Infertility
EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
1. Practice Committee of the American Society for Reproductive Medicine. Definitions of infertility and recurrent pregnancy loss. *Fertil Steril.* 2008; 90(5 Suppl):S60.	Review/Other-Dx	N/A	To provide definitions of infertility and recurrent pregnancy loss as established by the American Society for Reproductive Medicine.	No results stated in abstract.	4
2. Thoma ME, McLain AC, Louis JF, et al. Prevalence of infertility in the United States as estimated by the current duration approach and a traditional constructed approach. *Fertil Steril.* 2013; 99(5):1324-1331 e1321.	Review/Other-Dx	7,643 participants	To estimate the prevalence of infertility using a current duration approach for comparison with a traditional constructed measure.	Infertility prevalence was approximately twofold higher using the current duration approach (15.5%; 95% CI, 8.6%–27.5%) vs the constructed measure (7.0%; 95% CI, 6.2%–7.8%). Both methods identified similar patterns of increasing age, lower education, nulliparity, and history of gynecologic disorders as being associated with measures of impaired fecundity, whereas opposing patterns were seen for racial/ethnic identification and poverty status.	4
3. Slama R, Ducot B, Carstensen L, et al. Feasibility of the current-duration approach to studying human fecundity. *Epidemiology.* 2006;17(4):440-449.	Review/Other-Dx	1,204 women	To illustrate the feasibility of the current-duration design by a random sample of French women currently having unprotected sexual intercourse.	The current duration since the beginning of unprotected intercourse was defined for 69 women (5.7%). An additional 15 women (1.2%) were planning to start trying to become pregnant within the next 6 months. Parametric methods allowed, based on current duration of unprotected intercourse, estimation of fecundity as if the couples had been followed prospectively. The estimated proportion of couples not pregnant after 12 months of unprotected intercourse was 34% (95% CI = 15%–54%). The accelerated-failure time model allows study of the influence of environmental factors on fecundity. As an illustration, tobacco smoking by the woman was associated with a doubling in the median duration of unprotected intercourse before pregnancy (adjusted time ratio = 2.4; 95% CI = 1.1–5.2).	4

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
4. Hull MG, Glazener CM, Kelly NJ, et al. Population study of causes, treatment, and outcome of infertility. *Br Med J (Clin Res Ed).* 1985; 291(6510):1693-1697.	Review/Other-Dx	708 patients	To study the incidence and range of causes of infertility in a representative British population, at least among those reaching specialist clinics; the estimated need for treatment; and its success.	Failure of ovulation (amenorrhea or oligomenorrhoea) occurred in 21% of cases and was successfully treated (2 year conception rates of 96% and 78%). Tubal damage (14%) had a poor outlook (19%) despite surgery. Endometriosis accounted for infertility in 6%, although seldom because of tubal damage, cervical mucus defects or dysfunction in 3%, and coital failure in up to 6%. Sperm defects or dysfunction were the commonest defined cause of infertility (24%) and led to a poor chance of pregnancy (0%–27%) without donor insemination. Obstructive azoospermia or primary spermatogenic failure was uncommon (2%) and hormonal causes of male infertility rare. Infertility was unexplained in 28% and the chance of pregnancy (overall 72%) was mainly determined by duration of infertility. In vitro fertilization could benefit 80% of cases of tubal damage and 25% of unexplained infertility-that is, 18% of all cases, representing up to 216 new cases each year per million of the total population.	4
5. Healy DL, Trounson AO, Andersen AN. Female infertility: causes and treatment. *Lancet.* 1994; 343(8912):1539-1544.	Review/Other-Dx	N/A	To review the causes and treatment of female infertility.	No results stated in abstract.	4
6. Diagnostic evaluation of the infertile female: a committee opinion. *Fertil Steril.* 2012; 98(2):302-307.	Review/Other-Dx	N/A	To provide methods and procedures for the evaluation of the infertile female and it replaces the 2006 ASRM Practice Committee document titled “Optimal evaluation of the infertile female.”	No results stated in abstract.	4

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
7. Baramki TA. Hysterosalpingography. *Fertil Steril.* 2005; 83(6):1595-1606.	Review/Other-Dx	N/A	To demonstrate the value of the HSG in the evaluation of infertility.	HSG, which should be done in the follicular phase of the cycle, evaluates the contour of the uterine cavity, cervical canal, and tubal lumina. Other than being diagnostic, it can prove to be therapeutic. The instrument used to introduce the radio-opaque medium should be chosen to give the least discomfort and to cause no leakage of dye from the cervix. Water-soluble medium is usually used rather than an oil-based medium. Fluoroscopy with image intensification gives the best results. Insufficient dye injection will give an incomplete study. Too much dye injection, especially under pressure, might cause extravasation of the dye into the vascular system or conceal the fimbrial ends of the tubes.	4
8. Simpson WL, Jr., Beitia LG, Mester J. Hysterosalpingography: a reemerging study. *Radiographics.* 2006; 26(2):419-431.	Review/Other-Dx	N/A	To review the imaging technique and possible complications of HSG. We also discuss and illustrate a variety of abnormalities of the uterus and fallopian tubes that can be assessed with HSG.	HSG is a valuable tool in the evaluation of the uterus and fallopian tubes. Radiologists should become familiar with HSG technique, the interpretation of HSG images, and possible complications of this procedure.	4
9. Van Eyk N, van Schalkwyk J. Antibiotic prophylaxis in gynaecologic procedures. *J Obstet Gynaecol Can.* 2012;34(4):382-391.	Review/Other-Dx	N/A	To review the evidence and provide recommendations on antibiotic prophylaxis for gynecologic procedures.	For a number of procedures in gynecology, the use of prophylactic antibiotics has been shown to reduce infectious morbidity in a safe and cost-effective manner. There remain a number of procedures for which the utility of prophylactic antibiotics is either unclear or not studied. Appropriate antibiotics used at the correct dose and time and with the appropriate frequency will reduce infectious postoperative complications and minimize the development of antibiotic resistant organisms.	4

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
10. Langer JE, Oliver ER, Lev-Toaff AS, Coleman BG. Imaging of the female pelvis through the life cycle. *Radiographics.* 2012; 32(6):1575-1597.	Review/Other-Dx	N/A	To review the imaging of the female pelvis through the life span.	The appearance of the normal reproductive tract on radiologic images changes dramatically over the female patient's life span, reflecting the influence of hormones on these organs. In female children and adolescents, the appearance of the reproductive tract reflects the stage of sexual maturation. In women of reproductive age, physiologic changes such as those occurring in the corpus luteum are routinely imaged and must be distinguished from pathologic conditions. In the postmenopausal years, as reproductive hormone levels diminish, the endometrium and ovaries undergo progressive involution. Imaging findings that might be considered physiologic in younger women may represent pathologic or even neoplastic changes in postmenopausal women. Although postpartum imaging is typically performed in symptomatic patients, including those with greater than expected vaginal bleeding, suspected obstetric trauma, thromboembolic disease, or infectious complications, clinicians who interpret these radiologic results should be familiar with expected findings in asymptomatic patients after childbirth. Familiarity with the spectrum of US, CT, and MRI appearances of the normal female reproductive tract from birth through the postmenopausal years will ultimately help clinicians avoid misinterpreting these normal physiologic changes as pathologic conditions.	4

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
11. de Crespigny LC, O'Herlihy C, Robinson HP. Ultrasonic observation of the mechanism of human ovulation. *Am J Obstet Gynecol.* 1981; 139(6):636-639.	Review/Other-Dx	9 patients	To determine the precise time of ovulation and to document follicular changes immediately prior to, during, and after rupture.	There were no demonstrable changes in the size of appearance of the follicle over a period of up to 7 hours prior to its rupture. In one of the four subjects in whom follicular collapse was witnessed, the follicle emptied completely within less than 1 minute. In two of the other three subjects, there was an initial rapid loss of fluid followed by a flower release of the remaining contents. This latter process took 7 minutes in the first patient and 35 minutes in the second patient. The slow phase of follicular collapse may well be an important aspect in the release of the ovum. The corpus hemorrhagicum was seen to develop within 1 hour of ovulation.	4
12. Hendriks DJ, Mol BW, Bancsi LF, Te Velde ER, Broekmans FJ. Antral follicle count in the prediction of poor ovarian response and pregnancy after in vitro fertilization: a meta-analysis and comparison with basal follicle-stimulating hormone level. *Fertil Steril.* 2005; 83(2):291-301.	Review/Other-Dx	11 studies on antral follicle count and an updated total of 32 studies on basal follicle-stimulating hormone	To assess the predictive performance of the antral follicle count as a test for ovarian reserve in in vitro fertilization patients and to compare this performance with that of basal follicle-stimulating hormone level.	The estimated summary ROC curves showed antral follicle count to perform well in the prediction of poor ovarian response. Also, prediction of poor ovarian response seemed to be more accurate with antral follicle count compared with basal follicle-stimulating hormone. The estimated summary ROC curves for the prediction of nonpregnancy indicated a poor performance for both antral follicle count and basal follicle-stimulating hormone.	4
13. Balen AH, Laven JS, Tan SL, Dewailly D. Ultrasound assessment of the polycystic ovary: international consensus definitions. *Hum Reprod Update.* 2003; 9(6):505-514.	Review/Other-Dx	N/A	To outline evidence for the current US definition of the polycystic ovary and technical specifications.	No results stated in abstract.	4
14. Friedman H, Vogelzang RL, Mendelson EB, Neiman HL, Cohen M. Endometriosis detection by US with laparoscopic correlation. *Radiology.* 1985; 157(1):217-220.	Review/Other-Dx	85 patients	To determine the usefulness of the routine pelvic US examination in the detection of endometriosis by correlating pelvic US findings with laparoscopic findings in 85 patients who underwent both examinations.	48 patients (56.5%) had no laparoscopic evidence of endometriosis, and 37 patients (43.6%) had endometriosis. 8 of the patients had abnormal sonograms; of these patients, only 4 had sonographic abnormalities that corresponded to laparoscopically identified endometriosis. Thus, US was successful in detecting endometriosis in only 4 (10.8%) of 37 patients. US is neither sensitive nor specific in diagnosing endometriosis.	4
15. O'Neill MJ. Sonohysterography. *Radiol Clin North Am.* 2003; 41(4):781-797.	Review/Other-Dx	N/A	To review the technique, indications, and diagnostic findings during SHG.	No results stated in abstract.	4

