

**Suspected Small Bowel Obstruction
EVIDENCE TABLE**

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Strength of Evidence
1. Walsh D, Bender G, Timmons J. Comparison of computed tomography-enteroclysis and traditional computed tomography in the setting of suspected partial small-bowel obstruction. <i>Emerg Radiol</i> 1998; 5:29-37.	9	36	Compared value of CT enteroclysis (CT-E) with conventional CT in evaluation of suspected partial small-bowel obstruction (SBO).	CT-E more sensitive than conventional CT in detecting partial SBO especially when associated with malignancy.	2
2. Frager D, Medwid SW, Baer JW, Mollinelli B, Friedman M. CT of small-bowel obstruction: value in establishing the diagnosis and determining the degree and cause. <i>AJR</i> 1994; 162(1):37-41.	9	85	Prospective study to determine whether CT is superior to clinical-radiographic evaluation in diagnosing and assessing the cause of SBO. Gold standard for diagnosis was surgical findings in 61 cases and clinical course in 29 cases.	<ul style="list-style-type: none"> • For combined clinical-radiographic findings, diagnosis was complete obstruction in 21/46 cases (sensitivity 46%). • For CT, diagnosis was established in all 46 cases (sensitivity 100%). • For combined clinical-radiographic findings, partial obstruction of the small bowel was diagnosed in 6/20 cases (sensitivity 30%), whereas all cases were detected with CT. • CT is sensitive for diagnosing complete obstruction of the small bowel and for determining the location and cause of obstruction while the traditional clinical and plain film evaluation is relatively insensitive. 	2
3. Fukuya T, Hawes DR, Lu CC, Chang PJ, Barloon TJ. CT diagnosis of small-bowel obstruction: efficacy in 60 patients. <i>AJR</i> 1992; 158(4):765-769; discussion 771-762.	9	60	Retrospectively compare the CT findings in patients with and without surgically proved SBO to evaluate the role of CT in diagnosing the presence and cause of obstruction. In patients with obstruction, CT findings were compared with findings on plain abdominal radiographs and contrast studies of the small intestine.	CT correctly detected SBO in 90%. Radiographs showed SBO in 80%. CT provided more info than contrast studies regarding cause of obstruction. CT scanning accurately shows the presence of high-grade SBO and may be the technique of choice when extraluminal abnormalities are suspected or when prompt, efficient, and comprehensive evaluation is required.	2
4. Matsuo Y. Degree of bowel distension on plain-radiographs--a surgical-radiological study of new criteria in mechanical intestinal obstruction. <i>Jpn J Surg</i> 1978; 8(3):222-227.	10	360 (135 SBO)	To assess the utility of small bowel diameter/inter-pedunculate distance ratio for diagnosing mechanical obstruction.	Small bowel distension of above 1.0 (ratio) together with obvious gas fluid level usually indicates SBO, while large bowel distension of above 1.5 (ratio) together with obvious gas fluid level usually indicates large bowel obstruction.	2

