computed tomography. <i>Am J Gastroenterol.</i> 2005;100(4):910-917.	Observational-Dx	511	To define the role of CT and to analyze its impact on the management of acute diverticulitis, by retrospectively reviewing the treatment of 511 patients.	In 99 patients (19.4%), an abscess was found (74 pericolic, 25 pelvic, median diameter: 4.0 cm). CT evidence of a diverticular abscess has a prognostic impact as it correlates with a high risk of failure from nonoperative management regardless of the patient's age. After treatment of diverticulitis with CT evidence of an abscess, physicians should strongly consider elective surgery in order to prevent recurrent diverticulitis.	4
13. Al-Sahaf O, Al-Azawi D, Fauzi MZ, El-Masry S, Gillen P. Early discharge policy of patients with acute colonic diverticulitis following initial CT scan. <i>Int J Colorectal Dis.</i> 2008;23(8):817-820.	Review/Other-Dx	42 patients	Retrospective study to determine if patients with mild ACD on early CT scan can be treated and discharged at an early time.	CT severity classification: 61.9% mild, 7.1% moderate, and 31.0% severe diverticulitis. Patients with mild ACD were discharged safely, had no recurrence of their symptoms, and needed no readmission within 6 months of follow-up. Patients with mild ACD on CT scan performed within 24 hours could be safely discharged and treated according to protocols of outpatient management of diverticulitis.	4

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14. Ambrosetti P, Gervaz P, Fossung-Wiblishauser A. Sigmoid diverticulitis in 2011: many questions; few answers. <i>Colorectal Dis.</i> 2012;14(8):e439-446.	Review/Other-Dx	N/A	To define evidence-based indications for elective surgery.	Young male patients (≤ 50 years of age) had a higher risk of CT-graded severe diverticulitis. After medical treatment of the first episode, the incidence of complications was highest for young patients with CT-graded severe diverticulitis and lowest for older patients with CT-graded moderate diverticulitis. Recurrence in the form of diffuse peritonitis was rare. CT grading of initial diverticulitis seemed to be a predictor of recurrence, whereas the role of age was less clear. A family history of diverticulitis might be predictive of recurrence.	4
15. Gielens MP, Mulder IM, van der Harst E, et al. Preoperative staging of perforated diverticulitis by computed tomography scanning. <i>Tech Coloproctol.</i> 2012;16(5):363-368.	Observational-Dx	75 patients	To assess the accuracy of preoperative staging of perforated diverticulitis by CT scanning.	75 patients were included, 48 of whom (64%) were classified Hinchey 3 or 4 perforated diverticulitis during surgery. The PPV of preoperative CT scanning for different stages of perforated diverticulitis ranged from 45%–89%, and accuracy was between 71%–92%. The combination of a large amount of free intra-abdominal air and fluid was strongly associated with Hinchey 3 or 4 and therefore represented a reliable indicator for required surgical treatment.	2
16. Ritz JP, Lehmann KS, Lodenkemper C, Frericks B, Buhr HJ, Holmer C. Preoperative CT staging in sigmoid diverticulitis--does it correlate with intraoperative and histological findings? <i>Langenbecks Arch Surg.</i> 2010;395(8):1009-1015.	Observational-Dx	204 patients	To evaluate whether the CT reflects the extent of the inflammation in sigmoid diverticulitis in order to draw conclusions for selecting the appropriate treatment.	In the phlegmonous type (HS IIa; n = 75), we found a correlation with the preoperative stage in 52% (intraoperative) and 56% (histological), an understaging in 12% (intraoperative) and 11% (histological), and an overstaging in 36% (intraoperative) and 33% (histological). In the abscess-forming type (HS IIb, Hinchey I/II; n = 87), we found conformity in 92% (intraoperative) and 90% (histological), understaging in 3% (intraoperative) and 0% (histological), and overstaging in 5% (intraoperative) and 10% (histological). In the presence of a free perforation (HS IIc, Hinchey III/IV; n = 42), we saw conformity in 100% (intraoperative and histological). The PPV for correctly diagnosing of phlegmonous type (HS IIa), abscess-forming type (HS IIb), and free perforation (HS IIc) by CT was intraoperatively (histologically) 52% (56), 92% (90), and 100% (100), respectively.	3

