

**Crohn's Disease
EVIDENCE TABLE**

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Strength of Evidence
1. Glick SN. Crohn's disease of the small intestine. <i>Radiol Clin North Am</i> 1987; 25(1):25-45.	12	N/A	Review role of barium radiology in Crohn's disease (CD) of small bowel.	Barium studies are still the primary method of diagnosis and evaluation of small bowel in CD.	4
2. Hastings GE, Weber RJ. Inflammatory bowel disease: Part I. Clinical features and diagnosis. <i>Am Fam Physician</i> 1993; 47(3):598-608.	12	N/A	Review clinical aspects of inflammatory bowel disease.	Initial barium study is helpful in documenting the extent of disease and complications. Endoscopic biopsy confirms the surface appearance and histologic features of inflammatory bowel disease. Recent photo documentation techniques are expected to improve the comparability of endoscopic observations.	4
3. Rutgeerts P. A critical assessment of new therapies in inflammatory bowel disease. <i>J Gastroenterol Hepatol</i> 2002; 17 Suppl:S176-185.	7	N/A	Review therapeutic alternatives in inflammatory bowel disease.	Combination of infliximab with azathioprine or methotrexate can be viewed as the new standard for the therapy of refractory CD.	4
4. Goldberg HI, Caruthers SB, Jr., Nelson JA, Singleton JW. Radiographic findings of the National Cooperative Crohn's Disease Study. <i>Gastroenterology</i> 1979; 77(4 Pt 2):925-937.	9	403	Compare on-study and off-study radiographs of patients to judge radiographic response to drug treatment and discover correlations of radiographic findings with clinical response.	Radiographic findings do not correlate with clinical symptoms or treatment response. Ritual use of barium studies to follow CD patients is unnecessary.	2
5. Taylor GA, Nancarrow PA, Hernanz-Schulman M, Teele RL. Plain abdominal radiographs in children with inflammatory bowel disease. <i>Pediatr Radiol</i> 1986; 16(3):206-209.	13	100	Examine radiographs in children with inflammatory bowel disease [53 Crohn's, 47 ulcerative colitis and scout films prior to excretory urography in 50 patients who had no clinical evidence of intestinal disease (controls)].	73% of inflammatory bowel disease patients had normal radiographs. Radiographs are helpful adjunct. Most reliable radiographic findings were: mucosal abnormality in the colon and small bowel and an abnormal stool pattern.	2
6. Bernstein CN, Greenberg H, Boulton I, Chubey S, Leblanc C, Ryner L. A prospective comparison study of MRI versus small bowel follow-through in recurrent Crohn's disease. <i>Am J Gastroenterol</i> 2005; 100(11):2493-2502.	9	30	MR enterography compared to small bowel follow-through (SBFT) in established CD to detect complications and assess extent of disease.	MRI is superior to SBFT in evaluating Crohn's complications and extent of disease.	2
7. Hara AK, Leighton JA, Heigh RI, et al. Crohn disease of the small bowel: preliminary comparison among CT enterography, capsule endoscopy, small-bowel follow-through, and ileoscopy. <i>Radiology</i> 2006; 238(1):128-134.	9	17	To prospectively compare four diagnostic small bowel imaging techniques in CD.	CD was depicted by capsule endoscopy in 12 patients (71%), ileoscopy in 11 (65%), CT enterography in 9 (53%), and SBFT in 4 (24%). Capsule endoscopy and CT enterography may depict CD when ileoscopy and SBFT are negative.	2