**Suspected Small Bowel Obstruction
EVIDENCE TABLE**

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Strength of Evidence
5. Shrake PD, Rex DK, Lappas JC, Maglinte DD. Radiographic evaluation of suspected small bowel obstruction. <i>Am J Gastroenterol</i> 1991; 86(2):175-178.	9	117 consecutive patients	Abdominal radiographs and enteroclysis studies were reviewed blindly in patients undergoing enteroclysis for suspected SBO.	<ul style="list-style-type: none"> • For patients with normal or abnormal nonspecific radiographs, SBO was shown by enteroclysis in 22%. • For patients with obstruction on radiographs, 42% had either normal enteroclysis studies or only minor adhesions. • Enteroclysis correctly predicted the presence of obstruction in 100%, the absence of obstruction in 88%, the level (proximal vs distal) of obstruction in 89%, and the etiology of obstruction in 86% of operated patients. • Enteroclysis is recommended in patients with clinical uncertainty about the diagnosis of SBO. 	2
6. Maglinte DD, Reyes BL, Harmon BH, et al. Reliability and role of plain film radiography and CT in the diagnosis of small-bowel obstruction. <i>AJR</i> 1996; 167(6):1451-1455.	9	78	Blinded retrospective analysis to compare the reliability and define the role of radiography and CT in the assessment of SBO.	<ul style="list-style-type: none"> • Radiography: sensitivity 69%, specificity 57%, accuracy 67%. • CT: sensitivity 64%, and specificity 79%, accuracy 67%. • High-grade partial obstruction, radiography and CT: sensitivity 86%, specificity 82%. • Low grade partial obstruction: radiography and CT: sensitivity 56%, specificity 50%. • CT revealed the cause of the SBO in 95% of those patients who CT correctly showed the obstruction. 	2
7. Heinberg EM, Finan MA, Chambers RB, Bazzett LB, Kline RC. Postoperative ileus on a gynecologic oncology service--do abdominal X-rays have a role? <i>Gynecol Oncol</i> 2003; 90(1):158-162.	13	84	Review records of patients to estimate role of abdominal radiographs in management of patients with gastrointestinal (GI) dysfunction after gynecologic surgery.	Radiographs have little clinical utility in the evaluation of GI dysfunction in early post-op period following intra-abdominal gynecologic surgery.	3
8. Ko YT, Lim JH, Lee DH, Lee HW, Lim JW. Small bowel obstruction: sonographic evaluation. <i>Radiology</i> 1993; 188(3):649-653.	9	54	Retrospective study to compare US with radiographs in detection and characterization of SBO.	<ul style="list-style-type: none"> • SBO correctly diagnosed: US 89%, radiographs 71%. • Level correctly localized: US 76%, radiographs 51%. • US may be helpful in confirmation of the presence of obstruction, in determination of the level of obstruction, and in identification of the cause of obstruction. 	3

**Suspected Small Bowel Obstruction
EVIDENCE TABLE**

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Strength of Evidence
9. Dunn JT, Halls JM, Berne TV. Roentgenographic contrast studies in acute small-bowel obstruction. <i>Arch Surg</i> 1984; 119(11):1305-1308.	13	68	To assess usefulness of contrast roentgenograms in acute SBO.	Information useful in management was gained from 68% of contrast tracers and 75% of contrast enemas.	3
10. Maglinte D, Herlinger H, Turner W, Kelvin F. Radiologic management of small bowel obstruction: a practical approach. <i>Emerg Radiol</i> 1994; 1994(1):138-149.	12	N/A	Review radiographs, contrast studies, and cross-sectional imaging for SBO. Roles of enteroclysis and CT are discussed.	Begin with radiographs; decision as to enteroclysis vs CT depends on clinical factors.	4
11. Erickson AS, Krasna MJ, Mast BA, Noshier JL, Brolin RE. Use of gastrointestinal contrast studies in obstruction of the small and large bowel. <i>Dis Colon Rectum</i> 1990; 33(1):56-64.	9	96 (57 upper GI and 39 barium- enema exams)	To assess usefulness of GI studies in the diagnosis and treatment of patients with bowel obstruction.	Barium enema demonstrated obstruction in 13 (33%) of 39 cases of suspected SBO and localized obstruction in the colon rather than small bowel in 9/13 cases. Barium enema was 100% predictive of surgery when obstruction was shown, but was not helpful in predicting surgery when obstruction was not demonstrated.	2
12. Anderson CA, Humphrey WT. Contrast radiography in small bowel obstruction: a prospective, randomized trial. <i>Mil Med</i> 1997; 162(11):749-752.	8	64	Prospective randomized trial comparing immediate oral barium contrast studies with abdominal radiographs in patients presenting with signs and symptoms of SBO.	Barium contrast studies: sensitivity 100% for diagnosing complete obstruction. Radiographs: sensitivity 82%.	2
13. Caroline DF, Herlinger H, Laufer I, Kressel HY, Levine MS. Small-bowel enema in the diagnosis of adhesive obstructions. <i>AJR</i> 1984; 142(6):1133-1139.	10	60	To determine the role of small-bowel enema as an alternative technique in diagnosing adhesive obstruction.	Radiographic diagnosis of adhesive obstruction was correct in 36 (87.8%) of 41 patients in whom a surgical diagnosis could subsequently be made, but an incorrect radiologic diagnosis of obstruction by metastases was made in 5 patients.	2
14. Maglinte DD, Burney BT, Miller RE. Lesions missed on small-bowel follow-through: analysis and recommendations. <i>Radiology</i> 1982; 144(4):737-739.	15	42 small bowel lesions	To analyze potential sources of error accounting for missed pathology on small-bowel follow-through.	In 71%, lesion could not be seen on small-bowel follow-through in retrospect. Blamed insufficient monitoring of study.	3
15. 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 2 reviewers	To prospectively evaluate MDCT enteroclysis for the depiction of small bowel disease.	MDCT enteroclysis had sensitivity of 100%, specificity 95%, accuracy 97%, PPV 94%, and NPV 100%. MDCT enteroclysis allows depiction of small-bowel diseases.	2
16. Maglinte DD, Gage SN, Harmon BH, et al. Obstruction of the small intestine: accuracy and role of CT in diagnosis. <i>Radiology</i> 1993; 188(1):61-64.	10	55	Blinded, retrospective analysis to assess reliability of CT for diagnosing varying degrees of SBO (enteroclysis as gold standard).	CT overall accuracy 63% (81% high grade SBO, 48% low grade SBO).	2