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17. Siewert B, Tye G, Kruskal J, et al. Impact of CT-guided drainage in the treatment of diverticular abscesses: size matters. <i>AJR Am J Roentgenol.</i> 2006;186(3):680-686.	Observational-Dx	181 patients; 31 abscesses noted in 30 patients, 2 reviewers	A retrospective study to determine whether abscess size, measured by CT, can be used as a discriminating factor to guide management of patients with diverticular abscesses.	Measurement of abscess size by CT can determine different management strategies. Patient's with abscesses <3 cm in size can be treated with antibiotics alone and, in some cases, as outpatients, and may not uniformly require surgery. This is also likely true for patients with abscesses 3-4 cm in size, although our results in this group were limited by a small sample size. Patients with abscesses ≥4 cm can be managed with CT-guided abscess drainage followed by referral for surgical treatment.	4
18. Werner A, Diehl SJ, Farag-Soliman M, Duber C. Multi-slice spiral CT in routine diagnosis of suspected acute left-sided colonic diverticulitis: a prospective study of 120 patients. <i>Eur Radiol.</i> 2003;13(12):2596-2603.	Observational-Dx	120 patients	To evaluate the use of multi-slice CT for detection of clinically suspected left-sided colonic diverticulitis with regard to diagnosis, complications and alternative diagnoses.	The multi-slice CT results were compared with histopathological and intraoperative findings or other radiological or endoscopic methods and clinical outcome. Acute diverticulitis was proven in 67 of the 120 (55.8%) patients, which was detected by multi-slice CT with an accuracy of 98% (sensitivity 97%, specificity 98%). Contained perforation or abscess formation were detected with an accuracy of 96% (sensitivity 100%, specificity 91%) and 98% (sensitivity 100%, specificity 97%), respectively. In 31 of 120 (25.8%) patients' diagnoses other than diverticulitis caused abdominal pain, which was correctly diagnosed by multi-slice CT in 71%. The multi-slice CT as well as other concurrently performed diagnostic methods showed normal findings and no causes for the patient's symptoms in 22 of the 120 (18.4%) patients.	3

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19. Jalaguier A, Zins M, Rodallec M, Nakache JP, Boulay-Coletta I, Jules MC. Accuracy of multidetector computed tomography in differentiating primary epiploic appendagitis from left acute colonic diverticulitis associated with secondary epiploic appendagitis. <i>Emerg Radiol.</i> 2010;17(1):51-56.	Review/Other-Dx	46 consecutive patients with ALCD and 26 patients with primary epiploic appendagitis 2 blinded reviewers	Retrospective study to evaluate the prevalence of ALCD associated with secondary epiploic appendagitis detected by CT; to describe CT features that distinguish ALCD associated with secondary epiploic appendagitis from primary epiploic appendagitis; and to assess the accuracy of CT in diagnosing ALCD associated with secondary epiploic appendagitis versus primary epiploic appendagitis.	The prevalence of ALCD-associated secondary epiploic appendagitis was 71% (33/46) in the ALCD group. The accuracy of CT was 100% for diagnosing ALCD-associated secondary epiploic appendagitis (33/33), 100% for diagnosing ALCD without secondary epiploic appendagitis (13/13), and 96% for diagnosing primary epiploic appendagitis (25/26). Colon wall thickening, “inflamed diverticulum” extraluminal gas, abscess or phlegmon, multiple paracolic fatty lesions, and a thin hyperattenuated rim were significantly associated with ALCD-associated secondary epiploic appendagitis. Neither the dot sign nor parietal peritoneal thickening showed good accuracy for differentiating primary epiploic appendagitis from ALCD-associated secondary epiploic appendagitis. CT is accurate for distinguishing ALCD-associated secondary epiploic appendagitis from primary epiploic appendagitis. The findings that perform best for diagnosing secondary epiploic appendagitis are evidence of diverticulitis, multiple fatty lesions, and a thin hyperattenuated rim.	4
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20. Singh AK, Gervais DA, Hahn PF, Rhea J, Mueller PR. CT appearance of acute appendagitis. <i>AJR Am J Roentgenol.</i> 2004;183(5):1303-1307.	Review/Other-Dx	50 patients, 2 blinded reviewers	To describe the spectrum of CT findings in patients with acute epiploic appendagitis and also to evaluate the changes seen with this condition.	The most common part of colon involved by acute epiploic appendagitis was the sigmoid colon (31/50), and the most common position was anterior to the colonic lumen (41/50). All 50 patients with acute epiploic appendagitis had a central fatty core surrounded by inflammation. Colon wall thickening was present in only two, and a central high-density focus was noted only in 27/50 patients. In 86% (43/50) of patients, the fatty central core was between 1.5 and 3.5 cm in length. The changes seen on follow-up CT varied, including increased density with a decrease in the size of the fatty central core, no change, complete resolution of findings, and minimal residual density. On CT, acute epiploic appendagitis has a predictable appearance in terms of location, size, and density. The most common finding on CT is a fat-density oval lesion with surrounding inflammation on the anterior aspect of the sigmoid colon. The changes on CT are not predictable in the 2-week to 6-month window.	4
21. Rao PM, Rhea JT, Novelline RA, et al. Helical CT with only colonic contrast material for diagnosing diverticulitis: prospective evaluation of 150 patients. <i>AJR Am J Roentgenol.</i> 1998;170(6):1445-1449.	Observational-Dx	150 patients	Prospective study to determine sensitivity, specificity, and predictive value of CT for diverticulitis.	CT had a sensitivity of 97%, a specificity of 100%, a PPV of 100%, a NPV of 98%, and an overall accuracy of 99% for detection of diverticulitis.	3
22. Hill BC, Johnson SC, Owens EK, Gerber JL, Senagore AJ. CT scan for suspected acute abdominal process: impact of combinations of IV, oral, and rectal contrast. <i>World J Surg.</i> 2010;34(4):699-703.	Observational-Dx	661 patients	To evaluate the diagnostic accuracy of abdominal/pelvic CT with varying use of contrast agents in hospitalized patients.	A total of 661 patients were identified. Use of IV contrast alone was found in 54.2% of CT scans and was correct in 92.5% of cases. IV and oral contrast was used in 22.2% of CT scans and was 94.6% correct. Unenhanced imaging was performed in 16.2% and was correct in 92.5%. Oral contrast alone was used in 7.0% and was 93.5% correct. There was no significant difference in the ability to correctly diagnose a suspected acute abdominal process when enhanced CT imaging was compared to unenhanced ($P>0.05$).	3

