RSNA Press Release

Expert Panel Endorses New Ultrasound Terminology for Early Pregnancy

Released: August 27, 2024

OAK BROOK, Ill. (Aug. 27, 2024) — For the first time, a multi-medical society panel has developed and endorsed a uniform lexicon for describing the observations seen on ultrasound during the first trimester of pregnancy. The lexicon, based on scientific evidence, societal guidelines and expert consensus, was published today in *Radiology*, a journal of the Radiological Society of North America (RSNA) and simultaneously in the *American Journal of Obstetrics & Gynecology*. The lexicon addresses terms frequently used in first trimester ultrasound reports, such as 'ectopic pregnancy,' 'heartbeat,' 'living' and 'viable.'

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Shuchi K. Rodgers, M.D.

"While there is a multi-society agreement for first-trimester imaging guidelines for reliable sonographic findings to predict which pregnancies will not progress, there has been a lack of consensus on the terms used in the imaging report and in communicating with patients," said first author Shuchi K. Rodgers, M.D., professor of radiology at the Sidney Kimmel Medical School of Thomas Jefferson University in Philadelphia, Pennsylvania. "Many terms currently used are outdated or confusing, are used inconsistently, or may be interpreted differently by radiologists, clinicians and patients."

The panel was convened by the Society of Radiologists in Ultrasound (SRU). Other societies participating in the development of the lexicon included the Society of Abdominal Radiology, the American College of Radiology, the American College of Obstetricians and Gynecologists, the American Institute of Ultrasound in Medicine, the Society for Maternal-Fetal Medicine, the American Society of Reproductive Medicine, the Society of Family Planning and the American College of Emergency Physicians.

Under the leadership team of Dr. Rodgers, senior author Lori M. Strachowski, M.D., and Mindy M. Horrow, M.D., (SRU past-president), the expert panel worked for a year and a half to reach a consensus on the uniform language. Panelists agreed unanimously or reached at least 80% agreement on preferred terms and synonyms, as well as terms to avoid, for the first-trimester ultrasound report.

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Lori M. Strachowski, M.D.

Given that cardiac development is gradual and incomplete during the first trimester of pregnancy, the panel recommended the use of the term 'cardiac activity' instead of 'heart motion' or 'heartbeat.' The panel also recommended against terms, such as 'live,' 'living,' and 'viable,' that could raise unrealistic expectations for patients facing a potential pregnancy loss or an ectopic pregnancy.

"We recognize that specific language in the medical record could be used by third parties to negatively affect the physician-patient relationship," said Dr. Strachowski, clinical professor of radiology and biomedical imaging and obstetrics, gynecology and reproductive sciences from the University of California, San Francisco. "Our goal was to recommend clear, specific, scientifically based and medically appropriate terminology that communicates clearly across disciplines, minimizes bias and harm, and respects patient preferences."

While the terms 'miscarriage' and 'spontaneous abortion' remain part of the agreed lexicon, the historically used 'pregnancy failure' has been replaced with 'early pregnancy loss.'

"Because patients have rapid access to their medical records, we considered patient preferences for and against certain terminology," Dr. Strachowski said. "The term 'pregnancy failure' was never meant to convey blame or guilt, but it didn't sit well with patients."

According to the recommendations, an intrauterine pregnancy is defined as a pregnancy implanted in a normal location, while an embryo implanted in any abnormal location, whether inside (such as within a cesarean scar) or outside the uterus, is an ectopic pregnancy.

"We make it very clear that all ectopic pregnancies carry an increased risk of maternal morbidity and mortality," she said.

Dr. Strachowski said all the participating societies have fully endorsed the new first-trimester ultrasound lexicon, and the panel expects it will be widely adopted.

"A Lexicon for First-Trimester US: Society of Radiologists in Ultrasound Consensus Conference Recommendations." Collaborating with Drs. Rodgers, Strachowski and Horrow were Peter M. Doubilet, M.D., Ph.D., Mary C. Frates, M.D., Anne Kennedy, M.B., B.Ch., Rochelle Andreotti, M.D., Kristyn Brandi, M.D., M.P.H., Laura Detti, M.D., Sarah K. Horvath, M.D., M.S.H.P, Aya Kamaya, M.D., Atsuko Koyama, M.D., M.P.H., Penelope Chun Lema, M.D., Katherine E. Maturen, M.D., M.S., Tara Morgan, M.D., Sarah G. Običan, M.D., Kristen Olinger, M.D., Roya Sohaey, M.D., and Suneeta Senapati, M.D.

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For patient-friendly information on ultrasound, visit *RadiologyInfo.org*.

Images (JPG, TIF):

SRU FIRST TRIMESTER ULTRASOUND LEXICON: GENERAL TERMS

Term(s) *Alternate Term(s)*	Application/ Definition	Term(s) to Avoid	Comments
hCG	Human chorionic gonadotropin		▪ Produced by trophoblastic cells ▪ *Beta* modifier may no longer be used by some laboratories
Pregnant	Serum hCG >5 mIU/mL		▪ Refer to local laboratories for discriminatory hCG value ▪ hCG ≤5 mIU/mL may occur in healthy non-pregnant patients ▪ Rarely, elevated hCG may be unrelated to pregnancy such as with pituitary dysfunction or neoplasia
Gestational age *Menstrual age* *Gestational duration* *Clinical age or dates*	Duration of pregnancy		▪ Reported as # weeks # days ▪ Based on 1st day of LMP and/or early dating US ▪ In setting of assisted reproductive technologies, pregnancy is dated by clinical factors such as time of intrauterine insemination or embryo transfer, etc.
First (1st) trimester	GA ≤13 weeks 6 days		
First (1st) trimester US *Early pregnancy US* *Obstetrical (OB) US*	US exam in the 1st trimester of pregnancy	'Viability' scan	▪ *Normal* modifier may be used to describe the US examination or pregnancy location; caution against: 'normal 1st trimester pregnancy' as anomalies may be missed early in pregnancy ▪ Clinical indications include confirmation of pregnancy, dating, presence of cardiac activity, determining pregnancy location and number, vaginal bleeding, pain, etc.

SRU = Society of Radiologists in Ultrasound; hCG = human chorionic gonadotropin; mIU/ml = milli-international units per milliliter; # = number; LMP = last menstrual period; GA = gestational age; US = ultrasound