**Suspected Small Bowel Obstruction
EVIDENCE TABLE**

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Strength of Evidence
17. Makanjuola D. Computed tomography compared with small bowel enema in clinically equivocal intestinal obstruction. <i>Clin Radiol</i> 1998; 53(3):203-208.	9	49	Compare the findings in CT and small bowel enema in clinically equivocal SBO.	CT: sensitivity 83%, specificity 67%, PPV 94%, NPV 36%. CT superior for detection of the cause of SBO and also for the presence of strangulation.	2
18. Roediger WE, Marshall VC, Roberts S. Value of small bowel enema in incomplete intestinal obstruction. <i>Aust N Z J Surg</i> 1982; 52(5):507-509.	13	11	To assess usefulness of small bowel enema in patients with suspected partial SBO.	Good delineation of level of obstruction in six patients. No obstruction demonstrated in four patients.	3
19. Bhisitkul DM, Listernick R, Shkolnik A, et al. Clinical application of ultrasonography in the diagnosis of intussusception. <i>J Pediatr</i> 1992; 121(2):182-186.	10	65 consecutive patients	Prospective study to determine clinical application of US in the diagnosis of intussusception.	US was 100% sensitive, 93% specific. US can be used as a rapid, sensitive screening procedure in the diagnosis or exclusion of childhood intussusception.	2
20. Assalia A, Schein M, Kopelman D, Hirshberg A, Hashmonai M. Therapeutic effect of oral Gastrografin in adhesive, partial small-bowel obstruction: a prospective randomized trial. <i>Surgery</i> 1994; 115(4):433-437.	1	99 patients 48 conventional 59 with Gastrografin	Prospective randomized trial to examine the therapeutic effect of oral Gastrografin in adhesive, partial SBO.	10 obstructive episodes (21%) in the control group required operative treatment compared with 6 (10%) in the trial group (P=0.12). Mean hospital stay for the patients who responded to conservative treatment was 4.4 days and 2.2 days in the control and trial groups, respectively (P<0.00001). Orally administered Gastrografin is safe and has a therapeutic role in adhesive, partial SBO.	1
21. Chung CC, Meng WC, Yu SC, Leung KL, Lau WY, Li AK. A prospective study on the use of water-soluble contrast follow-through radiology in the management of small bowel obstruction. <i>Aust N Z J Surg</i> 1996; 66(9):598-601.	13	51	Prospective study to determine the value of water-soluble contrast follow-through radiology in predicting the outcome in patients with SBO.	Significantly more patients who had 'significant obstruction' on contrast radiology required surgery to relieve the intestinal obstruction (17/19), than those who had 'insignificant obstruction' (1/32; Fisher's exact test, P<0.0001).	2
22. Joyce WP, Delaney PV, Gorey TF, Fitzpatrick JM. The value of water-soluble contrast radiology in the management of acute small bowel obstruction. <i>Ann R Coll Surg Engl</i> 1992; 74(6):422-425.	13	127 consecutive patients	Prospective study to assess the value of water-soluble contrast radiology as a diagnostic tool and its ability to aid surgical decision making in patients with acute SBO.	Radiological findings: 15 patients (11.8%) underwent surgery and all had established SBO at laparotomy. Water-soluble contrast radiology is safe, easy to use and interpret, and is a major benefit in differentiating mechanical from other causes of SBO.	2
23. Stordahl A. Water-soluble contrast media in obstructed in ischemic small intestine. A clinical and experimental study. <i>J Oslo City Hosp</i> 1989; 39(1-2):3-22.	13	25	Possible application of the new low-osmolar water-soluble contrast media in already existing routines for radiologic diagnostic workup and management of the abdominal emergencies.	The water-soluble, low-osmolar contrast media seem promising as a diagnostic aid in bowel ischemia and the evaluation of the degree of ischemic injury.	3