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23. Tack D, Bohy P, Perlot I, et al. Suspected acute colon diverticulitis: imaging with low-dose unenhanced multi-detector row CT. <i>Radiology</i> . 2005;237(1):189-196.	Observational-Dx	110 patients	To prospectively compare the sensitivity and specificity of unenhanced low-dose MDCT with those of contrast material-enhanced standard-dose MDCT in patients suspected of having acute diverticulitis.	Colon diverticulitis was present in 39 patients (34%) and was graded as mild in 22 patients (56%) and severe in 17 (44%). Agreement within and between readers was good to excellent. No significant difference was observed in sensitivity (P ranging from .081 to >.99) or in specificity (P ranging from .326 to >.99) for any sign or overall diagnosis between radiation doses by all readers, except wall thickening, which for one reader had a higher specificity at low dose than at standard dose (P=.025). No significant difference in misclassification was detected between doses, regardless of the reader (P ranging from .481 to >.99). At both doses, the most predictive sign for acute diverticulitis was retroperitoneal fat stranding (P<.001).	1
24. Lorenz J, Thomas JL. Complications of percutaneous fluid drainage. <i>Semin Intervent Radiol</i> . 2006;23(2):194-204.	Review/Other-Dx	N/A	To discuss complications of abscess drainage and treatment of all adverse sequelae.	Percutaneous abscess drainage is one of the most common and rewarding procedures performed by interventional radiologists. Technical success is immediately apparent by aspiration of purulent contents and is nearly always achieved, with rates exceeding 90% in most literature studies. Clinical success is typical even for many abscesses colonized with multidrug-resistant organisms. In patients presenting with sepsis, this procedure offers an immediate and minimally invasive solution to a life-threatening condition, often resulting in defervescence and restoration of hemodynamic stability within 1 to 2 days.	4
25. Ripolles T, Agramunt M, Martinez MJ, Costa S, Gomez-Abril SA, Richart J. The role of ultrasound in the diagnosis, management and evolutive prognosis of acute left-sided colonic diverticulitis: a review of 208 patients. <i>Eur Radiol</i> . 2003;13(12):2587-2595.	Observational-Dx	208 hospitalized patients (262 admissions)	Retrospective study to evaluate the role of US in the diagnosis and management of acute diverticulitis and its capacity to predict posterior complications in patients undergoing medical treatment.	Diverticulitis was finally diagnosed in 203 patients. US exhibited sensitivity of 86% in 77 cases subjected to surgery, and of 94% in the global 203 patients (192 true-positive and 11 false-negative findings). Study shows that US constitutes a feasible technique for diagnosing acute diverticulitis. The severity of diverticulitis according to US is statistically predictive of surgical risk during the acute phase. Severity is also related to the appearance of posterior complications in patients undergoing conservative management, although only in younger patients (<50 years).	4