Figure 1. General terms. Lexicon terms (bolded and/or italicized) applicable to pregnancy but not specific to imaging are listed in this table.
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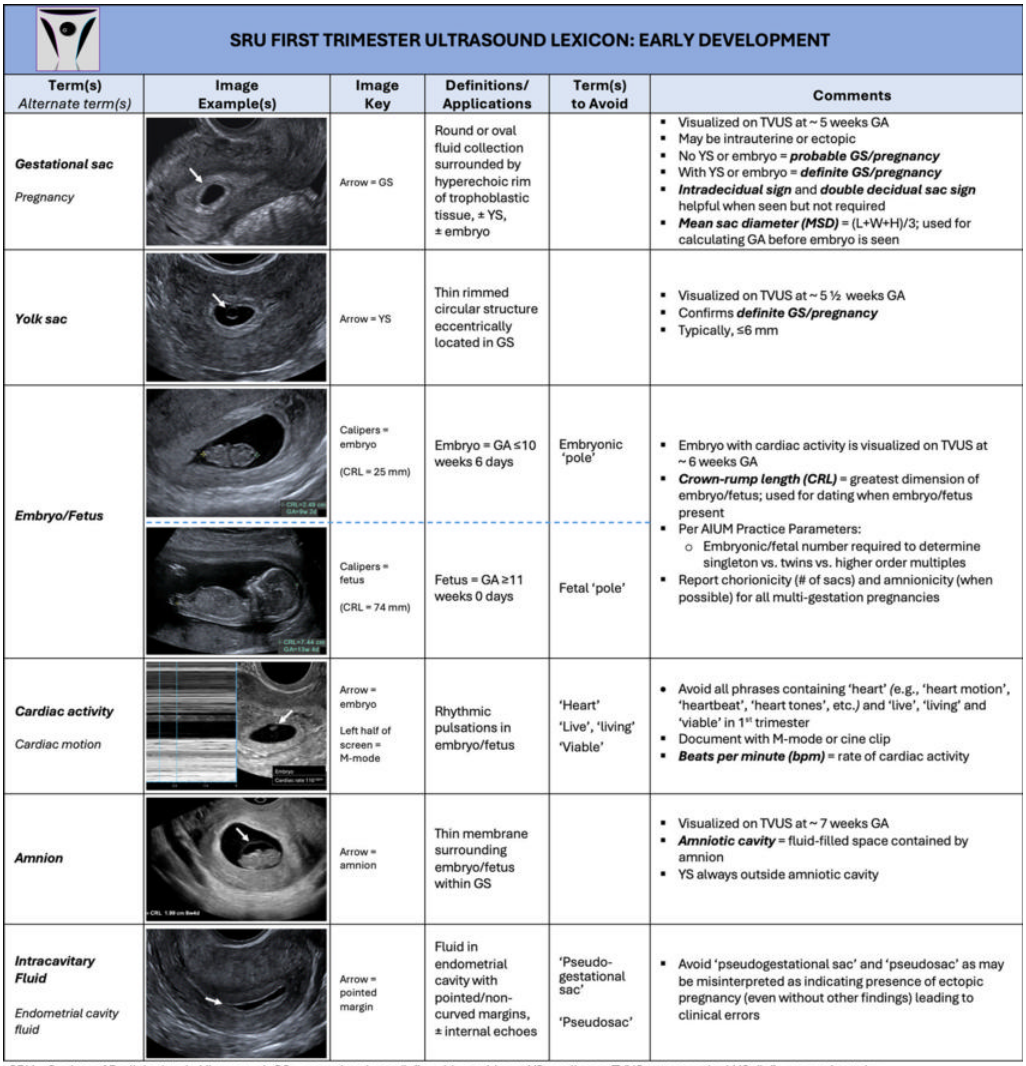

SRU FIRST TRIMESTER ULTRASOUND LEXICON: EARLY DEVELOPMENT

Term(s) *Alternate term(s)*	Image Example(s)	Image Key	Definitions/ Applications	Term(s) to Avoid	Comments
Gestational sac *Pregnancy*		Arrow = GS	Round or oval fluid collection surrounded by hyperechoic rim of trophoblastic tissue, ± YS, ± embryo		▪ Visualized on TVUS at ~ 5 weeks GA ▪ May be intrauterine or ectopic ▪ No YS or embryo = ***probable GS/pregnancy*** ▪ With YS or embryo = ***definite GS/pregnancy*** ▪ ***Intradecidual sign*** and ***double decidual sac sign*** helpful when seen but not required ▪ ***Mean sac diameter (MSD)*** = (L+W+H)/3; used for calculating GA before embryo is seen
Yolk sac		Arrow = YS	Thin rimmed circular structure eccentrically located in GS		▪ Visualized on TVUS at ~ 5 ½ weeks GA ▪ Confirms ***definite GS/pregnancy*** ▪ Typically, ≤6 mm
Embryo/Fetus		Calipers = embryo (CRL = 25 mm)	Embryo = GA ≤10 weeks 6 days	Embryonic 'pole'	▪ Embryo with cardiac activity is visualized on TVUS at ~ 6 weeks GA ▪ ***Crown-rump length (CRL)*** = greatest dimension of embryo/fetus; used for dating when embryo/fetus present ▪ Per AIUM Practice Parameters: o Embryonic/fetal number required to determine singleton vs. twins vs. higher order multiples ▪ Report chorionicity (# of sacs) and amnionicity (when possible) for all multi-gestation pregnancies
		Calipers = fetus (CRL = 74 mm)	Fetus = GA ≥11 weeks 0 days	Fetal 'pole'	
Cardiac activity *Cardiac motion*		Arrow = embryo Left half of screen = M-mode	Rhythmic pulsations in embryo/fetus	'Heart' 'Live', 'living' 'Viable'	▪ Avoid all phrases containing 'heart' *(e.g., 'heart motion', 'heartbeat', 'heart tones', etc.)* and 'live', 'living' and 'viable' in 1st trimester ▪ Document with M-mode or cine clip ▪ ***Beats per minute (bpm)*** = rate of cardiac activity
Amnion		Arrow = amnion	Thin membrane surrounding embryo/fetus within GS		▪ Visualized on TVUS at ~ 7 weeks GA ▪ ***Amniotic cavity*** = fluid-filled space contained by amnion ▪ YS always outside amniotic cavity
Intracavitary Fluid *Endometrial cavity fluid*		Arrow = pointed margin	Fluid in endometrial cavity with pointed/non-curved margins, ± internal echoes	'Pseudo-gestational sac' 'Pseudosac'	▪ Avoid 'pseudogestational sac' and 'pseudosac' as may be misinterpreted as indicating presence of ectopic pregnancy (even without other findings) leading to clinical errors

SRU = Society of Radiologists in Ultrasound; GS = gestational sac; "±" = with or without; YS = yolk sac; TVUS = transvaginal US; "~" = approximately; L = length; W = width; H = height; GA = gestational age; AIUM = American Institute of Ultrasound in Medicine; 1st = first

Figure 2. Early development. Lexicon terms (bolded and/or italicized) in this table relate to structures visualized at US in early pregnancy development. Terms to avoid are in single quotation marks. Terms specific to multigestation pregnancies, such as *chorionicity* and *amnionicity*, are beyond the scope of this lexicon.
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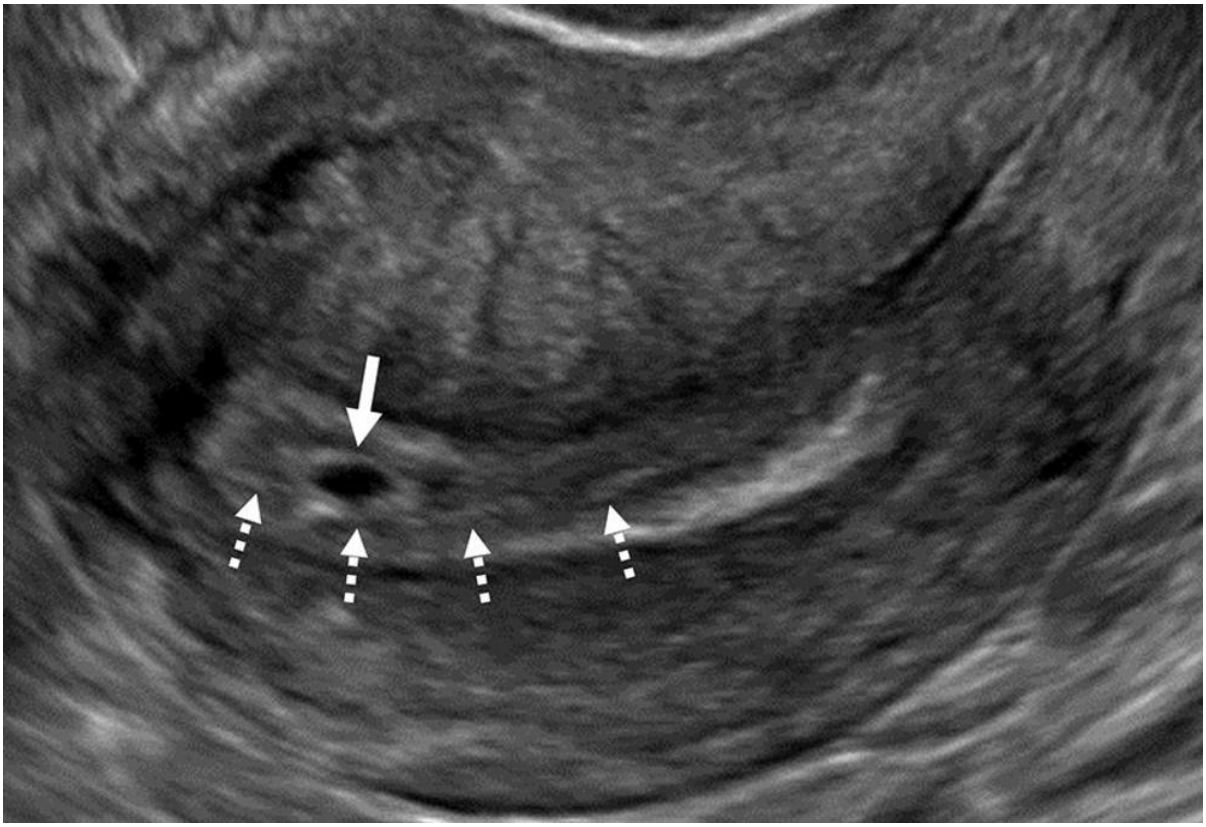