**Suspected Small Bowel Obstruction
EVIDENCE TABLE**

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Strength of Evidence
24. Assalia A, Schein M, Hashmonai M. Barium contrast study converts partial small-bowel obstruction into a complete one. Report of 2 cases. <i>S Afr J Surg</i> 1993; 31(3):102-103.	14	2	Case report on use of barium contrast study in suspected intestinal obstruction.	Use of barium in 2 patients with SBO converted their partial obstruction into a complete one. Use of water-soluble agents may be safer.	4
25. Fevang BT, Jensen D, Fevang J, et al. Upper gastrointestinal contrast study in the management of small bowel obstruction--a prospective randomised study. <i>Eur J Surg</i> 2000; 166(1):39-43.	8	98 consecutive patients	Prospective randomized trial to determine whether contrast radiography helps to resolve SBO. Patients randomized to receive either barium or Gastrografin.	No difference in incidence of nonoperative resolution, strangulated obstruction, bowel resection, complications, mortality, or length of hospital stay. Contrast examination did not contribute to the resolution of SBO.	1
26. Megibow AJ, Balthazar EJ, Cho KC, Medwid SW, Birnbaum BA, Noz ME. Bowel obstruction: evaluation with CT. <i>Radiology</i> 1991; 180(2):313-318.	10	84 (64 intestinal obstruction)	Retrospective study to assess CT in diagnosing and characterizing bowel obstruction.	CT had sensitivity of 94%, specificity 96%, and accuracy 95%. Cause of obstruction was correctly predicted in 47 64 cases (73%). CT useful in patients with a history of abdominal malignancy and patients who have not been operated on and who have signs of infection, bowel infarction, or a palpable abdominal mass.	2
27. Gazelle GS, Goldberg MA, Wittenberg J, Halpern EF, Pinkney L, Mueller PR. Efficacy of CT in distinguishing small-bowel obstruction from other causes of small-bowel dilatation. <i>AJR</i> 1994; 162(1):43-47.	10	75 patients (27 obstruction 16 other surgical diagnosis, and 32 no surgery)	Retrospective review to evaluate efficacy of CT in distinguishing SBO from other causes of small-bowel dilatation.	<ul style="list-style-type: none"> • Observer A: correct in 89%, 88%, and 72% of cases in the obstruction, other surgical diagnosis, and no surgery groups, respectively. • Observer B: correct in 78%, 81%, and 69% of cases in the obstruction, other surgical diagnosis, and no surgery groups, respectively. • CT can be useful for evaluating small-bowel dilatation and can aid both the diagnosis of SBO and its differentiation from other conditions resulting in small-bowel dilatation. 	2
28. Jaffe TA, Martin LC, Thomas J, Adamson AR, DeLong DM, Paulson EK. Small-bowel obstruction: coronal reformations from isotropic voxels at 16-section multi-detector row CT. <i>Radiology</i> 2006; 238(1):135-142.	10	100 consecutive patients 3 blinded reviewers	To retrospectively assess the added value of coronal reformations using 16-section MDCT for the diagnosis of SBO.	Mean sensitivity and specificity of CT scout alone, transverse CT alone, and transverse plus coronal CT for the diagnosis of SBO were 88% and 86%, 87% and 87%, and 87% and 90%, respectively. Coronal reformations add confidence to the diagnosis and exclusion of SBO.	2