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26. Lameris W, van Randen A, Bipat S, Bossuyt PM, Boermeester MA, Stoker J. Graded compression ultrasonography and computed tomography in acute colonic diverticulitis: meta-analysis of test accuracy. <i>Eur Radiol.</i> 2008;18(11):2498-2511.	Review/Other-Dx	6 US studies evaluated 630 patients, and 8 CT studies evaluated 684 patients	Systematic review and meta-analysis was performed to examine the diagnostic accuracy of graded compression US and CT in diagnosing ACD in suspected patients.	Summary sensitivity estimates were 92% (95% CI: 80%-97%) for US vs 94% (95%CI: 87%-97%) for CT (P=0.65). Summary specificity estimates were 90% (95%CI: 82%-95%) for US vs 99% (95%CI: 90%-100%) for CT (P=0.07). For the identification of alternative diseases sensitivity ranged between 33% and 78% for US and between 50% and 100% for CT. The currently best available evidence shows no statistically significant difference in accuracy of US and CT in diagnosing ACD. Therefore, both US and CT can be used as initial diagnostic tool until new evidence is brought forward. However, CT is more likely to identify alternative diseases.	4
27. van Randen A, Lameris W, van Es HW, et al. A comparison of the accuracy of ultrasound and computed tomography in common diagnoses causing acute abdominal pain. <i>Eur Radiol.</i> 2011;21(7):1535-1545.	Observational-Dx	1,021 patients	To report a head-to-head comparison of the accuracy of US and CT in detecting common causes of acute abdominal pain, such as appendicitis and diverticulitis, in patients presenting at the emergency department with acute abdominal pain.	Frequent final diagnoses in the 1,021 patients (mean age 47; 55% female) were appendicitis (284; 28%), diverticulitis (118; 12%) and cholecystitis (52; 5%). The sensitivity of CT in detecting appendicitis and diverticulitis was significantly higher than that of US: 94% vs 76% (P<0.01) and 81% vs 61% (P=0.048), respectively. For cholecystitis, the sensitivity of both was 73% (P=1.00). PPVs did not differ significantly between US and CT for these conditions. US sensitivity in detecting appendicitis and diverticulitis was not significantly negatively affected by patient characteristics or reader experience.	2

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28. Jaiyeoba O, Soper DE. A practical approach to the diagnosis of pelvic inflammatory disease. <i>Infect Dis Obstet Gynecol.</i> 2011;2011:753037.	Review/Other-Dx	N/A	To review the practical approach to the diagnosis of pelvic inflammatory disease.	The diagnosis of acute pelvic inflammatory disease is usually based on clinical criteria and can be challenging for even the most astute clinicians. Although diagnostic accuracy is advocated, antibiotic treatment should be instituted if there is a diagnosis of cervicitis or suspicion of acute pelvic inflammatory disease. Currently, no single test or combination of diagnostic indicators has been found to reliably predict pelvic inflammatory disease, and laparoscopy cannot be recommended as a first line tool for pelvic inflammatory disease diagnosis. For this reason, the clinician is left with maintaining a high index of suspicion for the diagnosis as he/she evaluates the lower genital tract for inflammation and the pelvic organs for tenderness in women with genital tract symptoms and a risk for sexually transmitted infection. This approach should minimize treating women without pelvic inflammatory disease with antibiotics and optimize the diagnosis in a practical and cost-effective way.	4
29. Vandermeer FQ, Wong-You-Cheong JJ. Imaging of acute pelvic pain. <i>Clin Obstet Gynecol.</i> 2009;52(1):2-20.	Review/Other-Dx	N/A	To review diagnostic imaging of acute pelvic pain.	No results stated in abstract.	4
30. Helou N, Abdalkader M, Abu-Rustum RS. Sonography: first-line modality in the diagnosis of acute colonic diverticulitis? <i>J Ultrasound Med.</i> 2013;32(10):1689-1694.	Review/Other-Dx	N/A	To review sonography as the first time modality in the diagnosis of ACD.	Sonography is safe, widely available, easily accessible, portable, and affordable, and it enables the visualization of the entire gastrointestinal tract. In addition, with the simultaneous, instantaneous ability to interpret both clinical and sonographic findings, it facilitates rapid and accurate diagnoses in trained hands. As such, and with the application of “sound judgment,” sonography becomes the first-line modality for the diagnosis of diverticulitis.	4
31. Elsayes KM, Staveteig PT, Narra VR, Leyendecker JR, Lewis JS, Jr., Brown JJ. MRI of the peritoneum: spectrum of abnormalities. <i>AJR Am J Roentgenol.</i> 2006;186(5):1368-1379.	Review/Other-Dx	N/A	To detail peritoneal anatomy, techniques for optimizing peritoneal MRI and the MRI characteristics of several disease processes that frequently involve the peritoneum.	Homogeneous fat suppression and dynamic contrast-enhanced imaging, including delayed imaging, are critical technical factors for successful lesion detection and characterization on peritoneal MRI.	4