Figure 3. Intradecidual sign. Transvaginal sagittal grayscale US image in a 34-year-old pregnant patient shows a 4-mm empty gestational sac (GS) (solid arrow) in the anterior endometrium. The location of the GS to one side of the central hyperechoic line (dotted arrows) representing the opposed innermost layers of decidualized endometrium confirms it is within endometrium and not the endometrial cavity, hence the name *intradecidual sign*. This sign is helpful when seen to diagnose a *probable* intrauterine pregnancy (IUP) before visualization of the yolk sac. Three days later, the yolk sac was visualized (not shown), allowing for the diagnosis of a *definite* IUP.
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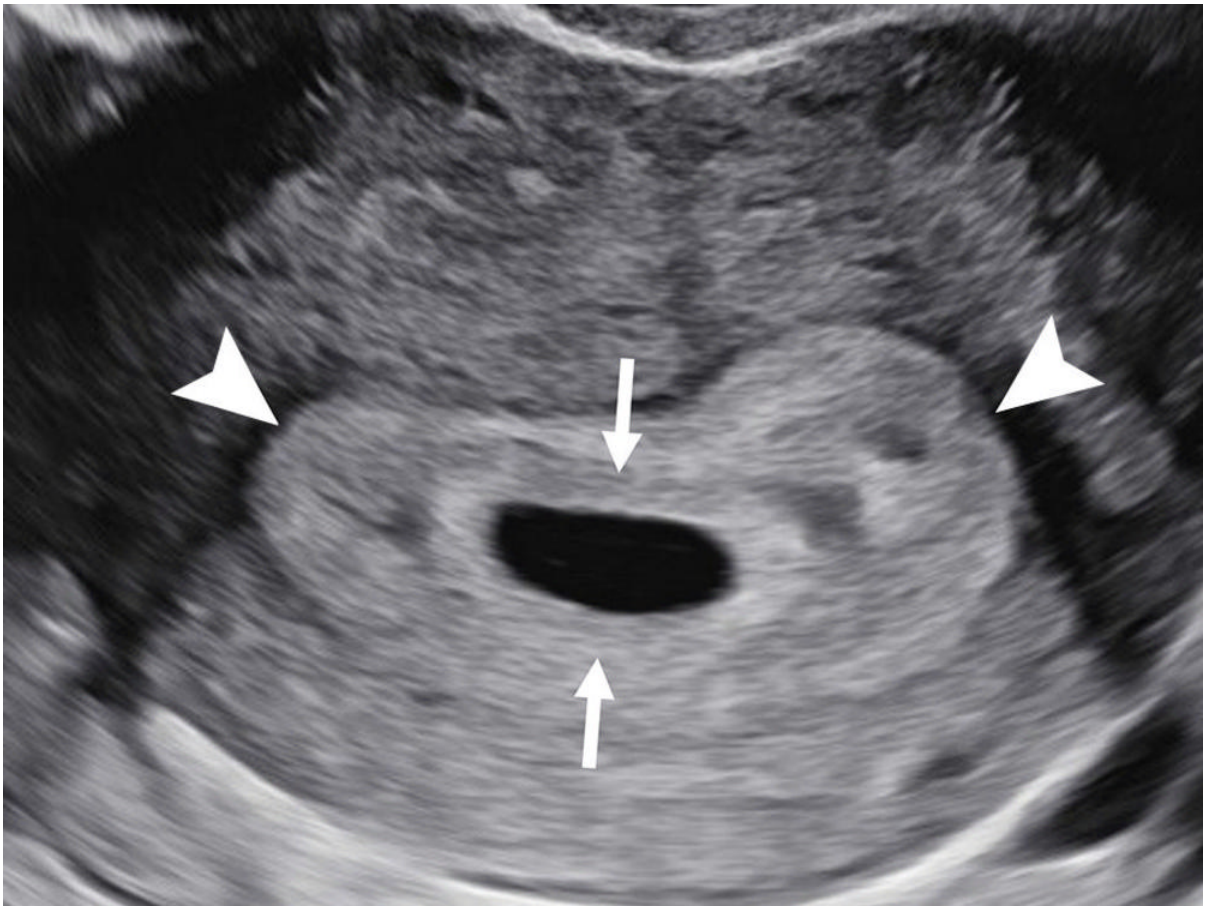

Figure 4. Double decidual sac sign. Transvaginal transverse grayscale US image in a 27-year-old pregnant patient at 5 weeks 3 days shows two concentric echogenic rings around an oval fluid collection representing the *double decidual sac sign*. The inner echogenic ring (arrows) corresponds to trophoblastic chorion and decidua capsularis. The outer echogenic ring (arrowheads) represents decidua vera and endometrial lining. The double decidual sac sign is more specific for an intrauterine pregnancy than the intradecidual sign when the gestational sac is empty.
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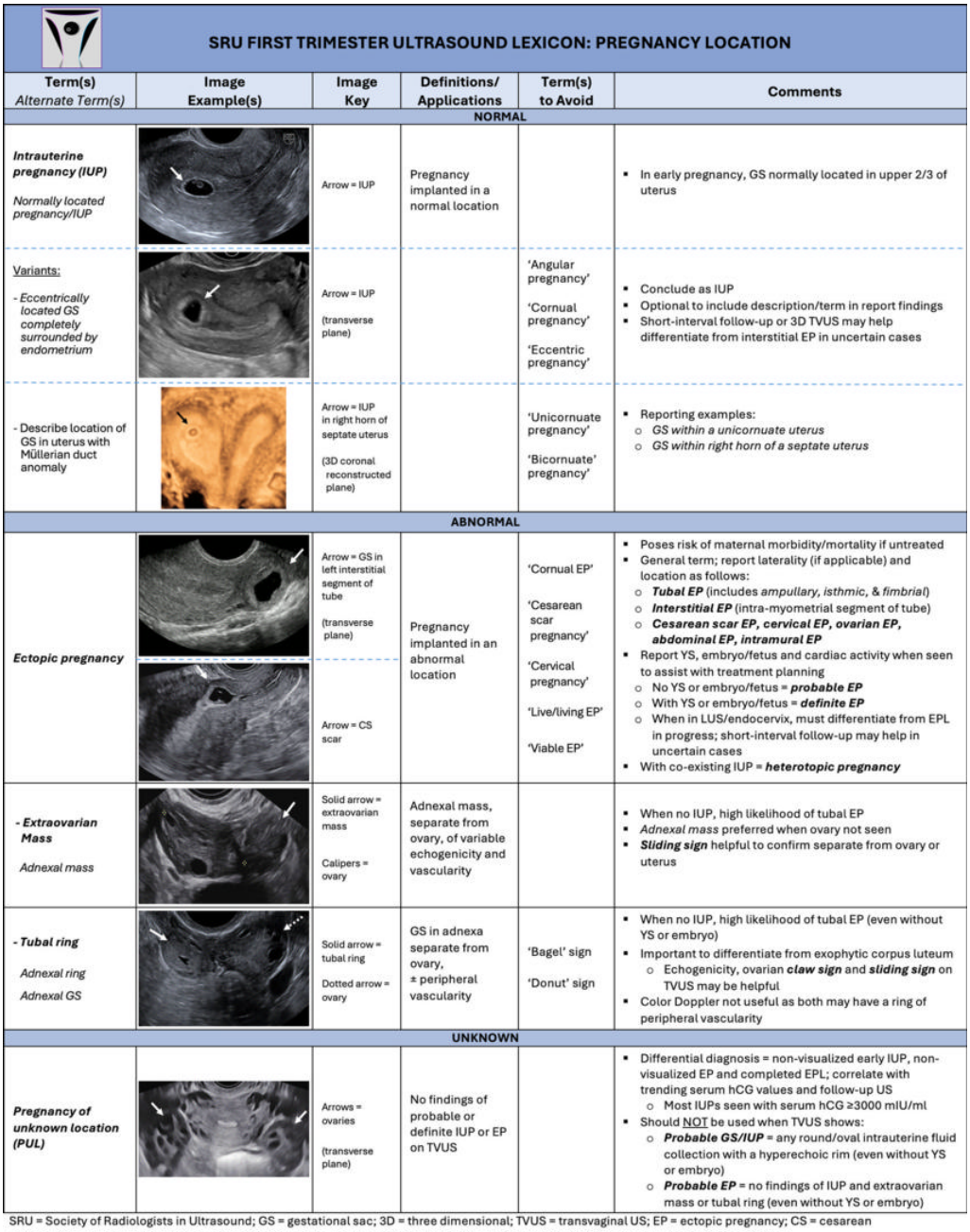