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
16. Bega G, Lev-Toaff AS, O'Kane P, Becker E, Jr., Kurtz AB. Three-dimensional ultrasonography in gynecology: technical aspects and clinical applications. *J Ultrasound Med.* 2003; 22(11):1249-1269.	Review/Other-Dx	N/A	To review the technical aspects and clinical applications of 3-D US in gynecologic imaging.	Numerous applications of 3-D US have been reported, including imaging of the uterus, the endometrial cavity, adnexa, and the pelvic floor and color and power Doppler applications. The accuracy of volume calculations and the networking opportunities with 3-D US have also been reported. Technical problems and limitations of this technique are summarized.	4
17. Bermejo C, Martinez Ten P, Cantarero R, et al. Three-dimensional ultrasound in the diagnosis of Mullerian duct anomalies and concordance with magnetic resonance imaging. *Ultrasound Obstet Gynecol.* 2010; 35(5):593-601.	Observational-Dx	286 women	To demonstrate the value of 3-D US in the diagnosis of uterine malformations and its concordance with MRI.	Using 3-D US we diagnosed: 1 case with uterine agenesis; 10 with unicornuate uterus, 4 of which also underwent MRI; 6 with didelphic uterus, 1 of which had MRI; 45 with bicornuate uterus, 12 of which had MRI; 125 with septate uterus (18 with 2 cervices), 42 of which had MRI (6 with 2 cervices); 96 with arcuate uterus, 3 of which had MRI; and 3 with diethylstilbestrol iatrogenic uterine malformations, all of which had MRI. Among the 65 which underwent MRI, the diagnosis was: 4 cases with unicornuate uterus, 10 with bicornuate uterus (2 with 2 cervices), 45 with septate uterus (5 with 2 cervices), 3 with arcuate uterus and 3 with diethylstilbestrol-related uterine malformations. The concordance between 3-D US and MRI was very good (kappa index, 0.880 (95% CI, 0.769–0.993)). Discrepancies in diagnosis between the 2 techniques occurred in 4 cases. There was very good concordance in the diagnosis of associated findings (kappa index, 0.878 (95% CI, 0.775–0.980)), this analysis identifying differences in 2 cases.	3
18. Bocca SM, Abuhamad AZ. Use of 3-dimensional sonography to assess uterine anomalies. *J Ultrasound Med.* 2013; 32(1):1-6.	Review/Other-Dx	N/A	To assess the use of 3-D US to determine uterine anomalies.	3-D US is a simple, quick, and noninvasive technique for detecting and diagnosing uterine anomalies without the use of ionizing radiation or the iodine contrast agents needed for HSG, as well for differentiating intracavitary, submucosal, intramural, and subserosal abnormalities. It appears to be at least as accurate as MRI in the diagnosis of uterine anomalies with less expense and more tolerability.	4

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Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
19. El-Sherbiny W, Nasr AS. Value of 3-dimensional sonohysterography in infertility work-up. *J Minim Invasive Gynecol.* 2011; 18(1):54-58.	Observational-Dx	180 women	To compare the diagnostic value of 2-D and 3-D SHG and outpatient hysteroscopy in detecting intrauterine lesions in infertile women.	Sensitivity, specificity, PPV, NPV, and accuracy of 2-D-SHG and 3-D-SHG were compared with outpatient hysteroscopy in detecting intrauterine lesions. For 2-D-SHG, sensitivity was 0.70 (95% CI, 0.49–0.85), specificity was 1.0 (95% CI, 0.96–1.0), PPV was 1.0 (95% CI, 0.79–1.0), NPV was 0.95 (95% CI, 0.9–0.97), and accuracy was 95.5%. For 3-D-SHG, sensitivity was 0.92 (95% CI, 0.74–0.98), specificity was 1.0 (95% CI, 0.97–1.0), PPV was 1.0 (05% CI, 0.83–1.0), NPV was 0.98 (95% CI, 0.95–0.99), and accuracy was 98.8%. For outpatient hysteroscopy, sensitivity was 1.0 (95% CI, 0.85–1.0), specificity was 1.0 (95% CI, 0.97–1.0), PPV was 1.0 (95% CI, 0.84–1.0), NPV was 1.0 (0.97–1.0), and accuracy was 100%. Thus, 3-D-SHG is comparable to outpatient hysteroscopy in diagnosing intrauterine lesions (P=.23), and both are superior to 2-D-SHG (P<0.001).	3
20. Ludwin A, Pitynski K, Ludwin I, Banas T, Knafel A. Two- and three-dimensional ultrasonography and sonohysterography versus hysteroscopy with laparoscopy in the differential diagnosis of septate, bicornuate, and arcuate uteri. *J Minim Invasive Gynecol.* 2013; 20(1):90-99.	Observational-Dx	117 women	To estimate the diagnostic accuracy and to compare the diagnostic value of 3-D-SHG, 3-D-TVS, 2-D-SHG, and 2-D-TVS (initial and expert diagnosis) in the differential diagnosis of septate, bicornuate, and arcuate uteri.	Hysteroscopy performed in conjunction with laparoscopy detected 23 arcuate, 60 septate, 22 bicornuate, and 12 normal uteri. 3-D-SHG showed perfect diagnostic accuracy (100.0%) in general detection of uterine abnormalities, compared with initial 2-D-TVS (77.8%), expert 2-D-TVS (90.6%), 2-D-SHG (94.0%), and 3-D-TVS (97.4%). In the overall diagnosis of uterine anomalies, all of the diagnostic methods had statistically significantly better diagnostic value than initial 2-D-TVS (P<.001), whereas 3-D-SHG was the only method that was better than expert 2-D-TVS (P<.001).	3

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Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
21. Schlief R, Deichert U. Hysterosalpingo-contrast sonography of the uterus and fallopian tubes: results of a clinical trial of a new contrast medium in 120 patients. *Radiology.* 1991; 178(1):213-215.	Observational-Dx	120 patients	To determine the feasibility, diagnostic efficacy, and patient tolerance of a new diagnostic modality, hysterosalpingo-contrast sonography.	All patent tubes were diagnosed correctly with hysterosalpingo-contrast sonography, results comparing well with findings at HSG or laparoscopy. With B-mode scanning only, sensitivity was 88% for the right tube and 90% for the left; specificity was 100% for each tube. The supplementary use of Doppler techniques (duplex, color Doppler) provided additional information in special cases of suspected tubal occlusion and led to an improvement in diagnostic accuracy.	3
22. Saunders RD, Shwayder JM, Nakajima ST. Current methods of tubal patency assessment. *Fertil Steril.* 2011; 95(7):2171-2179.	Review/Other-Dx	N/A	To evaluate the scientific literature on current methods of uterine cavity and tubal patency assessment.	Current pelvic imaging subfertility investigations are compared with the gold standard laparoscopy. The technical aspects, associated risks, potential advantages, and weighted utility of each screening study are discussed. A comprehensive analysis of the clinical evidence regarding the safety, tolerance, and accuracy of hysterosalpingo-contrast sonography compared with alternative screening studies and/or laparoscopy is reviewed.	4
23. Behr SC, Courtier JL, Qayyum A. Imaging of mullerian duct anomalies. *Radiographics.* 2012; 32(6):E233-250.	Review/Other-Dx	N/A	To describe the embryology, prevalence, and classification of MDAs and imaging techniques for their evaluation with emphasis on imaging findings that allow differentiation between MDA subtypes.	No results stated in abstract.	4
24. Marcal L, Nothaft MA, Coelho F, Volpato R, Iyer R. Mullerian duct anomalies: MR imaging. *Abdom Imaging.* 2011; 36(6):756-764.	Review/Other-Dx	N/A	A pictorial essay to show the value of MRI in the diagnosis of MDA and to review the key imaging features of anomalies of formation and fusion, emphasizing the relevance of accurate diagnosis before therapeutic intervention.	No results stated in abstract.	4

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Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
25. Mueller GC, Hussain HK, Smith YR, et al. Mullerian duct anomalies: comparison of MRI diagnosis and clinical diagnosis. *AJR Am J Roentgenol.* 2007; 189(6):1294-1302.	Observational-Dx	103 patients	To assess agreement between MRI and clinical diagnosis of MDA and identify causes of discrepancy.	There was excellent agreement (kappa = 0.8) between MRI and clinical diagnoses of MDA. For evaluation of the uterus, there was agreement in 83/103 patients, disagreement in 15/103, and agreement could not be determined in 5/103 because of uncertain MRI diagnoses. The main causes of disagreement were MRI diagnosis of septate uteri with 2 cervices clinically diagnosed as didelphic, partial septate uteri clinically diagnosed as arcuate, and complex anomalies with features of more than one class. The main difficulties for MRI were the detection of small uteri or remnants, characterization of cervical dysgenesis and rare anomalies, overestimation of cervical mucosal folds, characterization of anomalies in the presence of fibroids, and delineation of vaginal abnormalities.	4
26. Pellerito JS, McCarthy SM, Doyle MB, Glickman MG, DeCherney AH. Diagnosis of uterine anomalies: relative accuracy of MR imaging, endovaginal sonography, and hysterosalpingography. *Radiology.* 1992; 183(3):795-800.	Observational-Dx	26 patients	To compare the relative accuracy of MRI (n = 26), endovaginal US (n = 14), and HSG (n = 20) in the classification of MDA.	There were 24 cases of surgically proved anomaly, and 2 patients had normal uteri (1 with a vaginal septum). MRI allowed diagnosis of 24/24 cases (accuracy, 100%), and endovaginal US was correct in 11/12 cases (accuracy, 92%). HSG was correct in only 4 cases. In the diagnosis of septate uterus, MRI demonstrated sensitivity and specificity of 100% and EVS demonstrated a sensitivity of 100% and a specificity of 80%. Both MRI and endovaginal US demonstrated a sensitivity and specificity of 100% in distinguishing those anomalies that did not require surgery.	2
27. Scarsbrook AF, Moore NR. MRI appearances of mullerian duct abnormalities. *Clin Radiol.* 2003; 58(10):747-754.	Review/Other-Dx	N/A	To review the various types of anomaly and present their appearances as demonstrated by MRI.	MRI provides an excellent, noninvasive method of differentiating between the different types of anomaly and defining their suitability for surgical treatment.	4