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8. Sailer J, Peloschek P, Schober E, et al. Diagnostic value of CT enteroclysis compared with conventional enteroclysis in patients with Crohn's disease. <i>AJR</i> 2005; 185(6):1575-1581.	9	50 consecutive patients	Prospective study to assess the diagnostic value of CT enteroclysis compared with conventional enteroclysis in patients with CD.	CD-associated radiographic changes were found in 44 patients (88%) using CT enteroclysis and in 42 patients (84%) using conventional enteroclysis. CT enteroclysis proved to be significantly superior to conventional enteroclysis in depicting intramural and extramural CD.	2
9. Eliakim R, Suissa A, Yassin K, Katz D, Fischer D. Wireless capsule video endoscopy compared to barium follow-through and computerised tomography in patients with suspected Crohn's disease--final report. <i>Dig Liver Dis</i> 2004; 36(8):519-522.	9	35	Prospectively compare capsule endoscopy with barium follow-through and CT enterography in patients with suspected CD.	Diagnostic yield of capsule endoscopy was 77% vs 23% and 20% of barium and CT, respectively (P<0.05). Wireless capsule endoscopy is more sensitive than with barium follow-through and CT enterography in detecting CD.	2
10. Chernish SM, Maglinte DD, O'Connor K. Evaluation of the small intestine by enteroclysis for Crohn's disease. <i>Am J Gastroenterol</i> 1992; 87(6):696-701.	13	100 consecutive patients	Retrospective review of patients undergoing small bowel enema (SBE) for CD to assess utility of method.	One-third of patients had subtle lesions; 100% true negative rate. Provides relevant information for management.	2
11. Dixon PM, Roulston ME, Nolan DJ. The small bowel enema: a ten year review. <i>Clin Radiol</i> 1993; 47(1):46-48.	9	1,465	Retrospective review and comparison of SBE and findings at laparotomy and clinical outcome.	SBE sensitivity 93% and specificity 97%. SBE recommended as the study of choice for small bowel.	2
12. Ott DJ, Chen YM, Gelfand DW, Van Swearingen F, Munitz HA. Detailed per-oral small bowel examination vs. enteroclysis. Part I: Expenditures and radiation exposure. <i>Radiology</i> 1985; 155(1):29-31.	9	25	Compared time involved, patient reaction, and radiation exposure for patients undergoing per-oral small bowel exam vs enteroclysis.	Room time, side effects and radiation exposure were greater for patients undergoing enteroclysis. These factors should be considered when planning examination of the small bowel.	3
13. Ott DJ, Chen YM, Gelfand DW, Van Swearingen F, Munitz HA. Detailed per-oral small bowel examination vs. enteroclysis. Part II: Radiographic accuracy. <i>Radiology</i> 1985; 155(1):31-34.	9	134	Accuracy of detailed per-oral small bowel series and enteroclysis compared in suspected small bowel disease.	Sensitivity of per-oral examination was 92% and specificity 94%, compared to 94% and 89%, respectively, for enteroclysis. While per-oral study and enteroclysis are equally valid methods of examining small bowel, per-oral study is preferable because it require less time, has fewer side effects, and involves lower radiation exposure.	2
14. Gore RM, Levine MS, Laufer I. eds. <i>Gastrointestinal Radiology</i> . Philadelphia, Pa: WB Saunders Company. 1994:770.	15	N/A	Book Chapter.	N/A	N/A

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15. Sheridan MB, Nicholson DA, Martin DF. Transabdominal ultrasonography as the primary investigation in patients with suspected Crohn's disease or recurrence: a prospective study. <i>Clin Radiol</i> 1993; 48(6):402-404.	10	127	Prospective study to evaluate the use of transabdominal US as the initial investigation in patients with suspected CD or recurrence.	US sensitivity 78%; specificity 91%. Data support the use of US as the initial investigation in patients with suspected and recurrent CD.	2
16. Stringer DA. Imaging inflammatory bowel disease in the pediatric patient. <i>Radiol Clin North Am</i> 1987; 25(1):93-113.	12	N/A	Review radiographic findings and imaging modalities used in inflammatory bowel disease in children.	The choice and performance of diagnostic imaging techniques are influenced by age of the patient.	4
17. Di Sabatino A, Armellini E, Corazza GR. Doppler sonography in the diagnosis of inflammatory bowel disease. <i>Dig Dis</i> 2004; 22(1):63-66.	12	N/A	Review current status of Doppler US in evaluation of CD.	Doppler US appears to be an effective non-invasive tool in diagnosis and follow-up of CD and ulcerative colitis.	3
18. Robotti D, Cammarota T, Deboni P, Sarno A, Astegiano M. Activity of Crohn disease: value of Color-Power-Doppler and contrast-enhanced ultrasonography. <i>Abdom Imaging</i> 2004; 29(6):648-652.	9	52	Compared power Doppler and contrast enhanced B-mode US with clinical and lab findings and follow-up.	Bowel US exam associated with color power Doppler, especially US contrast medium injection can be used to detect CD activity and modulate therapy and follow-up.	2
19. Boudiaf M, Jaff A, Soyer P, Bouhnik Y, Hamzi L, Rymer R. Small-bowel diseases: prospective evaluation of multi-detector row helical CT enteroclysis in 107 consecutive patients. <i>Radiology</i> 2004; 233(2):338-344.	10	107 consecutive patients	To prospectively evaluate MDCT enteroclysis for the depiction of small-bowel diseases	Sensitivity, specificity, accuracy, PPV, and NPV of MDCT enteroclysis were 100%, 95%, 97%, 94%, and 100%, respectively. MDCT enteroclysis allows depiction of a variety small bowel diseases in patients suspected of having small bowel disease.	2
20. Choi D, Jin Lee S, Ah Cho Y, et al. Bowel wall thickening in patients with Crohn's disease: CT patterns and correlation with inflammatory activity. <i>Clin Radiol</i> 2003; 58(1):68-74.	9	53 patients 58 CT scans	Retrospective review to compare CT patterns of bowel wall thickening in known CD with pathological and clinical data.	55 (95%) of 58 CT examinations showed bowel wall thickening. Of these, 55 CT scans, type A pattern was found in 33 (60%), type B in 10 (18%), type C in 5 (9%), and type D in 7 (13%). CT patterns correlated with disease activity.	2
21. Guidi L, Minordi LM, Semeraro S, et al. Clinical correlations of small bowel CT and contrast radiology findings in Crohn's disease. <i>Eur Rev Med Pharmacol Sci</i> 2004; 8(5):215-217.	9	35	Compare CT with positive oral contrast with barium small bowel exams and correlated with CD activity index (CDAI).	Sensitivity of small bowel CT vs endoscopy was 88% while sensitivity of barium studies was 77% vs endoscopic findings, and reached 100% for the combination of both exams. Small bowel CT is a useful adjunct to conventional barium studies and CT findings correlate with CDAI.	2