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32. Lau KC, Spilsbury K, Farooque Y, et al. Is colonoscopy still mandatory after a CT diagnosis of left-sided diverticulitis: can colorectal cancer be confidently excluded? <i>Dis Colon Rectum</i> . 2011;54(10):1265-1270.	Observational-Dx	1,407 patients	To determine whether colonoscopy is necessary and what additional information is gained from this procedure.	Left-sided diverticulitis was diagnosed in 1,088 patients on CT scan, whereas follow-up colonoscopy reports were available for 319 patients. 82 (26%) patients had incidental findings of polyps (9 polyps >1 cm), and 9 patients (2.8%) received diagnoses of colorectal cancers on colonoscopy. After cross-referencing with the cancer registry, the overall prevalence of colorectal cancer among the cohort within 1 year of CT scan was 2.1% (23 cases). The odds of a diagnosis of colorectal cancer were 6.7 times (95% CI, 2.4–18.7) in patients with an abscess reported on CT, 4 times (95% CI, 1.1–14.9) in patients with local perforation, and 18 times (95% CI, 5.1–63.7) in patients with fistula compared with patients with uncomplicated diverticulitis.	4
33. Shen SH, Chen JD, Tiu CM, et al. Differentiating colonic diverticulitis from colon cancer: the value of computed tomography in the emergency setting. <i>J Chin Med Assoc</i> . 2005;68(9):411-418.	Review/Other-Dx	54 patients	A retrospective study of the helical CT scans of 40 patients diagnosed with diverticulitis and 14 patients diagnosed with colon cancer, in order to establish practical diagnostic criteria to differentiate colonic diverticulitis from colon cancer by CT in the emergency department.	Specific CT criteria help to differentiate colonic diverticulitis from colon cancer. The most valuable imaging findings for diverticulitis were the presence of non-inflamed diverticulum, inflamed diverticulum, mild degree of enhancement, and small lymph node size. CT scan with IV contrast administration would be the best noninvasive imaging modality in the emergency department for the accurate diagnosis and appropriate management of such disease.	4
34. Goh V, Halligan S, Taylor SA, Burling D, Bassett P, Bartram CI. Differentiation between diverticulitis and colorectal cancer: quantitative CT perfusion measurements versus morphologic criteria--initial experience. <i>Radiology</i> . 2007;242(2):456-462.	Observational-Dx	60 patients	To determine whether CT perfusion measurements in prospectively recruited patients can be used to differentiate between diverticulitis and colorectal cancer and to compare this discrimination with that of standard morphologic criteria.	CT perfusion measurements enable differentiation and better discrimination, in comparison with morphologic criteria, between cancer and diverticulitis.	2
35. Achiam MP, Andersen LP, Klein M, et al. Differentiation between benign and malignant colon tumors using fast dynamic gadolinium-enhanced MR colonography; a feasibility study. <i>Eur J Radiol</i> . 2010;74(3):e45-50.	Observational-Dx	14 patients	To determine whether fast dynamic gadolinium-enhanced MRI combined with MRC could be used to differentiate a benign from a malignant obstructing colon tumor.	The wash-in and wash-out rates were significantly different between the benign and malignant tumors, and a clear distinction between benign and malignant disease was therefore possible by looking only at the MR data. Furthermore, MRC evaluating the rest of the colon past the stenosis was possible with all patients.	2