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Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
28. Troiano RN, McCarthy SM. Mullerian duct anomalies: imaging and clinical issues. *Radiology*. 2004; 233(1):19-34.	Review/Other-Dx	N/A	To review MDA including its classification and clinical and imaging issues.	An understanding of the differences between these uterovaginal anomalies, as outlined in the most widely accepted classification system-that published by the American Fertility Society (AFS) in 1988-is imperative given the respective clinical manifestations, different treatment regimens, and prognosis for fetal salvage. Although the AFS classification system serves as a framework for description of anomalies, communication among physicians and comparison of therapeutic modalities, there often is confusion about appropriate reporting of certain anomalies, particularly those with features of more than one class. Many of the anomalies are initially diagnosed at HSG and US; however, further imaging is often required for definitive diagnosis and elaboration of secondary findings. At this time, MRI is the study of choice because of its high accuracy and detailed elaboration of uterovaginal anatomy. Laparoscopy and hysteroscopy are reserved for women in whom interventional therapy is likely to be undertaken.	4
29. Tamai K, Togashi K, Ito T, Morisawa N, Fujiwara T, Koyama T. MR imaging findings of adenomyosis: correlation with histopathologic features and diagnostic pitfalls. *Radiographics.* 2005; 25(1):21-40.	Review/Other-Dx	N/A	To provide definition of adenomyosis and pathologic considerations, clinical information, diagnosis, a wide variety of MRI findings of adenomyosis, pseudolesions masquerading as adenomyosis, unusual appearances, differential diagnosis of adenomyosis, and problems related to malignancy.	MRI is a highly accurate noninvasive modality for diagnosing adenomyosis. Although the typical MRI findings are well established, adenomyosis actually differs markedly in pathologic features, in growth patterns, in responses to hormonal activity, and in responses to its treatment.	4

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Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
30. Deshmukh SP, Gonsalves CF, Guglielmo FF, Mitchell DG. Role of MR imaging of uterine leiomyomas before and after embolization. *Radiographics.* 2012; 32(6):E251-281.	Review/Other-Dx	N/A	To review the role of MRI for the detection and evaluation of leiomyomas.	MRI is the most accurate imaging technique for detection and evaluation of leiomyomas and therefore has become the imaging modality of choice before and after uterine fibroid embolization. As leiomyomas enlarge, they may outgrow their blood supply, resulting in various forms of degeneration that change their appearance. Leiomyomas are classified as submucosal, intramural, or subserosal. Submucosal and subserosal leiomyomas may be pedunculated, thus simulating other conditions. Understanding the MRI appearance of leiomyomas allows differentiation from other entities. The superior tissue contrast of MRI allows diagnosis of leiomyomas with a high level of confidence, ultimately leading to a decrease in the number of surgeries performed and thus reducing healthcare expenditures. MRI findings that influence the planning of uterine fibroid embolization include the location, size, number, and vascular supply of leiomyomas. In addition, MRI can be used to assess the success of uterine fibroid embolization and evaluate for potential complications.	4

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
31. Steinkeler JA, Woodfield CA, Lazarus E, Hillstrom MM. Female infertility: a systematic approach to radiologic imaging and diagnosis. *Radiographics.* 2009; 29(5):1353-1370.	Review/Other-Dx	N/A	To describe the tubal, peritoneal, endometrial, uterine, cervical, and ovarian causes of infertility and illustrates their imaging appearances.	The pelvic causes of female infertility are varied and range from tubal and peritubal abnormalities to uterine, cervical, and ovarian disorders. Uterine filling defects and contour abnormalities may be discovered at HSG but typically require further characterization with hysterographic or pelvic US or pelvic MRI. Hysterographic US helps differentiate among uterine synechiae, endometrial polyps, and submucosal leiomyomas. Pelvic US and MRI help further differentiate among uterine leiomyomas, adenomyosis, and the various MDA, with MRI being the most sensitive modality for detecting endometriosis. The presence of cervical disease may be inferred initially on the basis of difficulty or failure of cervical cannulation at HSG. Ovarian abnormalities are usually detected at US. The appropriate selection of imaging modalities and accurate characterization of the various pelvic causes of infertility are essential because the imaging findings help direct subsequent patient care.	4
32. Woodward PJ, Wagner BJ, Farley TE. MR imaging in the evaluation of female infertility. *Radiographics.* 1993; 13(2):293-310.	Review/Other-Dx	N/A	To demonstrate the utility of MRI in assessing a variety of congenital and acquired disorders encountered in infertility patients.	MRI has proved useful in evaluating various conditions associated with female infertility. It accurately demonstrates leiomyomas, providing improved preoperative localization compared with that achievable with HSG or US, and may be useful in differentiating these tumors from adenomyosis. Endometriosis can be detected with MRI, but laparoscopy is more reliable for diagnosis and staging. Although the use of MRI is not indicated in every evaluation, the modality is valuable in certain settings, especially those that involve differentiation of congenital anomalies and localization of leiomyomas. In these settings, use of MRI can obviate more invasive procedures, such as laparoscopy.	4

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Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
33. Carbognin G, Guarise A, Minelli L, et al. Pelvic endometriosis: US and MRI features. *Abdom Imaging*. 2004; 29(5):609-618.	Review/Other-Dx	N/A	To describe the protean US and MRI appearances of endometrial foci as encountered in daily experience.	Although US remains the imaging modality of choice in the radiologic evaluation of female patients with pelvic pain, the role of MRI in the evaluation of abdominal pain is expanding. In the young patient, MRI may be performed if a gynecologic disorder is not suspected at first, especially if US findings are equivocal or the abnormality extends beyond the field of view of the sonographic probe. Moreover, MRI is useful whenever further characterization of pelvic disorder is required. In fact, many causes of pelvic disorders and of endometriosis in particular demonstrate characteristic MRI findings. For these reasons, in this work we describe the protean US and MRI appearances of endometrial foci as encountered in daily experience.	4
34. Imaoka I, Wada A, Matsuo M, Yoshida M, Kitagaki H, Sugimura K. MR imaging of disorders associated with female infertility: use in diagnosis, treatment, and management. *Radiographics*. 2003; 23(6):1401-1421.	Review/Other-Dx	N/A	To provide an overview of the capabilities and potential of MRI for diagnosis, treatment, and management of female infertility.	MRI has extended the usefulness of imaging in evaluation of pelvic disorders associated with female infertility. Although laparoscopy, hysteroscopy, HSG, and TVS are the most effective techniques for evaluation of pelvic disorders related to female infertility, MRI is used in a variety of clinical settings in diagnosis, treatment, and management. The applications of MRI include evaluation of the functioning uterus and ovaries, visualization of pituitary adenomas, differentiation of MDA, and accurate noninvasive diagnosis of adenomyosis, leiomyoma, and endometriosis. In addition, MRI helps predict the outcome of conservative treatment for adenomyosis, leiomyoma, and endometriosis and may lead to selection of better treatment plans and management. Finally, MRI may serve as an adjunct to diagnostic laparoscopy and HSG in patients with hydrosalpinx, peritubal adhesions, or pelvic adhesions related to endometriosis.	4

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Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
35. Novellas S, Chassang M, Bouaziz J, Delotte J, Toullalan O, Chevallier EP. Anterior pelvic endometriosis: MRI features. *Abdom Imaging*. 2010; 35(6):742-749.	Review/Other-Dx	N/A	To explore atypical locations for deep endometriosis.	No results stated in abstract.	4
36. Siegelman ES, Oliver ER. MR imaging of endometriosis: ten imaging pearls. *Radiographics*. 2012; 32(6):1675-1691.	Review/Other-Dx	N/A	To review various imaging manifestations of endometriosis.	No results stated in abstract.	4
37. Woodward PJ, Sohaey R, Mezzetti TP, Jr. Endometriosis: radiologic-pathologic correlation. *Radiographics*. 2001; 21(1):193-216; questionnaire 288-194.	Review/Other-Dx	N/A	To review the epidemiology, pathogenesis, staging, and clinical features of endometriosis.	Endometriosis is an important gynecologic disorder primarily affecting women during their reproductive years. Pathologically, it is the result of functional endometrium located outside the uterus. It may vary from microscopic endometriotic implants to large cysts (endometriomas). The physical manifestations are protean, with some patients being asymptomatic and others having disabling pelvic pain, infertility, or adnexal masses. Symptoms do not necessarily correlate with the severity of the disease. US features are variable and can mimic those of other benign and malignant ovarian lesions. Low-level internal echoes and echogenic wall foci are more specific US features for endometriomas. MRI improves diagnostic accuracy, with endometriotic cysts typically appearing with high signal intensity on T1-weighted images and demonstrating "shading" on T2-weighted images. The ovaries are the most common sites affected, but endometriosis can also involve the gastrointestinal tract, urinary tract, chest, and soft tissues. Small implants and adhesions are not well evaluated radiologically; therefore, laparoscopy remains the standard of reference for diagnosis and staging.	4

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Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
38. Bartynski WS, Lin L. Dynamic and conventional spin-echo MR of pituitary microlesions. *AJNR Am J Neuroradiol.* 1997; 18(5):965-972.	Observational-Dx	64 patients	To determine whether dynamic traditional spin-echo MRI, with the use of routine T1 parameters during contrast infusion, is superior to standard MRI after contrast administration for detecting microlesions of the pituitary gland.	The dynamic sequence was judged to be better than the standard enhanced sequence for depicting microlesions in 42% to 47% of patients. Lesions were identified only on the dynamic study in an additional 1% to 14% of patients. Lesions were seen equally well on the standard and dynamic sequences only in 16% to 23% of cases. The standard postcontrast sequence was judged better in 12.5% to 17% of cases, with lesions identified only on the standard sequence in an additional 8% to 9%.	4
39. Miki Y, Matsuo M, Nishizawa S, et al. Pituitary adenomas and normal pituitary tissue: enhancement patterns on gadopentetate-enhanced MR imaging. *Radiology.* 1990; 177(1):35-38.	Review/Other-Dx	18 patients	To describe dynamic MRI of the pituitary glands.	Normal pituitary glands showed maximum enhancement on the first or second image following the administration of gadopentetate dimeglumine, followed by gradual signal reduction through the later images, whereas pituitary adenomas reached a peak of enhancement later and showed slower signal reduction than normal pituitaries. The difference of enhancement patterns between the normal pituitary gland and the pituitary adenoma produced prominent image contrast on the first or second image after administration of gadopentetate dimeglumine, which improved the visualization of 1 microadenoma and 4 normal pituitary glands that had been displaced by large adenomas. Dynamic MRI is a useful diagnostic procedure not only for detection of microadenomas, but also for visualization of pituitary glands that have been displaced by large pituitary adenomas.	4