**Suspected Small Bowel Obstruction
EVIDENCE TABLE**

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Strength of Evidence
29. Balthazar EJ, Liebeskind ME, Macari M. Intestinal ischemia in patients in whom small bowel obstruction is suspected: evaluation of accuracy, limitations, and clinical implications of CT in diagnosis. <i>Radiology</i> 1997; 205(2):519-522.	10	100 consecutive patients	Prospective stud to determine the accuracy of CT in the diagnosis of intestinal ischemia in patients with possible SBO.	CT had sensitivity 83%, specificity 93%, accuracy 91%, PPV 79%, NPV 95%. CT helps in the accurate detection of bowel ischemia, especially when SBO is present.	1
30. Donckier V, Closset J, Van Gansbeke D, et al. Contribution of computed tomography to decision making in the management of adhesive small bowel obstruction. <i>Br J Surg</i> 1998; 85(8):1071-1074.	13	54	Prospective study to evaluate the contribution of CT to decision making in the management of adhesive SBO.	CT is useful for the evaluation of adhesive SBO to detect accurately patients with complications who require urgent operation and to determine the location of the adhesion.	2
31. Frager D, Baer JW, Medwid SW, Rothpearl A, Bossart P. Detection of intestinal ischemia in patients with acute small-bowel obstruction due to adhesions or hernia: efficacy of CT. <i>AJR</i> 1996; 166(1):67-71.	10	60	To determine whether CT can be used to diagnose ischemia of the small intestine in patients with SBO due to adhesions or hernia. Prospective determination was made based on the CT as to whether there was any associated intestinal ischemia.	Ischemia was prospectively diagnosed on the basis of CT findings in 68%of the patients. Sensitivity 100%, specificity 61%.	2
32. Ha HK, Kim JS, Lee MS, et al. Differentiation of simple and strangulated small-bowel obstructions: usefulness of known CT criteria. <i>Radiology</i> 1997; 204(2):507-512.	10	84	Retrospective review to evaluate the usefulness of known CT criteria for the differentiation of simple and strangulated SBO.	CT findings that enabled the detection of strangulated obstructions were poor or no enhancement of bowel wall (sensitivity 34%, specificity 100%) and a serrated beak (sensitivity 32%, specificity 100%).	2
33. Zalcmn M, Sy M, Donckier V, Closset J, Gansbeke DV. Helical CT signs in the diagnosis of intestinal ischemia in small-bowel obstruction. <i>AJR</i> 2000; 175(6):1601-1607.	10	144 exams in 142 patients	To prospectively determine the value of helical CT in detecting signs of ischemia complicating SBO.	CT had sensitivity of 96%, specificity 93%, NPV 99%. Reduced enhancement of the bowel wall had a sensitivity of 48% and specificity of 100%, mural thickening had a sensitivity of 38% and specificity of 78%, mesenteric fluid had a sensitivity of 88% and specificity of 90%, congestion of mesenteric veins had a sensitivity of 58% and specificity of 79%, and ascites had a sensitivity of 75% and specificity of 76%.	1