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22. Reittner P, Goritschnig T, Petritsch W, et al. Multiplanar spiral CT enterography in patients with Crohn's disease using a negative oral contrast material: initial results of a noninvasive imaging approach. <i>Eur Radiol</i> 2002; 12(9):2253-2257.	9	30	Prospective study to compare CT enterography with negative oral contrast to enteroclysis, endoscopy and histology.	Spiral CT enterography with Mucofalk water enema was well tolerated in 29/30 patients. Findings on spiral CT enterography were comparable with those of barium studies in 25/30 patients, superior to barium studies in 4 patients, and inferior in 1 patient (P<0.05). CT enterography superior to enteroclysis in detection of CD and associated complications.	2
23. Paulsen SR, Huprich JE, Fletcher JG, et al. CT enterography as a diagnostic tool in evaluating small bowel disorders: review of clinical experience with over 700 cases. <i>Radiographics</i> 2006; 26(3):641-657; discussion 657-662.	13	756	Review methods for performing CT enterography and illustrate CT enterographic findings in CD.	Characteristic findings in CD can be detected using CT enterography technique.	2
24. Maglinte DD, Sandrasegaran K, Lappas JC. CT enteroclysis: techniques and applications. <i>Radiol Clin North Am</i> 2007; 45(2):289-301.	12	N/A	To examine the techniques of CT enteroclysis and present an overview of its clinical applications relative to other methods of small bowel imaging.	CT enteroclysis overcomes the individual deficiencies of both barium enteroclysis and conventional CT and combines the advantages of both into one technique whose clinical applicability has been simplified and made more reliable with MDCT technology.	4
25. Wold PB, Fletcher JG, Johnson CD, Sandborn WJ. Assessment of small bowel Crohn disease: noninvasive peroral CT enterography compared with other imaging methods and endoscopy--feasibility study. <i>Radiology</i> 2003; 229(1):275-281.	9	23	Compared two CT enterography protocols (per-oral water and nasojejunal administration of methylcellulose) and fluoroscopic small bowel examination and terminal ileoscopy in CD patients.	Arterial phase imaging was noncontributory in 22/23 cases. Noninvasive per-oral water CT enterography protocol had similar accuracy (12/15 cases, 80%) for enabling the detection of active CD in comparison with CT enteroclysis with nasojejunal tube (7/8, 88%) and fluoroscopic small bowel examination (17/23, 74%). No fistulas were missed with use of either CT technique. Noninvasive per-oral portal venous phase CT enterography with use of water is accurate and feasible.	3
26. Mako EK, Mester AR, Tarjan Z, Karlinger K, Toth G. Enteroclysis and spiral CT examination in diagnosis and evaluation of small bowel Crohn's disease. <i>Eur J Radiol</i> 2000; 35(3):168-175.	9	281 consecutive patients	Compared conventional enteroclysis with spiral CT using positive enteric contrast in suspected CD.	Enteroclysis had sensitivity of 96% and specificity of 98%. Spiral CT had sensitivity of 94% and specificity 95%. Enteroclysis was superior to the spiral CT in demonstration of early lesions and functional disorders, while spiral CT proved to be essential in evaluation of transmural and extraintestinal complications. Enteroclysis and CT are complimentary and both are accurate.	2