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
40. Souter I, Baltagi LM, Toth TL, Petrozza JC. Prevalence of hyperprolactinemia and abnormal magnetic resonance imaging findings in a population with infertility. *Fertil Steril.* 2010; 94(3):1159-1162.	Review/Other-Dx	1,705 infertile women	To estimate the prevalence of abnormal MRI findings among an unselected, urban population with infertility that denies symptoms specifically associated with hyperprolactinemia, presenting though with persistent minimal to mild elevations of serum PRL.	The prevalence of hyperprolactinemia in an unselected, asymptomatic population with infertility is low (approximately 5%). Its prevalence and the mean PRL levels did not differ with 1) the infertility diagnosis, 2) the presence or absence of menstrual irregularities, or 3) the severity of menstrual dysregulation. Abnormal MRI findings, though, are not uncommon among women with hyperprolactinemia despite the lack of symptoms and the mild PRL elevations.	4
41. Legro RS, Myers ER, Barnhart HX, et al. The Pregnancy in Polycystic Ovary Syndrome study: baseline characteristics of the randomized cohort including racial effects. *Fertil Steril.* 2006; 86(4):914-933.	Experimental-Tx	626 patients	To report the baseline characteristics and racial differences in the PCOS phenotype from a large multicenter clinical trial.	There were no significant differences in baseline variables between treatment groups. The overall mean (+/-standard deviation) age of the subjects was 28.1 +/- 4.0 years, and the mean body mass index was 35.2 kg/m2 (+/- 8.7). Polycystic ovaries were present in 90.3% of the subjects, and the mean volume of each ovary was 10 cm3 or more. Of the subjects, 7% had ovaries that were discordant for polycystic ovaries morphology. At baseline, 18.3% of the subjects had an abnormal fasting glucose level (>100 mg/dL). Asians tended to have a milder phenotype, and whites and African Americans were similar in these measures.	1
42. Azziz R, Carmina E, Dewailly D, et al. The Androgen Excess and PCOS Society criteria for the polycystic ovary syndrome: the complete task force report. *Fertil Steril.* 2009; 91(2):456-488.	Review/Other-Dx	N/A	To review all available data and recommend a definition for PCOS based on published peer-reviewed data, whether already in use or not, to guide clinical diagnosis and future research.	The Task Force drafted the initial report, following a consensus process via electronic communication, which was then reviewed and critiqued by the Androgen Excess and PCOS (AE-PCOS) Society AE-PCOS Board of Directors. No section was finalized until all members were satisfied with the contents, and minority opinions noted. Statements were not included that were not supported by peer-reviewed evidence.	4

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
43. Chittenden BG, Fullerton G, Maheshwari A, Bhattacharya S. Polycystic ovary syndrome and the risk of gynaecological cancer: a systematic review. *Reprod Biomed Online.* 2009; 19(3):398-405.	Review/Other-Dx	8 studies	To perform a systematic review of the literature to determine whether there is an association between PCOS and gynecological malignancy.	A total of 19 studies exploring the association between PCOS and breast, endometrial and ovarian cancer were identified. Of these, only 8 could be included after review. The data showed variability in the definition of PCOS A meta-analysis of the data suggests that women with PCOS are more likely to develop cancer of the endometrium (OR 2.70, 95% CI, 1.00–7.29) and ovarian cancer (OR 2.52, 95% CI, 1.08–5.89) but not breast cancer (OR 0.88, 95% CI, 0.44–1.77). Women with PCOS appear to be 3 times more likely to develop endometrial cancer but are not at increased risk of breast cancer. There is insufficient evidence to implicate PCOS in the development of vaginal, vulval, cervical or ovarian cancers.	4
44. Holm NS, Glintborg D, Andersen MS, Schledermann D, Ravn P. The prevalence of endometrial hyperplasia and endometrial cancer in women with polycystic ovary syndrome or hyperandrogenism. *Acta Obstet Gynecol. Scand.* 2012; 91(10):1173-1176.	Review/Other-Dx	963 premenopausal women	To investigate the prevalence of endometrial hyperplasia and endometrial cancer in a well characterized group of women with PCOS and/or clinical/biochemical hyperandrogenism.	Endometrial hyperplasia was diagnosed in 10 (1.0%) women and endometrial cancer in one (0.1%) woman. The median body mass index of these women was 30.6 kg/m(2) compared with 26.8 kg/m(2) in the total cohort. There were no differences between the cases and total cohort in terms of individual Rotterdam Criteria. In Denmark, 70 cases of endometrial cancer are diagnosed yearly in women 40-55 years, a prevalence of 0.4% in the corresponding period.	4

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
45. Pache TD, Wladimiroff JW, Hop WC, Fauser BC. How to discriminate between normal and polycystic ovaries: transvaginal US study. *Radiology.* 1992; 183(2):421-423.	Observational-Dx	29 women	To determine cutoff levels for the size and number of ovarian follicles and ovarian echogenecity and volume in women with PCOS by means of TVS.	Median values of the mean size and number of follicles and ovarian volume were, respectively, 5.1 mm, 5.0, and 5.9 mL in control subjects and 3.8 mm, 9.8, and 9.8 mL in patients. Ovarian stroma echogenicity was normal in 26 control subjects (90%) and moderately increased in 3 control subjects (10%), whereas it was markedly increased in 28 patients (54%), moderately increased in 21 patients (40%), and normal in 13 patients (6%). The sensitivity and specificity of moderately or markedly increased echogenicity of ovarian stroma in the diagnosis of polycystic ovaries was 94% and 90%, respectively. The greatest power of discrimination between normal and polycystic ovaries was obtained with combined measurement of follicular size and ovarian volume (sensitivity, 92% [48/52 patients]; specificity, 97% [28/29 control subjects]).	3
46. Kimura I, Togashi K, Kawakami S, et al. Polycystic ovaries: implications of diagnosis with MR imaging. *Radiology.* 1996; 201(2):549-552.	Review/Other-Dx	1,074 consecutive female patients	To review the prevalence and clinical usefulness of a previously described MRI finding of polycystic ovarian disease.	The prevalence of the previously described MRI finding of polycystic ovarian disease was 1.1% (12/1,074). Of the 12 patients, 5 had confirmed polycystic ovarian disease. 7 had no clinical or endocrinologic findings suggestive of polycystic ovarian disease. 6 of these patients had endocrinologic findings related to ovarian dysfunction (n = 5) or had undergone hormonal therapy (n = 1). The other patient had vaginal agenesis but no clinical or endocrinologic evidence of abnormal ovarian function.	4
47. D'Hooghe TM, Debrock S, Hill JA, Meuleman C. Endometriosis and subfertility: is the relationship resolved? *Semin Reprod Med.* 2003; 21(2):243-254.	Review/Other-Dx	N/A	To review arguments to support the hypothesis that there is a causal relationship between the presence of endometriosis and subfertility.	No results stated in abstract.	4

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
48. Senapati S, Barnhart K. Managing endometriosis-associated infertility. *Clin Obstet Gynecol.* 2011; 54(4):720-726.	Review/Other-Dx	N/A	To review management techniques of endometriosis-related infertility.	Endometriosis is associated with infertility; however, the etiology of this association is unclear, thus complicating management. Several mechanisms of pathogenesis have been proposed; however, no one theory has been implicated. Medical therapy can be helpful in managing symptoms, but does not improve pregnancy rates. The role of surgical treatment remains controversial. There is little data regarding ovulation induction treatments for endometriosis only, whereas superovulation with intrauterine insemination has shown modest improvement in pregnancy rates in women who may have endometriosis. The most effective treatment for endometriosis-associated infertility is in vitro fertilization. Recent focus on proteomics and genetics of the disease may aid in optimizing treatment options.	4
49. Henig I, Prough SG, Cheatwood M, DeLong E. Hysterosalpingography, laparoscopy and hysteroscopy in infertility. A comparative study. *J Reprod Med.* 1991; 36(8):573-575.	Observational-Dx	193 patients	To further assess the significance and accuracy of HSG during an infertility evaluation by comparing the radiologic findings on HSG to those from laparoscopy and hysteroscopy.	193 patients underwent a complete infertility evaluation at our center. HSG was performed during the proliferative phase and was followed by laparoscopy and hysteroscopy, when indicated, during the same or next cycle. False-positive findings on HSG were noted in 5.1% of the patients. In 21%, adnexal adhesions and pelvic endometriosis were identified during surgery in spite of normal HSG. HSG is as accurate as laparoscopy in the diagnosis of tubal disease. However, laparoscopy excels HSG in the diagnosis of pelvic pathology.	3

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
50. Spaczynski RZ, Duleba AJ. Diagnosis of endometriosis. *Semin Reprod Med.* 2003; 21(2):193-208.	Review/Other-Dx	N/A	To discuss the available diagnostic tools, their advantages, and their limitations for endometriosis.	The most frequent clinical presentations of endometriosis include dysmenorrhea, pelvic pain, dyspareunia, infertility, and pelvic mass. However, the correlation between these symptoms and the stage of endometriosis is poor. Currently available laboratory markers are of limited value. At present, the best marker, serum CA-125, is usually elevated only in advanced stages and therefore not suitable for routine screening. TVS and MRI are often helpful, particularly in detection of endometriotic cysts. Recently, transrectal US and MRI were shown to be valuable in detection of deep infiltrating lesions, especially in the rectovaginal septum. Although direct assessment of endometriotic foci at laparoscopy may be viewed as a "gold standard" for identifying endometriosis, the correlation of laparoscopic observations with histological findings is often low. Ultimately, diagnosis of endometriosis requires a careful clinical evaluation in combination with judicious use and critical interpretation of laboratory tests, imaging techniques, and, in most instances, surgical staging combined with histological examination of excised lesions.	4
51. Fedele L, Bianchi S, Portuese A, Borruto F, Dorta M. Transrectal ultrasonography in the assessment of rectovaginal endometriosis. *Obstet Gynecol*. 1998; 91(3):444-448.	Observational-Dx	140 women	To evaluate the validity of transrectal US in the assessment of rectovaginal endometriosis.	34 women had endometriosis infiltrating the rectovaginal septum confirmed by combined operative and pathologic findings. US showed a sensitivity and specificity of 97% and 96%, respectively, in the diagnosis of the presence of rectovaginal endometriosis. The sonographer identified infiltration of the rectal and vaginal walls correctly in all cases in whom it was present, but also reported rectal infiltration in 3 cases not confirmed by the surgeon and pathologist. The sensitivity and specificity in the diagnosis of uterosacral ligament infiltration were 80% and 97%, respectively.	3