SRU FIRST TRIMESTER ULTRASOUND LEXICON: PREGNANCY LOCATION

Term(s) *Alternate Term(s)*	Image Example(s)	Image Key	Definitions/ Applications	Term(s) to Avoid	Comments
NORMAL					
Intrauterine pregnancy (IUP) *Normally located pregnancy/IUP*		Arrow = IUP	Pregnancy implanted in a normal location		▪ In early pregnancy, GS normally located in upper 2/3 of uterus
Variants: - *Eccentrically located GS completely surrounded by endometrium*		Arrow = IUP (transverse plane)		'Angular pregnancy' 'Cornual pregnancy' 'Eccentric pregnancy'	▪ Conclude as IUP ▪ Optional to include description/term in report findings ▪ Short-interval follow-up or 3D TVUS may help differentiate from interstitial EP in uncertain cases
- Describe location of GS in uterus with Müllerian duct anomaly		Arrow = IUP in right horn of septate uterus (3D coronal reconstructed plane)		'Unicornuate pregnancy' 'Bicornuate' pregnancy'	▪ Reporting examples: o *GS within a unicornuate uterus* o *GS within right horn of a septate uterus*
ABNORMAL					
Ectopic pregnancy		Arrow = GS in left interstitial segment of tube (transverse plane) Arrow = CS scar	Pregnancy implanted in an abnormal location	'Cornual EP' 'Cesarean scar pregnancy' 'Cervical pregnancy' 'Live/living EP' 'Viable EP'	▪ Poses risk of maternal morbidity/mortality if untreated ▪ General term; report laterality (if applicable) and location as follows: o ***Tubal EP*** (includes *ampullary, isthmic,* & *fimbrial*) o ***Interstitial EP*** (intra-myometrial segment of tube) o ***Cesarean scar EP, cervical EP, ovarian EP, abdominal EP, intramural EP*** ▪ Report YS, embryo/fetus and cardiac activity when seen to assist with treatment planning o No YS or embryo/fetus = ***probable EP*** o With YS or embryo/fetus = ***definite EP*** o When in LUS/endocervix, must differentiate from EPL in progress; short-interval follow-up may help in uncertain cases ▪ With co-existing IUP = ***heterotopic pregnancy***
- Extraovarian Mass *Adnexal mass*		Solid arrow = extraovarian mass Calipers = ovary	Adnexal mass, separate from ovary, of variable echogenicity and vascularity		▪ When no IUP, high likelihood of tubal EP ▪ *Adnexal mass* preferred when ovary not seen ▪ ***Sliding sign*** helpful to confirm separate from ovary or uterus
- Tubal ring *Adnexal ring* *Adnexal GS*		Solid arrow = tubal ring Dotted arrow = ovary	GS in adnexa separate from ovary, ± peripheral vascularity	'Bagel' sign 'Donut' sign	▪ When no IUP, high likelihood of tubal EP (even without YS or embryo) ▪ Important to differentiate from exophytic corpus luteum o Echogenicity, ovarian ***claw sign*** and ***sliding sign*** on TVUS may be helpful ▪ Color Doppler not useful as both may have a ring of peripheral vascularity
UNKNOWN					
Pregnancy of unknown location (PUL)		Arrows = ovaries (transverse plane)	No findings of probable or definite IUP or EP on TVUS		▪ Differential diagnosis = non-visualized early IUP, non-visualized EP and completed EPL; correlate with trending serum hCG values and follow-up US o Most IUPs seen with serum hCG ≥3000 mIU/ml ▪ Should NOT be used when TVUS shows: o ***Probable GS/IUP*** = any round/oval intrauterine fluid collection with a hyperechoic rim (even without YS or embryo) o ***Probable EP*** = no findings of IUP and extraovarian mass or tubal ring (even without YS or embryo)

SRU = Society of Radiologists in Ultrasound; GS = gestational sac; 3D = three dimensional; TVUS = transvaginal US; EP = ectopic pregnancy; CS = cesarean section; YS = yolk sac; LUS = lower uterine segment; EPL = early pregnancy loss; "±" = with or without; hCG = human chorionic gonadotropin

Figure 5. Pregnancy location. The location of a pregnancy is divided into normal, abnormal, and unknown. Lexicon terms are bolded and/or italicized, and terms to avoid are in single quotation marks. The essential word in the definition of intrauterine pregnancy and ectopic pregnancy (EP) is *implanted*, which helps differentiate pregnancies that are temporarily located in the lower uterine segment. This definition also further clarifies abnormal intrauterine implantation sites as EPs.
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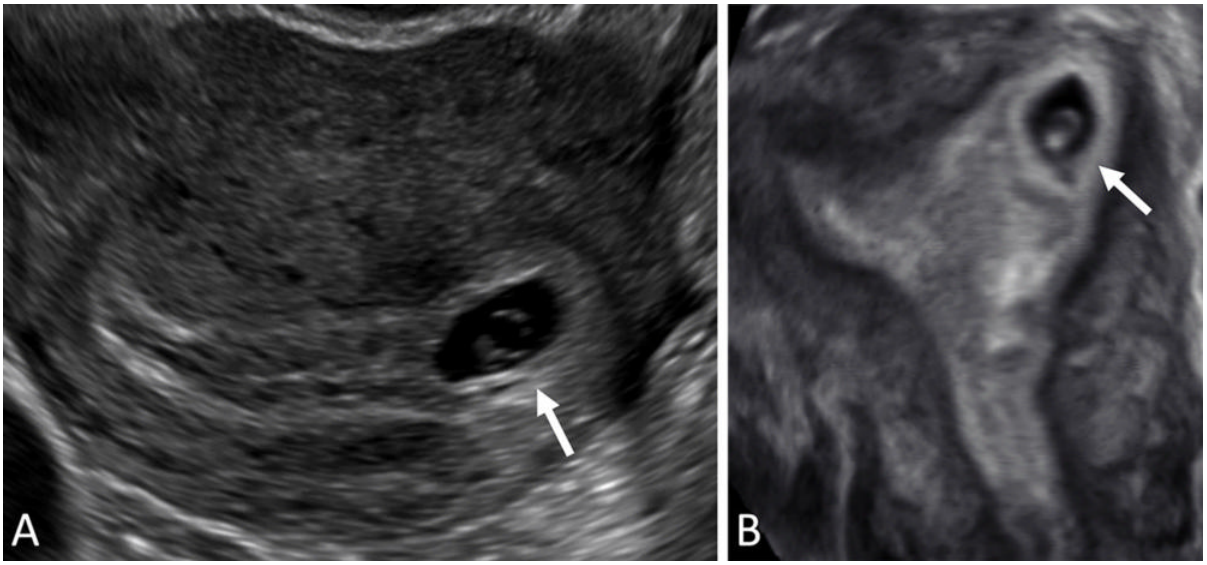