**Suspected Small Bowel Obstruction
EVIDENCE TABLE**

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Strength of Evidence
34. Sheedy SP, Earnest Ft, Fletcher JG, Fidler JL, Hoskin TL. CT of small-bowel ischemia associated with obstruction in emergency department patients: diagnostic performance evaluation. <i>Radiology</i> 2006; 241(3):729-736.	10	60 patients 2 reviewers	Retrospective study to evaluate the diagnostic performance of CT for detection of ischemic complications of SBO in emergency department patients and compare prospective interpretation with retrospective interpretation using surgical or pathologic findings as the reference standard.	Sensitivity and specificity for the diagnosis of ischemia were, respectively, 14.8% and 94.1% for prospective interpretations, 29.6% and 91.2% for reader 1, 40.7% and 85.3% for reader 2, and 51.9% and 88.2% for the consensus review. Decreased segmental enhancement was the most specific sign for small-bowel ischemia. Diagnostic performance assessment of CT for diagnosis of ischemic complication of SBO revealed poor prospective interpretation sensitivity.	2
35. Kim JH, Ha HK, Kim JK, et al. Usefulness of known computed tomography and clinical criteria for diagnosing strangulation in small-bowel obstruction: analysis of true and false interpretation groups in computed tomography. <i>World J Surg</i> 2004; 28(1):63-68.	10	136 patients 3 reviewers	Analysis of CT scans to evaluate the use of clinical criteria in the interpretation of CT scans as a means of improving diagnostic accuracy of CT in strangulated obstruction.	Diagnostic accuracy of CT criteria for distinguishing simple obstructions from strangulated SBO was 73%-80%. The use of clinical criteria when CT findings are equivocal, may overcome the inherent limitations of CT for diagnosing strangulated obstruction.	2
36. Czechowski J. Conventional radiography and ultrasonography in the diagnosis of small bowel obstruction and strangulation. <i>Acta Radiol</i> 1996; 37(2):186-189.	9	96	Patients with clinically acute abdomen were examined by abdominal radiography and US during a period of one year.	<ul style="list-style-type: none"> • Nineteen cases of mechanical obstruction were observed. • Strangulation: positive findings for US 91%, positive findings for radiography 30%. • Simple obstruction: 89% for US; 78% for radiography. 	2
37. Schmutz GR, Benko A, Fournier L, Peron JM, Morel E, Chiche L. Small bowel obstruction: role and contribution of sonography. <i>Eur Radiol</i> 1997; 7(7):1054-1058.	10	123	Prospective study to determine whether US provides additional clinical information in patients suspected of SBO.	Specificity 82.1%, sensitivity 95%, accuracy 91.7% when the 'gassy' patients were excluded: 81.3 % overall.	2
38. 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	Comparative study to evaluate two biphasic CT enterography protocols, a noninvasive CT technique with water administered perorally and CT-E with methylcellulose administered through a nasojejunal tube.	Accuracy: <ul style="list-style-type: none"> • Noninvasive peroral water CT enterography protocol 80%. • CT-E 88%. • Fluoroscopic small bowel examination 74%. Noninvasive peroral portal venous phase CT enterography with water is an accurate and feasible technique for detecting active small bowel inflammation in patients with Crohn disease.	3