Left Lower Quadrant Pain — Suspected Diverticulitis
EVIDENCE TABLE

36. Oistamo E, Hjern F, Blomqvist L, Von Heijne A, Abraham-Nordling M. Cancer and diverticulitis of the sigmoid colon. Differentiation with computed tomography versus magnetic resonance imaging: preliminary experiences. <i>Acta Radiol.</i> 2013;54(3):237-241.	Observational-Dx	30 patients	To determine whether MRI could be helpful to differentiate between diverticulitis and cancer of the sigmoid colon compared to the differentiation offered by evaluation of MDCT in a clinical situation.	With contrast-enhanced CT, the sensitivity and specificity for diagnosis of cancer and diverticulitis were 66.7% (10/15) and 93.3% (14/15), respectively. Using T2-weighted and diffusion-weighted MRIs, the sensitivity and specificity for diagnosis of cancer and diverticulitis were 100% (14/14) and 100% (14/14), respectively.	3
37. Broder JS, Hamedani AG, Liu SW, Emerman CL. Emergency department contrast practices for abdominal/pelvic computed tomography—a national survey and comparison with the American College of Radiology Appropriateness Criteria®. <i>J Emerg Med.</i> 2013;44(2):423-433.	Review/Other-Dx	106 patients	To survey United States academic emergency departments to document national practice.	106/152 (70%) surveys were completed. IV contrast was the most frequently cited contrast. At least 90% of respondents reported using IV contrast in 12/18 indications. Oral contrast use was more variable. In no indication did ≥90% of respondents indicate use of oral contrast, and in only 2 indications did ≥90% avoid its use. Rectal contrast was rarely used. The most common indications for which no contrast agent was used were suspected renal colic (79%), viscus perforation (19%), penetrating abdominal trauma (18%), and blunt abdominal trauma (15%).	4
38. Kaur P, Karandikar SS, Roy-Choudhury S. Accuracy of multidetector CT in detecting anastomotic leaks following stapled left-sided colonic anastomosis. <i>Clin Radiol.</i> 2014;69(1):59-62.	Observational-Dx	170 patients	To assess accuracy of MDCT and individual radiological signs in the diagnosis of anastomotic leaks.	17% (30/170) of the anterior resections were suspected to have an anastomotic leak. 93% (28/30) of patients underwent MDCT. 7.6% (11+2/170) had a confirmed leak. Two patients underwent surgery without MDCT. A leak was confirmed by MDCT in 91% (10/11) of patients. The sensitivity, specificity, and PPV and NPV of MDCT in diagnosing a leak was 0.91, 1, 1, and 0.95, respectively. The sensitivity of peri-anastomotic air, peri-anastomotic collection, extravasation of rectal contrast medium, and staple line integrity was 0.81, 0.63, 0.54, and 0.72, respectively. Use of rectal contrast medium (8/11 cases) increased the subjective ease of diagnosis and was the only sign in 1 patient.	3
39. American College of Radiology. <i>Manual on Contrast Media</i> . Available at: http://www.acr.org/~link.aspx?_id=29C40D1FE0EC4E5EAB6861BD213793E5&mp;_z=z .	Review/Other-Dx	N/A	Guidance document on contrast media to assist radiologists in recognizing and managing risks associated with the use of contrast media.	N/A	4

Evidence Table Key

Study Quality Category Definitions

- *Category 1* The study is well-designed and accounts for common biases.
- *Category 2* The study is moderately well-designed and accounts for most common biases.
- *Category 3* There are important study design limitations.
- *Category 4* The study is not useful as primary evidence. The article may not be a clinical study or the study design is invalid, or conclusions are based on expert consensus. For example:
 - a) the study does not meet the criteria for or is not a hypothesis-based clinical study (e.g., a book chapter or case report or case series description);
 - b) the study may synthesize and draw conclusions about several studies such as a literature review article or book chapter but is not primary evidence;
 - c) the study is an expert opinion or consensus document.

Dx = Diagnostic

Tx = Treatment

Abbreviations Key

ACD = Acute colonic diverticulitis

ALCD = Acute left-sided colonic diverticulitis

BE = Barium enema

CI = Confidence interval

CT = Computed tomography

IV = Intravenous

MDCT = Multidetector computed tomography

MRC = Magnetic resonance colonography

MRI = Magnetic resonance imaging

NPV = Negative predictive value

PPV = Positive predictive value

US = Ultrasound