Figure 6. Normal intrauterine pregnancy (IUP) variant: eccentrically located gestational sac (GS) completely surrounded by endometrium. **(A)** Transvaginal transverse grayscale and **(B)** coronal reformatted three-dimensional US image in a 36-year-old pregnant patient shows an off-midline (leftward) GS (arrow) at 5 weeks 4 days with yolk sac and embryo. The GS is completely surrounded by endometrium and may be reported as an IUP without further description. If desired, the user may describe as an *eccentrically located GS completely surrounded by endometrium* but should conclude as an IUP to obviate concern for an interstitial ectopic pregnancy. The terms 'angular' or 'cornual pregnancy' should be avoided. Coronal reformatted three-dimensional US may help confirm a GS is located within endometrium, as demonstrated in this case.
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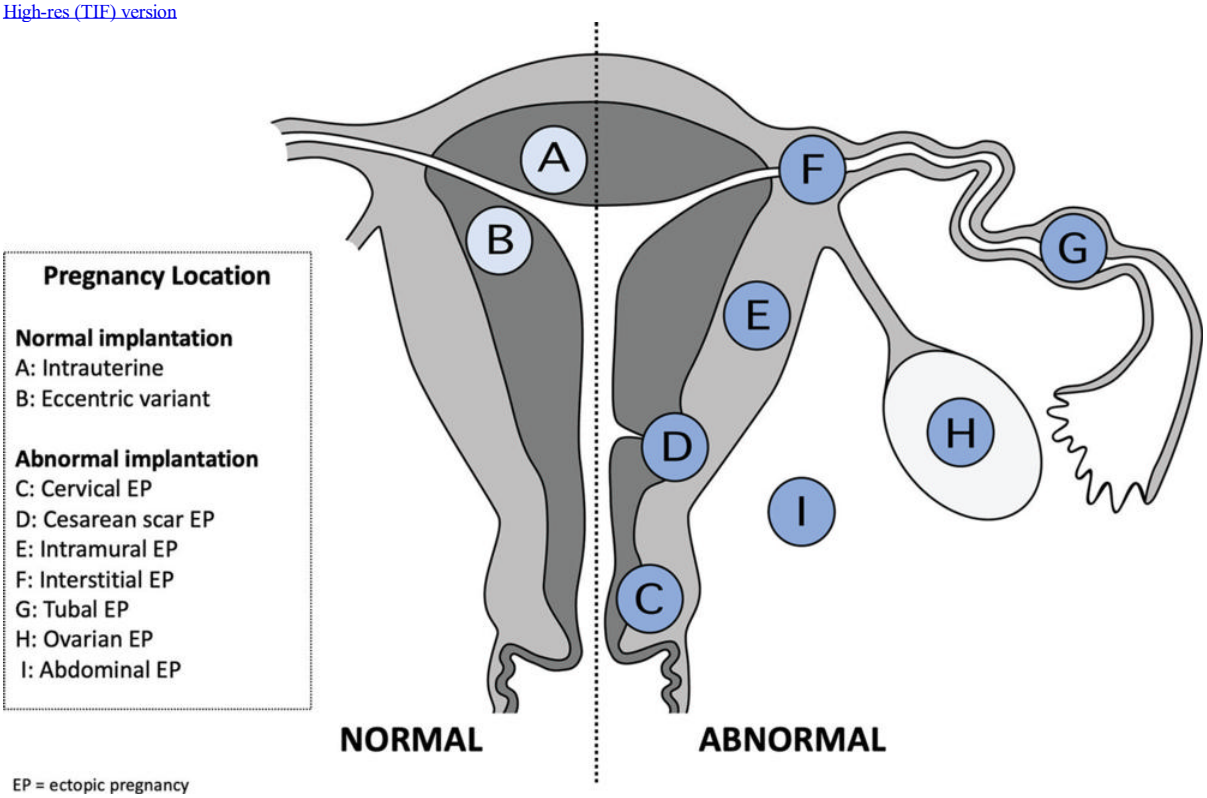

Figure 7. Specific normal and abnormal pregnancy location sites. Schematic illustration of normal pregnancy implantation sites on the left half of the uterine diagram and abnormal implantation sites on the right. Representative round icons indicate the implantation site with corresponding letters to lexicon terms in the box. Of note, it is optional to further describe a tubal ectopic pregnancy location as *isthmic*, *infundibular*, or *ampullary* when the precise location is clear at US.
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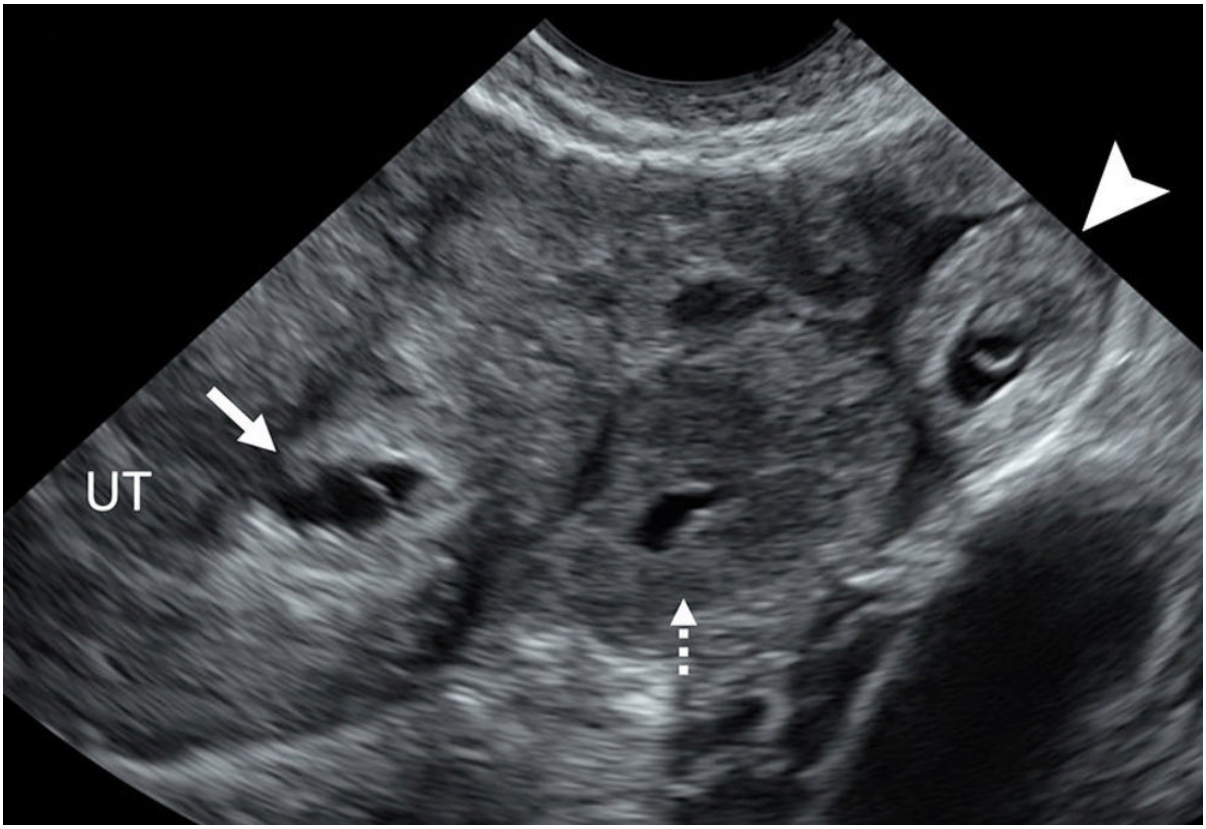