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
52. Patel MD, Feldstein VA, Chen DC, Lipson SD, Filly RA. Endometriomas: diagnostic performance of US. *Radiology*. 1999; 210(3):739-745.	Observational-Dx	226 women	To determine the diagnostic performance of specific US features in discriminating endometriomas from other adnexal masses.	There were 40 endometriomas. Diffuse low-level internal echoes were present in 38 (95%) endometriomas and 40 (19%) nonendometriomas (positive likelihood ratio, 5). The positive likelihood ratio for the diagnosis of endometrioma increased to 8 if masses with neoplastic features at gray-scale US were excluded, allowing identification of 30 endometriomas (75%). The presence of multilocularity or hyperechoic wall foci further increased the positive likelihood ratio to 48, allowing the identification of 18 endometriomas (45%).	2
53. Togashi K, Nishimura K, Kimura I, et al. Endometrial cysts: diagnosis with MR imaging. *Radiology*. 1991; 180(1):73-78.	Observational-Dx	374 patients	To further evaluate the potential of MRI in diagnosing endometrial cysts and in differentiating them from other gynecologic masses in a large series of patients with a clinically suspected adnexal mass.	A suggestive diagnosis of endometrial cyst was made when a cyst that was hyperintense on T1-weighted images exhibited homogeneous hyperintensity on T2-weighted images. A definitive diagnosis was made when a cyst that was hyperintense on T1-weighted images exhibited hypointense signal on T2-weighted images (shading) or when the lesion consisted of multiple hyperintense cysts on T1-weighted images (multiplicity) regardless of the signal intensity on T2-weighted images. Surgery was performed in 293 patients, and confirmation was obtained in 354 lesions. MRI enabled accurate diagnosis of 77 of 86 endometrial cysts and exclusion of the diagnosis of endometrial cyst in 263 of 268 other gynecologic masses with or without internal hemorrhage. The overall diagnostic sensitivity, specificity, and accuracy were 90%, 98%, 96%, respectively.	3

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
54. Sugimura K, Okizuka H, Imaoka I, et al. Pelvic endometriosis: detection and diagnosis with chemical shift MR imaging. *Radiology.* 1993; 188(2):435-438.	Observational-Dx	35 patients	To assess the usefulness of fat-saturation MRI for the detection of endometrial cysts, with laparoscopy or laparotomy as the standard of reference.	Fat-saturation MRI for detection and characterization of pelvic endometriosis was prospectively investigated in 35 women with a clinical diagnosis of the disease. Large endometrioma was diagnosed when the lesion was >1 cm in diameter and hyperintense on T1- and T2-weighted images. Small endometrioma was diagnosed when a well-demarcated hyperintense lesion <1 cm in diameter was seen on T1-weighted or fat-saturated T1-weighted images. Surgery performed after MRI revealed a normal pelvis in 6 patients, endometriosis in 26 (33 large and 19 small endometriomas), and other cystic lesions in 3. Conventional T1- and T2-weighted imaging accurately demonstrated 27/33 large endometriomas and 2/19 small endometriomas. Fat-saturation T1-weighted imaging in combination with conventional technique accurately demonstrated 30/33 large and 9/19 small endometriomas.	2
55. Ha HK, Lim YT, Kim HS, Suh TS, Song HH, Kim SJ. Diagnosis of pelvic endometriosis: fat-suppressed T1-weighted vs conventional MR images. *AJR Am J Roentgenol.* 1994; 163(1):127-131.	Observational-Dx	31 patients	To compare fat-suppressed T1-weighted with conventional MRIs for the diagnosis of endometriosis, focusing on the detectability of peritoneal implants, and to evaluate the usefulness of MRI in predicting the severity of disease.	Diagnostic accuracy was higher with fat-suppressed imaging (77%) than with conventional imaging (55%) (P=.06). The overall sensitivity in detecting peritoneal implants was significantly higher with fat-suppressed imaging (61%) than with conventional imaging (27%) (P<.01). The disease was likely to be at an early stage when MRIs showed peritoneal implants that were ≤5 mm in maximum diameter. The disease was likely to be at an advanced stage when MRIs showed an endometrial cyst that was >1.5 cm.	2

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
56. Macario S, Chassang M, Novellas S, et al. The value of pelvic MRI in the diagnosis of posterior cul-de-sac obliteration in cases of deep pelvic endometriosis. *AJR Am J Roentgenol.* 2012;199(6):1410-1415.	Observational-Dx	150 patients	To define relevant MRI signs allowing preoperative diagnosis of posterior cul-de-sac obliteration in patients with deep pelvic endometriosis.	63 patients were included in the study. Posterior cul-de-sac obliteration was diagnosed in 43 patients at laparoscopy. The mean sensitivity, specificity, and accuracy of each sign and impression of posterior cul-de-sac obliteration were, respectively, as follows: sign 1, 24.4%, 77.5%, 41.3%; sign 2, 97.1%, 83.7%, 92.8%; sign 3, 95.0%, 88.7%, 93.1%; sign 4, 30.2%, 97.5%, 51.6%; sign 5, 83.7%, 91.2%, 86.1%; and impression of posterior cul-de-sac obliteration, 91.9%, 91.2%, 91.7%. Interobserver concordance varied from 0.26 to 0.81 with best results obtained with the combination of signs 2, 3, and 5. Best concordances for junior radiologist evaluations were obtained with assessment of sign 3.	2
57. Kataoka ML, Togashi K, Yamaoka T, et al. Posterior cul-de-sac obliteration associated with endometriosis: MR imaging evaluation. *Radiology.* 2005;234(3):815-823.	Observational-Dx	57 patients	To retrospectively evaluate the accuracy of MRI in depicting posterior cul-de-sac obliteration in patients with endometriosis.	Laparotomy or laparoscopy revealed posterior cul-de-sac obliteration in 30 patients. Overall, the 4 radiologists had mean accuracies of 89.0% and 76.3% for diagnosing endometrial implants and adhesions, respectively, at MRI. Overall, the radiologists achieved mean sensitivity, specificity, accuracy, and PPV and NPV of 68.4%, 76.0%, 71.9%, 76.6%, and 68.5%, respectively, in diagnosing posterior cul-de-sac obliteration. The best accuracy (mean value, 64.5%) was obtained with the finding of fibrotic plaque in the uterine serosal surface. Readers agreed on the observations 63.2%–91.2% of the time. For the impression of the presence or absence of posterior cul-de-sac obliteration, interobserver agreement varied between substantial and moderate: Mean interobserver agreement was 78.4% (range, 70.2%–84.2%), and mean was 0.57 (range, 0.40–0.67). Mean accuracy of MRI for diagnosing posterior cul-de-sac obliteration was 71.9%.	2

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
58. Luttjeboer F, Harada T, Hughes E, Johnson N, Lilford R, Mol BW. Tubal flushing for subfertility. *Cochrane Database Syst Rev.* 2007; (3):CD003718.	Review/Other-Dx	12 trials	To evaluate the effect of flushing a woman's fallopian tubes with oil- or water-soluble contrast media on subsequent fertility outcomes in couples with infertility.	12 trials involving 2,079 participants were included. Tubal flushing with oil-soluble media vs no intervention was associated with a significant increase in the odds of live birth (Peto OR 2.98, 95% CI, 1.40 to 6.37) and of pregnancy (Peto OR 3.30, 95% CI, 2.00 to 5.43). For the comparison of tubal flushing with oil-soluble media vs tubal flushing with water-soluble media, the increase in the odds of live birth for tubal flushing with oil-soluble vs water-soluble media (Peto OR 1.49, 95% CI, 1.05 to 2.11) was based on 2 trials where statistical heterogeneity was present and the higher quality trial showed no significant difference; there was no evidence of a significant difference in the odds of pregnancy (Peto OR 1.21, 95% CI, 0.95 to 1.54). The addition of oil-soluble media to flushing with water-soluble media showed no evidence of a significant difference in the odds of pregnancy (Peto OR 1.28, 95% CI, 0.92 to 1.79) or live birth (Peto OR 1.06, 95% CI, 0.64 to 1.77). There was no serious adverse event reported.	4
59. ETHIODOL® Brand of Ethiodized Oil Injection [package insert]. Savage Laboratories, A division of Nycomed US Inc., Melville, NY; 2014. http://www.guerbet-us.com/fileadmin/user_upload/usa_home/customer_care_center/documents/Ethiodol-pi.pdf. Accessed March 6, 2014.	Review/Other-Dx	N/A	No abstract available.	No abstract available.	4
60. Wheeler JE. Pathology of fallopian tube. In: Blaustein A, ed. *Blaustein's pathology of the female genital tract*. 2nd ed. New York: Springer-Verlag; 1984:393-411.	Review/Other-Dx	N/A	Book chapter.	Book chapter.	4

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
61. Strandell A. Treatment of hydrosalpinx in the patient undergoing assisted reproduction. *Curr Opin Obstet Gynecol.* 2007; 19(4):360-365.	Review/Other-Dx	N/A	To present evidence for the effectiveness of different treatment options.	Theories explaining the mechanisms behind the impaired outcome of in-vitro fertilization still focus on the hydrosalpingeal fluid. Gamete and embryotoxic effects have been demonstrated, but it is not a consistent finding. Endometrial receptivity may be altered by the reduced expression of cytokines and integrins important to implantation, and reduced endometrial and subendometrial blood flows may play a role. The rationale for treatments to improve the results of in-vitro fertilization is based on interruption of the leakage of hydrosalpinx fluid into the uterine cavity. Laparoscopic salpingectomy has been evaluated in a large randomized trial and proved effective in restoring birth rates. Proximal tubal ligation may also be effective according to one smaller randomized trial. Other suggested methods such as transvaginal drainage have been poorly investigated.	4