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27. Booya F, Fletcher JG, Huprich JE, et al. Active Crohn disease: CT findings and interobserver agreement for enteric phase CT enterography. <i>Radiology</i> 2006; 241(3):787-795.	10	42	To retrospectively evaluate small-bowel enhancement characteristics and the sensitivity, specificity, and interobserver agreement of CT findings in patients undergoing enteric phase CT enterography. Reference standard were histologic and endoscopic results.	Distended jejunal loops had significantly greater attenuation than distended ileal loops (113 HU vs 72 HU; P<.001). Attenuation of collapsed jejunal (134 HU) and ileal (108 HU) loops was greater than that of distended jejunal and ileal loops. Mural hyper-enhancement and increased mural thickness are the most sensitive CT findings of active CD.	3
28. Doerfler OC, Ruppert-Kohlmaier AJ, Reittner P, Hinterleitner T, Petritsch W, Szolar DH. Helical CT of the small bowel with an alternative oral contrast material in patients with Crohn disease. <i>Abdom Imaging</i> 2003; 28(3):313-318.	9	38	Assess usefulness of helical CT with negative oral contrast compared to tube enteroclysis in detecting CD.	Sensitivity of CT for detection of CD was superior to tube enteroclysis (89% vs 78%). CT is a simple, rapid, noninvasive, and accurate method of evaluating extramucosal manifestations of CD.	2
29. Rollandi GA, Curone PF, Biscaldi E, et al. Spiral CT of the abdomen after distention of small bowel loops with transparent enema in patients with Crohn's disease. <i>Abdom Imaging</i> 1999; 24(6):544-549.	9	40 10 controls	To evaluate the capability of a CT technique that combines distention of the small bowel loops with a transparent enema with contrast-enhanced spiral CT of the abdomen in patients with CD. Results of CT were compared with conventional radiographic small bowel studies.	CT detected longer affected bowel segment and additional segments compared to barium studies. Also detected additional fistulas and abscesses compared to conventional studies.	2
30. Solem CA, et al. Small bowel imaging in Crohn's disease: A prospective, blinded 4-way comparison trial. <i>Gastroenterology</i> 2005; 128(suppl 2):A74 (abstract 488).	9	42	Prospective, blinded study to assess the sensitivity and specificity of capsule endoscopy, CT enterography, ileocolonoscopy, and SBFT in the diagnosis of small bowel CD.	Sensitivity of capsule endoscopy for detecting active CD was 83%, not significantly higher than CT enterography (83%), ileocolonoscopy (74%), or SBFT (65%). However, the specificity of capsule endoscopy (53%) was significantly lower than the other tests. CT enterography and capsule endoscopy have similar sensitivity and both superior to ileocolonic endoscopy and SBFT. Specificity and accuracy of capsule endoscopy lower than other tests. Small bowel imaging needed prior to capsule endoscopy due to the frequency of asymptomatic strictures.	2
31. Minordi LM, Vecchioli A, Guidi L, Mirk P, Fiorentini L, Bonomo L. Multidetector CT enteroclysis versus barium enteroclysis with methylcellulose in patients with suspected small bowel disease. <i>Eur Radiol</i> 2006; 16(7):1527-1536.	9	52	Prospective study to determine value of MDCT enteroclysis vs barium enteroclysis with methylcellulose in small bowel disease.	Sensitivity, specificity and diagnostic accuracy of MDCT enteroclysis vs barium enteroclysis was 83%, 100% and 89%, respectively. CT enteroclysis provides good representation of pathological patterns of CD.	2