Figure 8. Heterotopic pregnancy. Transvaginal transverse grayscale US image in a 27-year-old pregnant patient shows an early intrauterine pregnancy (IUP) (solid arrow) containing a yolk sac and a *tubal ring* of ectopic pregnancy (EP) (arrowhead) also containing a yolk sac. The coexistence of an IUP and EP is termed *heterotopic pregnancy*. The left ovary contains a corpus luteum (dotted arrow) and is seen in the center. The rim of chorionic tissue in the IUP and EP is hyperechoic, whereas in contrast, the corpus luteum is hypoechoic. Echogenicity can help distinguish a tubal ring from a corpus luteum in some cases. UT = uterus.
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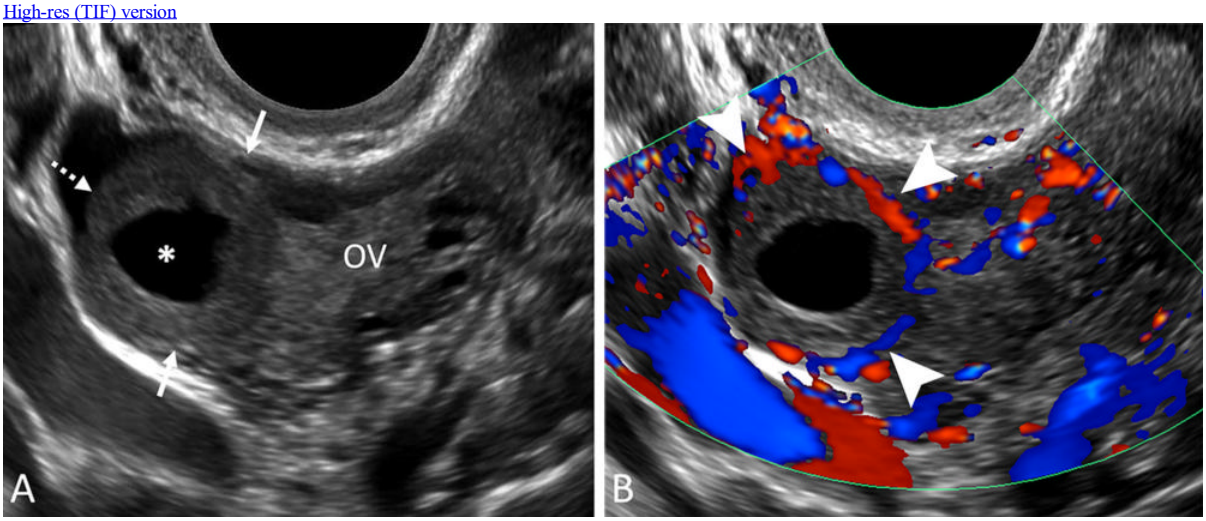

Figure 9. Corpus luteum. **(A)** Transvaginal sagittal grayscale and **(B)** color Doppler US image in a 31-year-old pregnant patient shows a round, hypoechoic, thick-walled structure (dotted arrow) with a central cystic space (*) and peripheral vascularity (arrowheads), characteristic of a *corpus luteum*. This corpus luteum arises in an exophytic fashion from the right ovary (OV), which can mimic a tubal ring of ectopic pregnancy. A helpful feature to diagnose a corpus luteum is a *claw sign* (solid arrows) of partially surrounding ovarian parenchyma, which confirms an ovarian origin.
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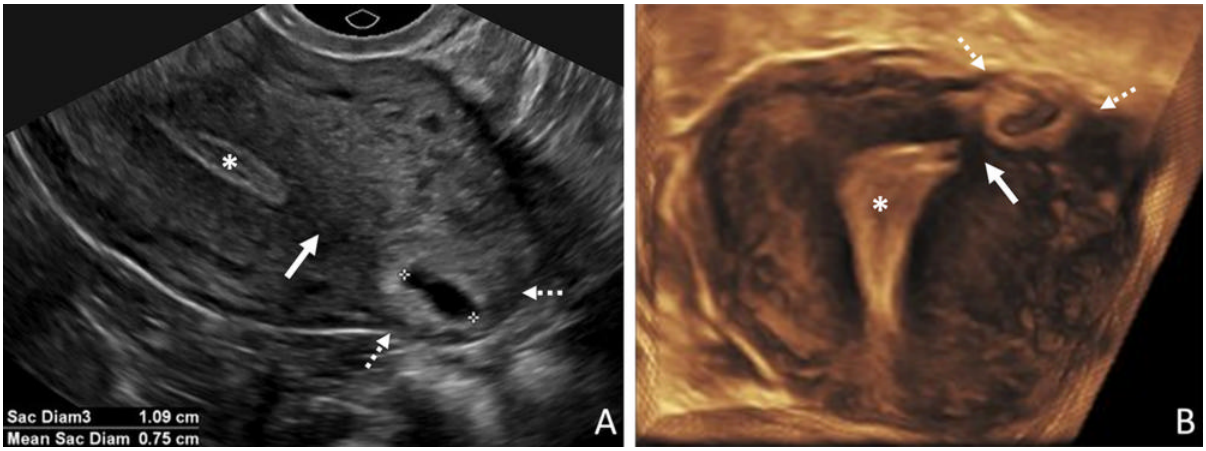