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
62. Sokalska A, Timmerman D, Testa AC, et al. Diagnostic accuracy of transvaginal ultrasound examination for assigning a specific diagnosis to adnexal masses. *Ultrasound Obstet Gynecol.* 2009; 34(4):462-470.	Observational-Dx	1,066 women	To determine the sensitivity and specificity of subjective evaluation of gray-scale and Doppler US findings (here called pattern recognition) when used by experienced US examiners with regard to making a specific diagnosis of adnexal masses.	A total of 1,066 women were included, of whom 800 had a benign mass and 266 a malignant mass. A specific diagnosis based on US findings was suggested in 899 (84%) tumors. The specificity was high for all diagnoses (range, 94%–100%). The sensitivity was highest for benign teratoma/dermoid cysts (86%, 100/116), hydrosalpinges (86%, 18/21), peritoneal pseudocysts (80%, 4/5) and endometriomas (77%, 153/199), and lowest for functional cysts (17%, 4/24), paraovarian/parasalpingeal cysts (14%, 3/21), benign rare tumors (11%, 1/9), adenofibromas (8%, 3/39), simple cysts (6%, 1/18) and struma ovarii (0%, 0/5). The positive and negative likelihood ratios of pattern recognition with regard to dermoid cysts, hydrosalpinges and endometriomas were 68.2 and 0.14, 38.9 and 0.15, and 33.3 and 0.24, respectively. Dermoid cysts, hydrosalpinges, functional cysts, paraovarian cysts, peritoneal pseudocysts, fibromas/fibrothecomas and simple cysts were never misdiagnosed as malignancies by the US examiner, whereas more than 10% of inflammatory processes, adenofibromas and rare benign tumors including struma ovarii were misdiagnosed as malignancies.	3

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
63. Tukeva TA, Aronen HJ, Karjalainen PT, Molander P, Paavonen T, Paavonen J. MR imaging in pelvic inflammatory disease: comparison with laparoscopy and US. *Radiology.* 1999; 210(1):209-216.	Observational-Dx	30 patients	To assess the value of MRI in the diagnosis of pelvic inflammatory disease and to compare MRI with TVS and laparoscopy.	Pelvic inflammatory disease was laparoscopically proved in 21 (70%) patients. The MRI diagnosis agreed with that obtained with laparoscopy in 20 (95%) of the 21 patients with pelvic inflammatory disease. The imaging findings for pelvic inflammatory disease were as follows: fluid-filled tube, pyosalpinx, tubo-ovarian abscess, or polycystic-like ovaries and free pelvic fluid. Findings at TVS agreed with those at laparoscopy in 17 (81%) of the 21 patients with pelvic inflammatory disease. The sensitivity of MRI in the diagnosis of pelvic inflammatory disease was 95%, the specificity was 89%, and the overall accuracy was 93%. For TVS, the corresponding values were 81%, 78%, and 80%.	1
64. Swart P, Mol BW, van der Veen F, van Beurden M, Redekop WK, Bossuyt PM. The accuracy of hysterosalpingography in the diagnosis of tubal pathology: a meta-analysis. *Fertil Steril.* 1995; 64(3):486-491.	Review/Other-Dx	20 studies	To assess the value of HSG in diagnosing tubal patency and peritubal adhesions using laparoscopy with chromopertubation as the gold standard.	For tubal patency the reported sensitivity and specificity differed between studies. In a subset of studies that evaluated HSG and laparoscopy independently, a point estimate of 0.65 for sensitivity and 0.83 for specificity was calculated. For peritubal adhesions a summary ROC curve could be estimated.	4
65. Sadowski EA, Ochsner JE, Riherd JM, et al. MR hysterosalpingography with an angiographic time-resolved 3D pulse sequence: assessment of tubal patency. *AJR Am J Roentgenol.* 2008; 191(5):1381-1385.	Review/Other-Dx	17 patients	To determine if tubal patency can be assessed by MR HSG using a clinically available MR angiographic sequence (3-D time-resolved imaging of contrast kinetics).	MR HSG effectively shows tubal patency and can be considered when both conventional HSG and standard MRI are necessary for the evaluation of women with infertility, such as in women with suspected uterine anomalies or extrauterine disease.	4
66. Silberzweig JE. MR hysterosalpingography compared with conventional hysterosalpingography. *AJR Am J Roentgenol.* 2009; 192(6):W350.	Review/Other-Dx	N/A	Letter to editor.	N/A	4

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
67. Holz K, Becker R, Schurmann R. Ultrasound in the investigation of tubal patency. A meta-analysis of three comparative studies of Echovist-200 including 1007 women. *Zentralbl Gynakol.* 1997; 119(8):366-373.	Review/Other-Dx	1,007 patients	A meta-analysis of the results of 3 clinical studies of the US echo-contrast agent Echovist-200 with transvaginal contrast US in the demonstration of tubal patency.	The results of transvaginal contrast US and chromolaparoscopy were identical in 294/428 patients (68.7%) or in 688/828 individual tubes (83.1%). Transvaginal contrast US showed "false" occlusion in 85 tubes (10.3%) and "false" patency in 55 (6.7%). The results of transvaginal contrast US and HSG were identical in 138/202 patients (68.3%) or in 320/384 individual tubes (83.3%). Transvaginal contrast US showed "false" occlusion in 49 tubes (12.8%) and "false" patency in 15 (3.9%). The findings of chromolaparoscopy and HSG agreed in 49/77 patients (63.6%) or in 116/152 tubes (76.3%). HSG showed "false" occlusion in 19 (12.5%) tubes and "false" patency in 17 (11.2%).	4
68. Roman E. Fetal loss rates and their relation to pregnancy order. *J Epidemiol Community Health.* 1984; 38(1):29-35.	Review/Other-Dx	N/A	To discuss the problems and biases of various types of analyses with reference to real data and the model of Golding.	No results stated in abstract.	4
69. Stephenson M, Kutteh W. Evaluation and management of recurrent early pregnancy loss. *Clin Obstet Gynecol.* 2007; 50(1):132-145.	Review/Other-Dx	N/A	To review the evaluation and management techniques of recurrent early pregnancy loss.	Recurrent pregnancy loss affects up to 5% of couples trying to establish a family. Evaluation classically begins after 3 consecutive miscarriages of <10 weeks of gestation but may be warranted earlier if a prior miscarriage was found to be euploid, or if there is concomitant infertility and/or advancing maternal age. The evaluation begins with an extensive history and physical, followed by a diagnostic screening protocol. Management must be evidence-based; unproven treatments should be avoided. If no factor is identified, many couples will still eventually have a successful pregnancy outcome with supportive therapy alone.	4

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
70. Raga F, Bauset C, Remohi J, Bonilla-Musoles F, Simon C, Pellicer A. Reproductive impact of congenital Mullerian anomalies. *Hum Reprod*. 1997; 12(10):2277-2281.	Review/Other-Dx	3,181 patients	To determine the incidence and reproductive impact of uterine malformations on women desiring to conceive during their reproductive years.	The overall frequency of uterine malformations was 4.0%. Infertile patients (6.3%) had a significantly ($P<0.05$) higher incidence of Mullerian anomalies, in comparison with fertile (3.8%) and sterile (2.4%) women. Septate (33.6%) and arcuate (32.8%) uteri were the most common malformations observed. Each malformation was individually analyzed in fertile and infertile patients, in order to ascertain its actual reproductive impact. The performance of the unicornuate and didelphys uteri was similar with a chance of having a living child of 37%–40%. The reproductive potential of the bicornuate uterus showed a live birth rate of 62.5% and the septate uterus showed a live birth rate of 62%. In all these abnormalities, early miscarriages (25%–38%) and preterm deliveries (25%–47%) were quite common. The arcuate uterus presented a live birth rate of 82.7%.	4
71. Candiani GB, Fedele L, Zamberletti D, De Virgiliis D, Carinelli S. Endometrial patterns in malformed uteri. *Acta Eur Fertil*. 1983; 14(5):311-318.	Review/Other-Dx	12 subsep uteri	To study the endometrium covering the septum using light microscopy, electronic scanning microscopy and electronic transmission microscopy for the purpose of determining if it should be considered a reason for inadequate implantation and therefore justify an anomalous evolution of pregnancy.	Compared with a normal endometrium there is only a slight difference with the basal state. This alteration could however negatively influence the stages of development following implantation and particularly the structure of the maternal-fetal relationships which preclude placentation.	4

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
72. Fayez JA. Comparison between abdominal and hysteroscopic metroplasty. *Obstet Gynecol.* 1986; 68(3):399-403.	Observational-Tx	33 patients	To compare the anatomic and reproductive outcome of transabdominal hysteroscopic metroplasties.	33 patients were diagnosed by HSG and laparoscopy as having septate uteri, which were assumed to be responsible for their infertility, recurrent abortions, or premature labor. 14 of these had Tompkins metroplasty (group 1) while the other 19 had their repairs done by hysteroscopic metroplasty (group 2). Postoperative HSG for patients in group 1 revealed normal uterine cavities in 72%, incomplete septum excision in 14%, and intrauterine filling defects in 14%. The corresponding figures in group 2 were 88%, 12%, and 0%. In group 1, 71.0% became pregnant; of these, 70% continued to term (with delivery by cesarean section), 20% aborted, and 10% were tubal pregnancies. In group 2, 84% became pregnant; of these, 87% had term vaginal deliveries, and 13% miscarried. Patients in group 2 had less operative time, less blood loss, and shorter hospital stays.	2
73. Homer HA, Li TC, Cooke ID. The septate uterus: a review of management and reproductive outcome. *Fertil Steril.* 2000; 73(1):1-14.	Review/Other-Dx	N/A	To review the literature on the diagnosis, prevalence, and treatment of the septate uterus, with special reference to hysteroscopic metroplasty and its effect on reproductive outcome.	Reliable diagnosis of the septate uterus depends on accurate assessment of the uterine fundal contour. At present, the combined use of laparoscopy and hysteroscopy is the gold standard for diagnosis, although recent reports of 2-D, transvaginal, contrast US and of 3-D US appear promising. The prevalence of the septate uterus is increased in women with repeated pregnancy loss. A meta-analysis of published retrospective data comparing pregnancy outcome before and after hysteroscopic septoplasty indicated a marked improvement after surgery.	4