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32. Low RN, Francis IR, Politoske D, Bennett M. Crohn's disease evaluation: comparison of contrast-enhanced MR imaging and single-phase helical CT scanning. <i>J Magn Reson Imaging</i> 2000; 11(2):127-135.	9	26	Prospective study to compare MRI with contrast-enhanced CT in evaluation of intestinal and extraintestinal CD.	MRI was preferred over CT in depiction of normal bowel wall, mural thickening, mural enhancement and overall gastrointestinal evaluation.	2
33. Maccioni F, Viscido A, Broglia L, et al. Evaluation of Crohn disease activity with magnetic resonance imaging. <i>Abdom Imaging</i> 2000; 25(3):219-228.	10	20	Prospective study to assess the accuracy of MRI in evaluating CD activity.	Excellent statistical correlation was found between biologically active disease and bowel wall changes on MRI.	2
34. Florie J, Horsthuis K, Hommes DW, et al. Magnetic resonance imaging compared with ileocolonoscopy in evaluating disease severity in Crohn's disease. <i>Clin Gastroenterol Hepatol</i> 2005; 3(12):1221-1228.	9	31	Retrospective, blinded study to assess the value of MRI in measuring disease activity in CD compared to ileocolonoscopy.	Correlation between severity rated at MRI and Crohn's Disease Endoscopic Index of Severity (CDEIS) was moderate to strong with $r = 0.61$ ($P < .001$) for observer 1 and $r = 0.63$ ($P < .001$) for observer 2. Per segment, best correlation was seen in the terminal ileum ($r = 0.63$; $P < .001$, for both observers). Wall thickness correlated moderately to strongly with CDEIS ($r = 0.57$, $P < .001$ and $r = 0.50$, $P < .001$ for observers 1 and 2), whereas enhancement correlated weakly to moderately ($r = 0.45$, $P < .001$ and $r = 0.42$, $P < .001$). MRI can correctly identify disease severity in CD.	2
35. Florie J, Wasser MN, Arts-Cieslik K, Akkerman EM, Siersema PD, Stoker J. Dynamic contrast-enhanced MRI of the bowel wall for assessment of disease activity in Crohn's disease. <i>AJR</i> 2006; 186(5):1384-1392.	13	48	To evaluate the role of MR enterography in predicting disease activity of CD.	Bowel wall enhancement characteristics and bowel wall thickness correlated with objective measures of disease activity.	2
36. Fidler J. MR imaging of the small bowel. <i>Radiol Clin North Am</i> 2007; 45(2):317-331.	12	N/A	To review MRI of the small bowel with enterography and enteroclysis techniques. Study reviews the advantages, limitations, technique, and indications and reviews the results that have been obtained in evaluating different disease processes.	CT and MRI have advantages over traditional barium fluoroscopic techniques in their ability to visualize superimposed bowel loops better and to improve visualization of extraluminal findings and complications.	4