Figure 10. Interstitial ectopic pregnancy (EP). **(A)** Transvaginal transverse grayscale and **(B)** coronal reformatted three-dimensional US image in a 29-year-old pregnant patient shows a gestational sac (GS) (calipers) at 5 weeks 3 days. There is intervening myometrium (solid arrow) between the GS and endometrium (*). A *claw sign* (dotted arrows) of myometrial tissue confirms the pregnancy is implanted in the interstitial (intramyometrial) segment of the tube, termed an *interstitial EP*. The term 'cornual EP' should be avoided. Coronal reformatted three-dimensional US may better demonstrate an interstitial EP separate from the endometrium, as in this case. Diam = diameter.
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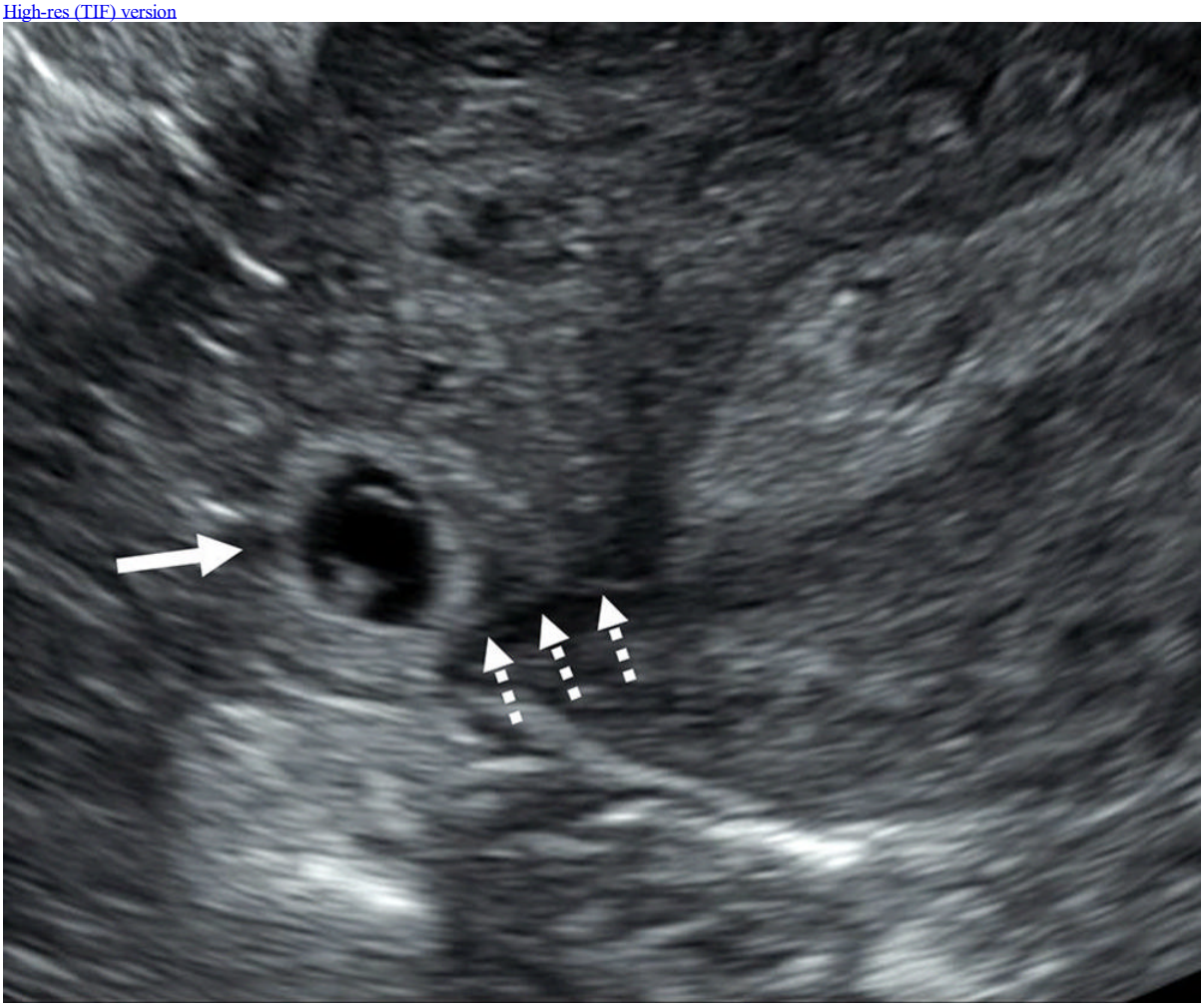

Figure 11. Interstitial line sign. Transvaginal transverse grayscale US image in a 33-year-old pregnant patient shows a right *interstitial ectopic pregnancy* (EP) (solid arrow) at 6 weeks 0 days. In addition to the characteristic sonographic findings of an interstitial EP shown in Figure 10, there is a thin echogenic line (dotted arrows) representing the interstitial segment of the tube. This line connects the endometrium to the ectopic gestational sac and is called the *interstitial line sign*.
High-res (TIF) version