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
74. Tulandi T, Arronet GH, McInnes RA. Arcuate and bicornuate uterine anomalies and infertility. *Fertil Steril.* 1980; 34(4):362-364.	Review/Other-Dx	23 patients	To assess arcuate and bicornuate uterine anomalies and infertility and to discuss the implications of a uterine anomaly as a cause of primary infertility.	23 patients presenting with infertility were found to have uterine anomalies. 18 had primary infertility. 6 (86%) of 7 patients with arcuate uterus achieved a term pregnancy. 5 patients of these 7 had primary infertility. Of the 13 patients with bicornuate uterus, 6 subsequently underwent a metroplasty and 4 (67%) of these latter patients achieved a term pregnancy. Of the remaining 7 patients with bicornuate uterus, 1 achieved pregnancy during investigations, 1 refused surgery, and 5 were not operated upon because of uncorrected nonuterine factors. One other patient was found to have uterus didelphys and 2 had a unicornuate uterus. No patients with septate uterus were found.	4
75. Golan A, Langer R, Wexler S, Segev E, Niv D, David MP. Cervical cerclage--its role in the pregnant anomalous uterus. *Int J Fertil.* 1990; 35(3):164-170.	Review/Other-Dx	98 patients	To assess the need for cerclage in cases of cervical incompetence.	29 cases of cervical incompetence were found among 98 women diagnosed as having a congenital uterine anomaly on HSG, a high incidence of 30%. The highest incidence was found in the bicornuate uterus group at 38%. The incidence of premature delivery and late abortion was higher in this group than in the rest of the patients with uterine anomalies (55% and 68%, vs 45% and 32%). An obvious improvement in obstetrical performance was noted after cerclage. In the cervical incompetence group, term deliveries increased from 26% to 63%. Premature deliveries and late abortions dropped from 74% to 37%. Even in the patients with anomalous uterus without proven diagnosis of cervical incompetence, term deliveries increased from 64% to 96%, and pregnancies terminating prematurely dropped from 35.6% to 4%, following cerclage.	4

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
76. Olive DL, Henderson DY. Endometriosis and mullerian anomalies. *Obstet Gynecol.* 1987; 69(3 Pt 1):412-415.	Review/Other-Dx	64 patients	To evaluate women with mullerian anomalies and intra-abdominal surgery for the presence or absence of endometriosis, patency of tubes, hematocolpos or hematometra, and outflow obstruction.	Endometriosis was present in 10/13 women with functioning endometrium, patent tubes, and outflow obstruction, whereas it could be identified in only 16/43 women with no obstruction (77% vs 37%, P<.01). Similarly, 8/9 women with hematocolpos or hematometra had endometriosis, while only 18/47 with functioning endometrium but no hematometra/hematocolpos had it (89% vs 38%, P<.01). None of the 8 women without endometrium had endometriosis.	4
77. Sarto GE, Simpson JL. Abnormalities of the Mullerian and Wolffian duct systems. *Birth Defects Orig Artic Ser.* 1978; 14(6C):37-54.	Review/Other-Dx	N/A	No abstract available.	No abstract available.	4
78. Rolen AC, Choquette AJ, Semmens JP. Rudimentary uterine horn: obstetric and gynecologic implications. *Obstet Gynecol.* 1966; 27(6):806-813.	Review/Other-Dx	N/A	No abstract available.	No abstract available.	4
79. Fedele L, Bianchi S, Agnoli B, Tozzi L, Vignali M. Urinary tract anomalies associated with unicornuate uterus. *J Urol.* 1996; 155(3):847-848.	Review/Other-Dx	37 patients	To investigate the association between the various subclasses of the unicornuate uterus and urinary tract anomalies.	A total of 15 patients (40.5%) had urinary tract anomalies, including ectopic kidney in 4, renal agenesis in 6, double renal pelvis in 2, horseshoe kidneys in 2 and unilateral medullary sponge kidney in 1. No differences were observed in the frequency of urinary anomalies among the various subclasses of unicornuate uterus.	4

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
80. Chan YY, Jayaprakasan K, Tan A, Thornton JG, Coomarasamy A, Raine-Fenning NJ. Reproductive outcomes in women with congenital uterine anomalies: a systematic review. *Ultrasound Obstet Gynecol.* 2011; 38(4):371-382.	Review/Other-Dx	9 studies	A systematic review to evaluate the association between different types of congenital uterine anomaly and various reproductive outcomes.	Meta-analysis showed that arcuate uteri were associated with increased rates of second-trimester miscarriage (RR, 2.39; 95% CI, 1.33–4.27, P=0.003) and fetal malpresentation at delivery (RR, 2.53; 95% CI, 1.54–4.18; P<0.001). Canalization defects were associated with reduced clinical pregnancy rates (RR, 0.86; 95% CI, 0.77–0.96; P=0.009) and increased rates of first-trimester miscarriage (RR, 2.89; 95% CI; 2.02–4.14; P<0.001), preterm birth (RR, 2.14; 95% CI, 1.48–3.11; P<0.001) and fetal malpresentation (RR, 6.24; 95% CI, 4.05–9.62; P<0.001). Unification defects were associated with increased rates of preterm birth (RR, 2.97; 95% CI, 2.08–4.23; P<0.001) and fetal malpresentation (RR, 3.87; 95% CI, 2.42–6.18; P<0.001).	4
81. Deutch TD, Abuhamad AZ. The role of 3-dimensional ultrasonography and magnetic resonance imaging in the diagnosis of mullerian duct anomalies: a review of the literature. *J Ultrasound Med.* 2008; 27(3):413-423.	Review/Other-Dx	N/A	To review the published literature and determine the roles that MRI and endovaginal 3-D US play in the diagnosis of MDA.	MRI and 3-D US are highly sensitive and specific in identifying women with MDAs. MRI is 100% to 28.6% sensitive and 100% to 66% specific in correctly categorizing MDAs. 3-D US is 100% to 98% sensitive and 100% specific in correctly categorizing MDAs.	4
82. Li S, Qayyum A, Coakley FV, Hricak H. Association of renal agenesis and mullerian duct anomalies. *J Comput Assist Tomogr*. 2000;24(6):829-834.	Review/Other-Dx	57 patients	To determine the association of renal agenesis with the different types of MDAs.	Renal agenesis was found in 17 (29.8%) of 57 patients. No other renal anomalies were identified. Renal agenesis was more frequent in patients with uterus didelphys (13/16 cases). Renal agenesis was also seen in patients with uterine agenesis (2/5 cases) and unicornuate uterus (2/7 cases). All 11 cases of obstructed uterus didelphys were associated with renal agenesis ipsilateral to the side of the obstructing transverse hemivaginal septum.	4
83. Chandler TM, Machan LS, Cooperberg PL, Harris AC, Chang SD. Mullerian duct anomalies: from diagnosis to intervention. *Br J Radiol*. 2009;82(984):1034-1042.	Review/Other-Dx	N/A	To review the embryology, classification, imaging features and treatment options of MDAs.	Radiologists should be familiar with the imaging features of the 7 classes of MDAs, as the appropriate course of treatment relies upon the correct diagnosis and categorization of each anomaly.	4

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
84. Deans R, Abbott J. Review of intrauterine adhesions. *J Minim Invasive Gynecol.* 2010; 17(5):555-569.	Review/Other-Dx	N/A	To review the literature on symptomatic and asymptomatic intrauterine adhesions.	Seven classification systems are described, with no universal acceptance of any one system and no validation of any of them. Hysteroscopy is the mainstay of both diagnosis and treatment, with medical treatments having no role in management. There is a wide range of treatment techniques with no controlled comparative studies, and assessments are descriptive and report fertility and menstrual outcomes, with more severe adhesions having the worst clinical outcomes. One of the most important features of treatment is prevention of recurrence, with the best available evidence demonstrating that newly developed adhesion barriers such as hyaluronic acid show promise for preventing new adhesions.	4
85. March CM, Israel R, March AD. Hysteroscopic management of intrauterine adhesions. *Am J Obstet Gynecol.* 1978; 130(6):653-657.	Review/Other-Dx	65 patients	To assess patients who underwent hysteroscopic evaluation and treatment.	Of the patients who have completed surgical and hormonal therapy, 98% have normal spontaneous menses. Follow-up examination of the endometrial cavity was normal in 32/34 patients. 7/10 patients who wished to conceive and who had no other infertility factors have done so. The pregnancies have been uncomplicated. Hysteroscopy is the method of choice to diagnose, classify, treat, and follow-up patients with Asherman's syndrome.	4
86. Knopman J, Copperman AB. Value of 3D ultrasound in the management of suspected Asherman's syndrome. *J Reprod Med.* 2007; 52(11):1016-1022.	Observational-Dx	54 infertile patients	To assess the value of 3-D US in the management of patients with suspected Asherman's syndrome.	Intrauterine adhesions were demonstrated on 3-D US and HSG in all cases and confirmed by hysteroscopy. However, 3-D US had a sensitivity of 100% and HSG a sensitivity of 66.7% for correctly grading the extent of intrauterine adhesions. In 61.1% of cases in which HSG results were inconsistent with hysteroscopy, lower uterine segment outflow obstruction was present, and HSG misclassified findings as severe Asherman's with complete cavity obstruction. Postoperatively, 90% of patients conceived.	3

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
87. Salle B, Gaucherand P, de Saint Hilaire P, Rudigoz RC. Transvaginal sonohysterographic evaluation of intrauterine adhesions. *J Clin Ultrasound.* 1999; 27(3):131-134.	Observational-Dx	19 patients	To assess the role of preoperative SHG in the diagnosis of intrauterine synechiae.	TVS showed an abnormal uterine cavity in only 10 cases. The sensitivities of SHG and HSG in the diagnosis of intrauterine adhesions were both 100%. SHG showed complete correlation with HSG.	3
88. Roma Dalfo A, Ubeda B, Ubeda A, et al. Diagnostic value of hysterosalpingography in the detection of intrauterine abnormalities: a comparison with hysteroscopy. *AJR Am J Roentgenol.* 2004; 183(5):1405-1409.	Observational-Dx	78 patients	To evaluate the diagnostic accuracy of HSG in comparison with hysteroscopy in the detection of intrauterine abnormality in infertile patients.	HSG showed a sensitivity of 81.2% compared with that of hysteroscopy and a specificity of 80.4%, with a PPV of 63.4% and a NPV of 83.7%. HSG also had a false-negative rate of 90% and a false-positive rate of 21.8%. Overall agreement between the 2 procedures was 73%.	3
89. Soares SR, Barbosa dos Reis MM, Camargos AF. Diagnostic accuracy of sonohysterography, transvaginal sonography, and hysterosalpingography in patients with uterine cavity diseases. *Fertil Steril.* 2000; 73(2):406-411.	Observational-Dx	65 patients	To evaluate the diagnostic accuracy of SHG in uterine cavity diseases in infertile patients, comparing its results with those of HSG and TVS.	SHG had the same diagnostic accuracy as the gold standard for polypoid lesions and endometrial hyperplasia, with no equivocal diagnosis. HSG showed a sensitivity of 50% and a PPV of 28.6% for polypoid lesions and a sensitivity of 0% for endometrial hyperplasia. TVS had both sensitivity and PPV of 75% for polypoid lesions and endometrial hyperplasia. For uterine malformations, SHG had a sensitivity of 77.8%, whereas TVS and HSG both had a sensitivity of 44.4%. SHG and HSG had a sensitivity of 75% in the detection of intrauterine adhesions and respective PPVs of 42.9% and 50%. TVS showed sensitivity and PPV of 0% for this diagnosis.	2
90. Bacelar AC, Wilcock D, Powell M, Worthington BS. The value of MRI in the assessment of traumatic intra-uterine adhesions (Asherman's syndrome). *Clinical Radiology.* 1995; 50(2):80-83.	Review/Other-Dx	4 patients	To review 4 patients with Asherman's syndrome in which the evaluation by MRI had an important role in complementing the diagnosis established by hysteroscopy and in aiding their subsequent management.	MRI can play an important role in the evaluation of patients with Asherman's syndrome especially those with involvement of the internal cervical os.	4