**Suspected Small Bowel Obstruction
EVIDENCE TABLE**

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Strength of Evidence
39. Pracros JP, Sann L, Genin G, et al. Ultrasound diagnosis of midgut volvulus: the "whirlpool" sign. <i>Pediatr Radiol</i> 1992; 22(1):18-20.	10	24	Present US findings in patients with proved complicated midgut malrotation: volvulus in 18 and occlusive Ladd's bands in 6. All 24 patients have had US prior to surgery.	The sonographic "whirlpool" pattern of the superior mesenteric vein and mesentery around the superior mesenteric artery was detected in 15/18 patients with midgut volvulus, and was best seen using Doppler color.	3
40. Ikeda H, Matsuyama S, Suzuki N, Takahashi A, Kuroiwa M, Hatakeyama S. Small bowel obstruction in children: review of 10 years experience. <i>Acta Paediatr Jpn</i> 1993; 35(6):504-507.	13	32	Review of cause of post-neonate SBO, and methods of detection.	Intussusception (most frequent cause of obstruction) was seen in 17 patients (53.1%). Causative lesions were identified in 5 patients, (4 ileal duplication cysts in four and one Meckel's diverticulum). Incarcerated inguinal hernia and mesenteric cysts resulted in bowel obstruction in 6 and 3 patients, respectively. US was useful in differential diagnosis.	3
41. Suri S, Gupta S, Sudhakar PJ, Venkataramu NK, Sood B, Wig JD. Comparative evaluation of plain films, ultrasound and CT in the diagnosis of intestinal obstruction. <i>Acta Radiol</i> 1999; 40(4):422-428.	9	32	Prospective study to compare value of radiographs, US, and CT in the evaluation of intestinal obstruction.	<ul style="list-style-type: none"> • CT had sensitivity of 93%, specificity 100% and accuracy 94%. • US had sensitivity of 83%, specificity 100% and accuracy 84%. • Radiography had sensitivity 77%, specificity 50% and accuracy 75%. • CT is very accurate and recommended when clinical or radiographic findings are equivocal. 	2
42. Chou CK, Liu GC, Chen LT, Jaw TS. The use of MRI in bowel obstruction. <i>Abdom Imaging</i> 1993; 18(2):131-135.	14	9	To examine use of MRI (plus rectal air insufflation) to assess level and cause of bowel obstruction.	In four cases of distal SBO, transition zone could be identified.	4
43. Lee JK, Marcos HB, Semelka RC. MR imaging of the small bowel using the HASTE sequence. <i>AJR</i> 1998; 170(6):1457-1463.	13	50 (no small-bowel disease) 18 (with small-bowel disease)	Retrospective study to establish the normal MRI appearance of small bowel on half-Fourier acquisition single-shot turbo spin-echo (HASTE) sequence and to determine the ability of HASTE to reveal small-bowel disease.	The normal and abnormal small bowel can be assessed using the HASTE sequence.	3

**Suspected Small Bowel Obstruction
EVIDENCE TABLE**

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Strength of Evidence
44. Matsuoka H, Takahara T, Masaki T, Sugiyama M, Hachiya J, Atomi Y. Preoperative evaluation by magnetic resonance imaging in patients with bowel obstruction. <i>Am J Surg</i> 2002; 183(6):614-617.	9	27	To compare the ability of radiographs, CT and MRI in the preoperative diagnosis of SBO.	<ul style="list-style-type: none"> • Site and cause of obstruction was accurately diagnosed in 22 (81.5%) of 27 patients by abdominal radiographs, in 24 (92.3%) of 26 patients by CT, and in 25 (92.6%) of 27 by MRI. • Sites of obstruction were consistent with surgical findings in 25 (92.6%) of 27 patients by MRI, and in 15 (57.7%) of 26 patients by CT. • Causes of bowel obstruction were accurately diagnosed by MRI in 25 (92.6%) of 27 patients, and in 23 (88.5%) of 26 patients by CT scan. • MRI could identify the presence and the site and cause of bowel obstruction in most of the cases. MRI is assumed to be superior to CT scan in the preoperative diagnosis of bowel obstruction. 	3
45. Regan F, Beall DP, Bohlman ME, Khazan R, Sufi A, Schaefer DC. Fast MR imaging and the detection of small-bowel obstruction. <i>AJR</i> 1998; 170(6):1465-1469.	10	43	Retrospective study to determine whether fast MRI using the HASTE MRI sequence is accurate for diagnosis of SBO.	HASTE MRI showed the correct level of obstruction in 73% of patients and showed the cause of obstruction in 50% of patients.	3
46. 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.