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37. Gourtsoyannis N, Papanikolaou N, Grammatikakis J, Papamastorakis G, Prassopoulos P, Roussomoustakaki M. Assessment of Crohn's disease activity in the small bowel with MR and conventional enteroclysis: preliminary results. <i>Eur Radiol</i> 2004; 14(6):1017-1024.	9	19 consecutive patients	Conventional enteroclysis and MR enteroclysis correlated with CDAI. Patients had colon endoscopy and both conventional and MR enteroclysis examinations.	Combination of bowel wall changes seen on conventional and MR enteroclysis can discriminate active from inactive CD.	3
38. Schreyer AG, Geissler A, Albrich H, et al. Abdominal MRI after enteroclysis or with oral contrast in patients with suspected or proven Crohn's disease. <i>Clin Gastroenterol Hepatol</i> 2004; 2(6):491-497.	9	21	Prospective study to evaluate the diagnostic efficacy of abdominal MRI of the small bowel after drinking contrast agent only compared with conventional enteroclysis and abdominal MRI performed after enteroclysis in patients with suspected or proven CD.	All pathological findings on conventional enteroclysis were shown correctly on MR after enteroclysis and MR after oral contrast only. Additional information by MR was obtained in 6/21 patients.	2
39. Albert JG, Martiny F, Krummenerl A, et al. Diagnosis of small bowel Crohn's disease: a prospective comparison of capsule endoscopy with magnetic resonance imaging and fluoroscopic enteroclysis. <i>Gut</i> 2005; 54(12):1721-1727.	9	52 consecutive patients	Prospective study to compare capsule endoscopy, MR enterography and fluoroscopic enteroclysis in suspected and established CD.	Small bowel CD was diagnosed in 41/52 patients (79%). Capsule endoscopy was slightly more sensitive than MRI (12 vs 10 of 13 in suspected CD and 13 vs 11 of 14 in established Crohn's disease). MR and capsule endoscopy are complimentary tools for diagnosing CD.	2
40. Laghi A, Borrelli O, Paolantonio P, et al. Contrast enhanced magnetic resonance imaging of the terminal ileum in children with Crohn's disease. <i>Gut</i> 2003; 52(3):393-397.	10	75 consecutive patients	Prospective study to evaluate the diagnostic value of gadolinium-enhanced MR using polyethylene glycol as enteric contrast (CE-PEG-MRI) in revealing CD changes in terminal ileum in children.	There is high correlation of CE-PEG-MRI with ileal endoscopy and histology as well as disease activity index (PCDAI).	2
41. Magnano G, Granata C, Barabino A, et al. Polyethylene glycol and contrast-enhanced MRI of Crohn's disease in children: preliminary experience. <i>Pediatr Radiol</i> 2003; 33(6):385-391.	9	22	Prospective study to assess the ability of polyethylene glycol and contrast-enhanced MRI to detect bowel abnormalities in children affected by CD compared to ileocolonoscopy, B-mode and Doppler US.	MR enteroclysis easily detected stenoses, thickening and hyperaemia of bowel wall. Concordance of findings between MRI and endoscopy was 90% (K=0.79, substantial concordance). Concordance of findings between MRI and US concerning bowel-wall thickening and increased vascularization was 95% (K=0.875, excellent concordance) and 80% (K=0.6, fairly good concordance), respectively. MRI is at least comparable to other techniques without ionizing radiation.	2

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42. Bodily KD, Fletcher JG, Solem CA, et al. Crohn Disease: mural attenuation and thickness at contrast-enhanced CT Enterography--correlation with endoscopic and histologic findings of inflammation. <i>Radiology</i> 2006; 238(2):505-516.	9	96	Retrospective study to determine if quantitative measures of small bowel mural attenuation and thickness at CT enterography correlate with endoscopic and histologic findings in Crohn's.	Quantitative measures of mural attenuation and wall thickness at CT enterography correlate highly with ileoscopic and histologic findings of inflammatory CD.	2
43. Colombel JF, Solem CA, Sandborn WJ, et al. Quantitative measurement and visual assessment of ileal Crohn's disease activity by computed tomography enterography: correlation with endoscopic severity and C reactive protein. <i>Gut</i> 2006; 55(11):1561-1567.	9	143	Retrospective study to examine whether small bowel inflammation at CT enterography correlates with endoscopic severity and C reactive protein in CD.	Quantitative measures of bowel enhancement at CT enterography correlate with endoscopic and histological severity. C reactive protein correlates with radiological finding of perienteric inflammation.	2
44. Rottgen R, Herzog H, Lopez-Haninnen E, Felix R. Bowel wall enhancement in magnetic resonance colonography for assessing activity in Crohn's disease. <i>Clin Imaging</i> 2006; 30(1):27-31.	9	42 consecutive patients	To examine whether there is a correlation between MR colonography and pathological findings in colonoscopy.	Significant correlation between change of the signal intensity and colonoscopically assessed inflammatory activity. The degree of contrast enhancement of the colonic wall may be a criterion for the degree of enhancement in CD.	2
45. Bell SJ, Halligan S, Windsor AC, Williams AB, Wiesel P, Kamm MA. Response of fistulating Crohn's disease to infliximab treatment assessed by magnetic resonance imaging. <i>Aliment Pharmacol Ther</i> 2003; 17(3):387-393.	13	12	To assess Crohn's fistula healing after infliximab treatment using MRI. MRI and clinical evaluation were performed before and after three infliximab infusions given over a 6-week period.	Pretreatment MRI detected abscesses in 3 (two not treated) of 12 patients. MRI can identify clinically silent sepsis and fistulas may persist despite clinical remission.	3
46. Sempere GA, Martinez Sanjuan V, Medina Chulia E, et al. MRI evaluation of inflammatory activity in Crohn's disease. <i>AJR</i> 2005; 184(6):1829-1835.	9	20 patients 10 controls 40 MRI studies	Prospective study to assess the capability of MRI to quantitatively evaluate pathologic changes in CD relapse compared to ileocolonoscopy and histological changes.	MRI has ability to detect pathologic bowel segments in CD — it allows the measurement of significant variations in wall thickness and contrast enhancement on changing from the active phase of the disease to remission.	2
47. Van Assche G, Vanbeckevoort D, Bielen D, et al. Magnetic resonance imaging of the effects of infliximab on perianal fistulizing Crohn's disease. <i>Am J Gastroenterol</i> 2003; 98(2):332-339.	13	18	Prospective study to assess the behavior of perianal fistulas as measured by MRI before and after infliximab treatment.	The MRI score was reliable in assessing the fistula tracks, with good interobserver concordance (P<0.001). Fistula tracks with signs of active inflammation were found in all 18 patients at baseline and collections in 7.	3
48. Schwartz DA, Wiersema MJ, Dudiak KM, et al. A comparison of endoscopic ultrasound, magnetic resonance imaging, and exam under anesthesia for evaluation of Crohn's perianal fistulas. <i>Gastroenterology</i> 2001; 121(5):1064-1072.	9	34	Prospective, triple blind comparison of endoscopic US, MRI and examination under anesthesia in evaluation of CD perianal fistulas.	Accuracy of all 3 modalities was ≥85%: endoscopic US 29/32 (91%, CI 75%-98%), MRI 26/30 (87%, CI 69%-96%), and examination under anesthesia 29/32 (91%, CI 75%-98%). Combination of any 2 tests led to accuracy of 100%.	2