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
91. Saravelos SH, Yan J, Rehmani H, Li TC. The prevalence and impact of fibroids and their treatment on the outcome of pregnancy in women with recurrent miscarriage. *Hum Reprod.* 2011;26(12):3274-3279.	Observational-Dx	364 women	To examine the impact of different types of fibroids on the pregnancy outcome of women with recurrent miscarriage and to investigate to what extent resection of fibroids distorting the uterine cavity affects the outcome of a future pregnancy.	The prevalence of fibroids was found to be 8.2% (79/966). In total, 264 pregnancies of women with fibroids and 936 pregnancies of women with unexplained recurrent miscarriage were analyzed. Women with intracavitary distortion and undergoing myomectomy significantly reduced their mid-trimester miscarriage rates in subsequent pregnancies from 21.7 to 0% (P=0.01). This translated to an increase in the live birth rate from 23.3 to 52.0% (P=0.05).Women with fibroids not distorting the cavity behaved similarly to women with unexplained recurrent miscarriage achieving a 70.4% live birth rate in their subsequent pregnancies without any intervention.	3
92. Acholonu UC, Silberzweig J, Stein DE, Keltz M. Hysterosalpingography versus sonohysterography for intrauterine abnormalities. *JSLS.* 2011; 15(4):471-474.	Observational-Dx	149 patients	To compare HSG to SHG for the detection of polyps, cavitary fibroids, adhesions, and septae in infertile patients.	The sensitivity of HSG and SHG was 58.2% and 81.8%, respectively. The specificity for HSG and SHG was 25.6% and 93.8%. The differences in sensitivity and specificity were both statistically significant. HSG had a general accuracy of 50.3%, while SHG had a significantly higher accuracy of 75.5%.	3
93. Loverro G, Nappi L, Vicino M, Carriero C, Vimercati A, Selvaggi L. Uterine cavity assessment in infertile women: comparison of transvaginal sonography and hysteroscopy. *Eur J Obstet Gynecol. Reprod Biol.* 2001; 100(1):67-71.	Observational-Dx	134 infertile women	To evaluate the diagnostic accuracy of TVS in detecting uterine cavity abnormalities in infertile patients, with reference to hysteroscopy as the gold standard method.	There was 1 failed insertion of hysteroscope. Hysteroscopy diagnosed pathological findings in 58/133 cases (44%). TVS was in agreement with 50/58 (86%) of the pathological findings diagnosed at hysteroscopy. As a test for the detection of uterine cavity abnormalities, TVS in comparison with hysteroscopy had 84.5% sensitivity and 98.7% specificity, 98.0% PPV and 89.2% NPV.	3

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EVIDENCE TABLE

Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
94. Farquhar C, Ekeroma A, Furness S, Arroll B. A systematic review of transvaginal ultrasonography, sonohysterography and hysteroscopy for the investigation of abnormal uterine bleeding in premenopausal women. *Acta Obstet Gynecol. Scand.* 2003; 82(6):493-504.	Review/Other-Dx	19 studies	To determine the accuracy of TVS, SHG and diagnostic hysteroscopy for the investigation of abnormal uterine bleeding in premenopausal women.	19 studies met the inclusion criteria. Statistically significant heterogeneity was present between the likelihood ratios for studies of TVS. A positive test result with SHG diagnosed submucous fibroids with a pooled likelihood ratio of 29.7 (17.8, 49.6). A positive test result with hysteroscopy diagnosed submucous fibroids with a pooled likelihood ratio of 29.4 (13.4, 65.3), and any intrauterine pathology with a pooled likelihood ratio of 7.7 (4.3, 13.7). A negative test result with hysteroscopy for diagnosing any intrauterine pathology had a pooled likelihood ratio of 0.07 (0.04, 0.15).	4
95. Dueholm M, Lundorf E, Hansen ES, Ledertoug S, Olesen F. Evaluation of the uterine cavity with magnetic resonance imaging, transvaginal sonography, hysterosonographic examination, and diagnostic hysteroscopy. *Fertil Steril.* 2001; 76(2):350-357.	Observational-Dx	106 women	To evaluate and compare the diagnostic accuracy of MRI, TVS, hysterosonographic examination, and hysteroscopy in the evaluation of the uterine cavity.	The overall sensitivity was MRI 0.76, TVS 0.69, hysterosonographic examination 0.83, and hysteroscopy 0.84. The specificity was MRI 0.92, TVS 0.83, hysterosonographic examination 0.90, and hysteroscopy 0.88 (MRI, hysterosonographic examination, hysteroscopy vs TVS <0.05). Polyps were missed in 9/12 cases at MRI, 7 at TVS, 4 at hysterosonographic examination, and 2 at hysteroscopy (MRI vs hysteroscopy, and TVS vs hysteroscopy <0.05). The sensitivity for identification of submucous myomas was MRI 1.0, TVS 0.83, hysterosonographic examination 0.90, and hysteroscopy 0.82; the specificity was MRI 0.91, TVS 0.90, hysterosonographic examination 0.89, and hysteroscopy 0.87 (MRI vs TVS, and MRI vs hysteroscopy). MRI was significantly more precise than TVS, hysterosonographic examination, and hysteroscopy in determining submucous myoma in-growth (2-way ANOVA <0.05).	2

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Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
96. Huang W, Molitch ME. Evaluation and management of galactorrhea. *Am Fam Physician*. 2012; 85(11):1073-1080.	Review/Other-Dx	N/A	To review galactorrhea and treatment strategies.	Galactorrhea is commonly caused by hyperprolactinemia, especially when it is associated with amenorrhea. After pathologic nipple discharge is ruled out, patients with galactorrhea should be evaluated by measurement of their prolactin level. Those with hyperprolactinemia should have pregnancy ruled out, and thyroid and renal function assessed. Brain MRI should be performed if no other cause of hyperprolactinemia is found. Patients with prolactinomas are usually treated with dopamine agonists (bromocriptine or cabergoline); surgery or radiation therapy is rarely required. Medications causing hyperprolactinemia should be discontinued or replaced with a medication from a similar class with lower potential for causing hyperprolactinemia.	4
97. Melmed S, Casanueva FF, Hoffman AR, et al. Diagnosis and treatment of hyperprolactinemia: an Endocrine Society clinical practice guideline. *J Clin Endocrinol Metab*. 2011; 96(2):273-288.	Review/Other-Dx	N/A	To formulate practice guidelines for the diagnosis and treatment of hyperprolactinemia.	Practice guidelines are presented for diagnosis and treatment of patients with elevated prolactin levels. These include evidence-based approaches to assessing the cause of hyperprolactinemia, treating drug-induced hyperprolactinemia, and managing prolactinomas in nonpregnant and pregnant subjects. Indications and side effects of therapeutic agents for treating prolactinomas are also presented.	4
98. Chin BM, Orlandi RR, Wiggins RH, 3rd. Evaluation of the sellar and parasellar regions. *Magn Reson Imaging Clin N Am*. 2012; 20(3):515-543.	Review/Other-Dx	N/A	To review the anatomy and imaging evaluation of the sellar and parasellar regions.	The sellar and parasellar regions are anatomically and pathologically complex areas. In daily practice, adenomas, meningiomas, or aneurysms are the most common diseases. However, with more than 30 different potential entities localizing to this region, knowledge of the anatomy and diseases in addition to clinical information is essential for expert imaging differential diagnosis and management guidance.	4

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Reference	Study Type	Patients/ Events	Study Objective (Purpose of Study)	Study Results	Study Quality
99. Miki Y, Kanagaki M, Takahashi JA, et al. Evaluation of pituitary macroadenomas with multidetector-row CT (MDCT): comparison with MR imaging. *Neuroradiology.* 2007; 49(4):327-333.	Observational-Dx	33 consecutive patients	To determine whether MDCT could provide preoperative information in addition to that provided by MRI in pituitary macroadenoma.	MDCT more clearly demonstrated the lateral tumor margin than MRI (P=0.002). No significant differences in visualization of the normal pituitary gland were noted between MDCT and dynamic MRI (P=0.7). MDCT more clearly demonstrated sellar floor erosion or destruction at the sphenoid sinus than MRI (P<0.001). MRI was superior to MDCT for visualizing the adjacent optic pathways (P<0.001).	2
100. Hess CP, Dillon WP. Imaging the pituitary and parasellar region. *Neurosurg Clin N Am.* 2012; 23(4):529-542.	Review/Other-Dx	N/A	To review the radiologic evaluation of lesions within the sella and suprasellar cistern, focusing on common masses and pseudomasses of the pituitary and sellar region that neurosurgeons are most likely to encounter in clinical practice.	No results stated in abstract.	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

CI = Confidence interval

CT = Computed tomography

HSG = Hysterosalpingography

MDA = Mullerian duct anomalies

MDCT = Multidetector computed tomography

MRI = Magnetic resonance imaging

NPV = Negative predictive value

OR = Odds ratio

PCOS = Polycystic ovary syndrome

PPV = Positive predictive value

ROC = Receiver operating characteristic

SHG = Sonohysterography

TVS = Transvaginal sonography

US = Ultrasound