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49. Bhargava SA, Orenstein SR, Charron M. Technetium-99m hexamethylpropyleneamine-oxime-labeled leukocyte scintigraphy in inflammatory bowel disease in children. <i>J Pediatr</i> 1994; 125(2):213-217.	9	27 pediatric patients 4 controls	Retrospective study in which Tc-99m HMPAO leukocyte scan was compared with clinical, radiological and histopathological findings in children with inflammatory bowel disease and four controls.	TC-99m HMPAO leukocyte scan findings correlated well with clinical, radiological, and histopathological findings and offered superior correlation when compared with clinical disease activity, and erythrocyte sedimentation rate.	3
50. Biancone L, Schillaci O, Capocchetti F, et al. Technetium-99m-HMPAO labeled leukocyte single photon emission computerized tomography (SPECT) for assessing Crohn's disease extent and intestinal infiltration. <i>Am J Gastroenterol</i> 2005; 100(2):344-354.	9	21	SPECT leucoscintigraphy compared to planar imaging to assess value of SPECT leucoscintigraphy in assessing Crohn's disease extent and intestinal infiltration.	SPECT superior to planar imaging in visualizing CD lesions, including perianal disease, and allows better discrimination between intestinal and bone marrow uptake.	3
51. Kennan N, Hayward M. Tc HMPAO-labeled white cell scintigraphy in Crohn's disease of the small bowel. <i>Clin Radiol</i> 1992; 45(5):331-334.	9	18	Retrospective study comparing Tc-99m HMPAO -labeled white cell scintigraphy to clinical and radiographic findings in patients with small bowel Crohn's.	Tc-99m HMPAO -labeled white cell scintigraphy is a sensitive test for evaluation of small bowel Crohn's. The lack of specificity and anatomical detail limit its usefulness as the initial exam in Crohn's.	3
52. Spinelli F, Milella M, Sara R, et al. The 99mTc-HMPAO leukocyte scan: an alternative to radiology and endoscopy in evaluating the extent and the activity of inflammatory bowel disease. <i>J Nucl Biol Med</i> 1991; 35(2):82-87.	9	78	Tc-99m HMPAO leukocyte scan compared to radiographic and endoscopic findings in evaluating location and activity of inflammatory bowel disease.	Tc-99m HMPAO leukocyte scan is a reliable examination for assessing the location and activity of inflammatory bowel disease. It is faster, less invasive and allows visualization of the entire bowel compared to radiological and endoscopic methods.	2
53. Weldon MJ. Assessment of inflammatory bowel disease activity using 99mTc-HMPAO single-photon emission computerized tomography imaging. <i>Scand J Gastroenterol Suppl</i> 1994; 203:61-68.	13	36	Tc-99m HMPAO SPECT activity score was correlated to histological activity score in patients with inflammatory bowel disease.	SPECT offers a noninvasive and objective approach to the assessment of disease activity which may be useful in the assessment of novel therapies for inflammatory bowel disease.	3
54. Neurath MF, Vehling D, Schunk K, et al. Noninvasive assessment of Crohn's disease activity: a comparison of 18F-fluorodeoxyglucose positron emission tomography, hydromagnetic resonance imaging, and granulocyte scintigraphy with labeled antibodies. <i>Am J Gastroenterol</i> 2002; 97(8):1978-1985.	9	59	Prospective study comparing FDG-PET, hydromagnetic resonance imaging, and granulocyte scintigraphy with labeled antibodies.	FDG-PET detected 127 pathological findings in the terminal/neoterminal ileum (37), small bowel (24), and colon (66) of 54 patients with CD. FDG-PET had sensitivity of 85.4%. FDG-PET appears to be a reliable noninvasive tool for simultaneous detection of inflamed areas in the small and large bowel on CD patients.	2
55. Gore RM. Cross-sectional imaging of inflammatory bowel disease. <i>Radiol Clin North Am</i> 1987; 25(1):115-131.	12	N/A	Review roles of CT, US and MRI in the diagnosis and management of patients with inflammatory bowel disease.	CT is superior to US and MRI in diagnosing extramucosal complications.	4

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EVIDENCE TABLE**

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Strength of Evidence
56. Jabra AA, Fishman EK, Taylor GA. Crohn disease in the pediatric patient: CT evaluation. <i>Radiology</i> 1991; 179(2):495-498.	13	25	CT and medical records reviewed in children with known CD to better define the role of CT.	CT findings included small bowel thickening (range, 5-10 mm) (n=20), colonic wall thickening (range, 6-15 mm) (n=15), and small bowel dilation (n=5). CT should be initial imaging study in children with known Crohn's.	3
57. Fishman EK, Wolf EJ, Jones B, Bayless TM, Siegelman SS. CT evaluation of Crohn's disease: effect on patient management. <i>AJR</i> 1987; 148(3):537-540.	13	80 consecutive patients	Retrospective review to determine the effect of CT diagnosis in patient management with symptomatic CD.	In 28% of patients, significant unsuspected findings changed therapy. Fistulae and abscesses identified.	2
58. Casola G, vanSonnenberg E, Neff CC, Saba RM, Withers C, Emarine CW. Abscesses in Crohn disease: percutaneous drainage. <i>Radiology</i> 1987; 163(1):19-22.	4	15	Evaluate effectiveness of percutaneous drainage in patients with Crohn's abscess.	All abscesses were evacuated successfully (n=15/15). No patient required surgery for abscess drainage. Percutaneous abscess drainage is effective and should be procedure of choice.	3
59. Safrit HD, Mauro MA, Jaques PF. Percutaneous abscess drainage in Crohn's disease. <i>AJR</i> 1987; 148(5):859-862.	4	10	Evaluated the effect of 18 percutaneous abscess drainages on clinical management of 10 patients with CD.	Percutaneous abscess drainages is a valuable technique for treating abscesses in Crohn's patients.	3
60. American College of Radiology. <i>Manual on Contrast Media</i> . Available at: http://www.acr.org/SecondaryMainMenuCategories/quality_safety/contrast_manual.aspx	15	N/A	Guidance document on contrast media to assist radiologists in recognizing and managing risks associated with the use of contrast media	N/A	3

Evidence Table Key

Study Type Key

Numbers 1-7 are for studies of therapies while numbers 8-15 are used to describe studies of diagnostics.

1. Randomized Controlled Trial — Treatment
2. Controlled Trial
3. Observation Study
 - a. Cohort
 - b. Cross-sectional
 - c. Case-control
4. Clinical Series
5. Case reviews
6. Anecdotes
7. Reviews

8. Randomized Controlled Trial — Diagnostic
9. Comparative Assessment
10. Clinical Assessment
11. Quantitative Review
12. Qualitative Review
13. Descriptive Study
14. Case Report
15. Other (Described in text)

Strength of Evidence Key

- Category 1 - The conclusions of the study are valid and strongly supported by study design, analysis and results.
- Category 2 - The conclusions of the study are likely valid, but study design does not permit certainty.
- Category 3 - The conclusions of the study may be valid but the evidence supporting the conclusions is inconclusive or equivocal.
- Category 4 - The conclusions of the study may not be valid because the evidence may not be reliable given the study design or analysis.