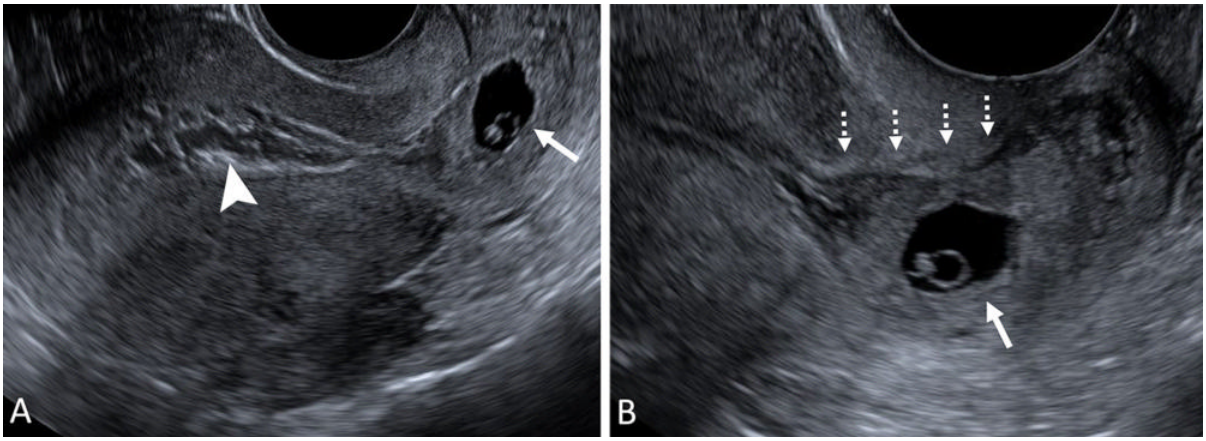

Figure 12. Cervical ectopic pregnancy (EP). **(A)** Transvaginal sagittal grayscale US of the uterus and **(B)** high-resolution US image of the cervix in a 31-year-old pregnant patient at 6 weeks 3 days with vaginal bleeding. A gestational sac (GS) (solid arrow) is seen containing an embryo with cardiac activity (not shown) implanted in the cervix. Mixed-echogenicity material (arrowhead) representing blood products expands the endometrial cavity. The location of the GS eccentric to the endocervical canal (dotted arrows) and cardiac activity help make the diagnosis of a cervical EP. The term 'cervical pregnancy' should be avoided.
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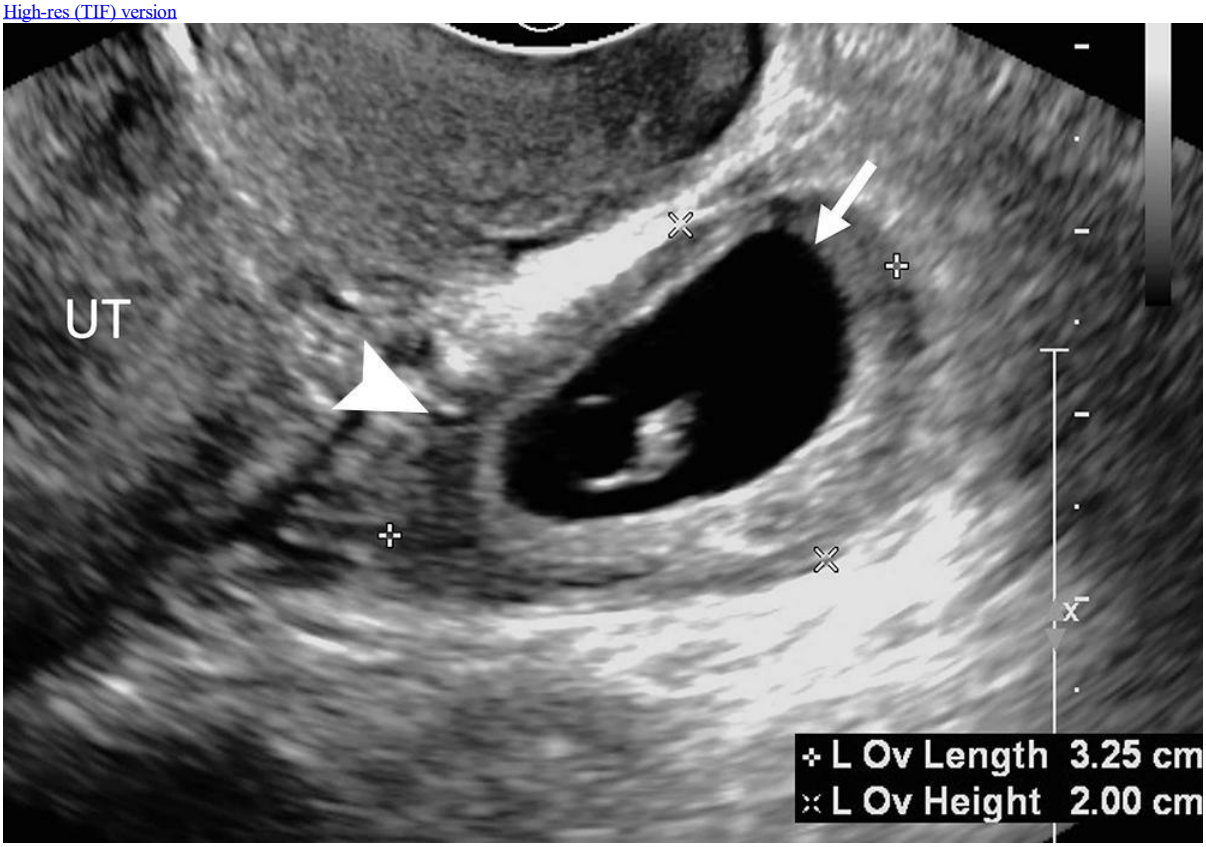
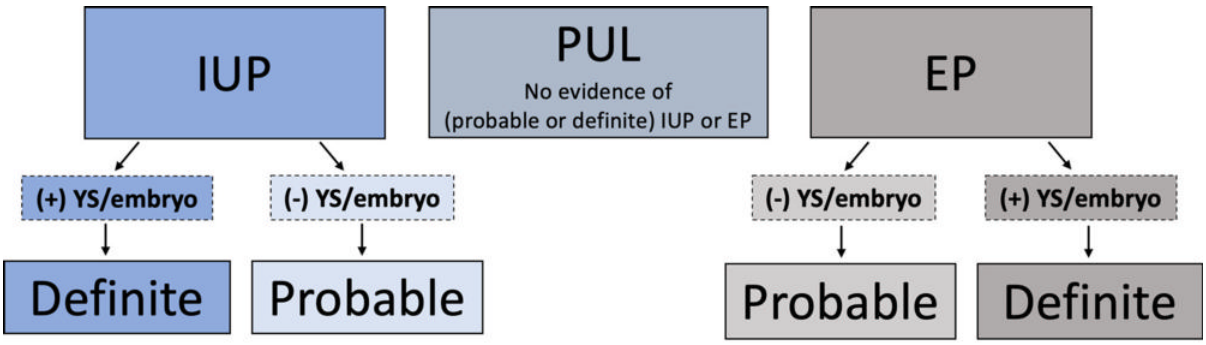


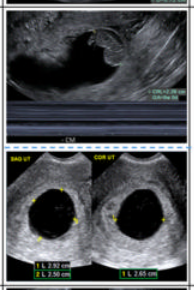
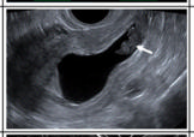
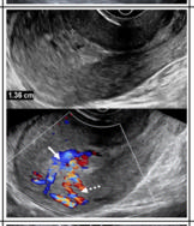
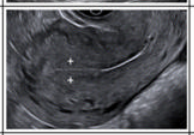
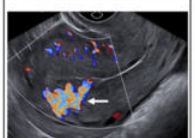
Figure 13. Ovarian ectopic pregnancy (EP). Transvaginal sagittal grayscale US image in a 35-year-old pregnant patient at 6 weeks 4 days shows a gestational sac (GS) (arrow) containing a yolk sac and embryo with cardiac activity (not shown) within the ovary (Ov) (calipers), diagnostic of an *ovarian EP*. A peripheral follicle is present in the ovary (arrowhead). To avoid misdiagnosing a corpus luteum for the rare ovarian EP, a yolk sac or embryo should be present in the intraovarian thick-walled cystic structure representing the GS. UT = uterus.
High-res (TIF) version



IUP = intrauterine pregnancy; PUL = pregnancy of unknown location; EP = ectopic pregnancy; YS = yolk sac

Figure 14. Pregnancy of unknown location (PUL). The original definition of PUL is maintained; however, it is clarified in the lexicon to clearly state that there should be no evidence of *probable* or *definite* intrauterine pregnancy (IUP) or ectopic pregnancy (EP) to qualify as a *PUL*. An empty gestational sac is considered a *probable* pregnancy whether implanted in a normal location (IUP) or abnormal location (EP) and should not be termed a PUL.
High-res (TIF) version

SRU FIRST TRIMESTER ULTRASOUND LEXICON: EARLY PREGNANCY LOSS (EPL)

Term(s) *Alternate Term(s)*	Image Example(s)	Image Key	Definitions/ Applications	Term(s) to Avoid	Comments
Concerning for EPL *Concerning for miscarriage* *Concerning for spontaneous abortion (SAB)* *IUP of unknown prognosis*		Solid arrow = YS Dotted arrow = amnion Calipers = YS (YS = 8 mm)	Normally located GS with findings that suggest a pregnancy may not progress	'Failure' 'IUP of uncertain viability'	▪ Criteria* on TVUS are as follows: ○ Embryonic CRL <7 mm and no cardiac activity ○ MSD 16-24 mm and no embryo ○ Absence of embryo with cardiac activity 7-13 days following visualized GS and no YS ○ Absence of embryo with cardiac activity 7-10 days following visualized GS with YS ○ Empty amnion sign ○ Enlarged YS (>7 mm) ○ Small GS relative to embryo (typically subjective; optional formula: MSD - CRL = <5) ○ Absent embryo ≥6 weeks after LMP ▪ Refer to literature for other poor prognosticators
Diagnostic of EPL *Diagnostic of miscarriage* *Diagnostic of SAB* Special scenarios: *Embryonic/fetal demise* *Anembryonic pregnancy*		Calipers = embryo (CRL = 23 mm; No cardiac motion) Calipers = MSD (MSD = 27 mm)	Normally located GS with findings definitive for a pregnancy that will not progress	'Failure' 'Blighted ovum' 'Nonviable' 'Nonviability'	▪ Criteria* on TVUS are as follows: ○ CRL ≥7 mm and no cardiac activity ○ MSD ≥25 mm and no embryo ○ Absence of embryo with cardiac activity ≥14 days after visualization of GS and no YS ○ Absence of embryo with cardiac activity ≥11 days after visualization of GS with YS ▪ Optional terms for special scenarios: ○ ***Embryonic/fetal demise*** = CRL ≥7 mm and no cardiac activity (*fetal* when GA ≥11 weeks 0 days) ○ ***Anembryonic pregnancy*** = no embryo and 1 of the following: ▪ MSD ≥25 mm ▪ ≥14 days since US showing GS and no YS ▪ ≥11 days since US showing GS with YS
EPL in progress *Miscarriage in progress* *SAB in progress*		Arrow = embryo in LUS/upper cervix (No CM)	GS located in cavity of lower uterine segment or endocervical canal in process of expulsion		▪ If cardiac activity present, consider cervical or cesarean scar ectopic pregnancy ▪ Color Doppler, ***sliding sign*** on TVUS or short-interval follow-up US may be helpful in uncertain cases
Incomplete EPL *Retained (or residual) products of conception (RPOC)* *Incomplete Miscarriage/SAB* Description of findings in lieu of term		Calipers = endometrial thickness (ET = 14 mm) Solid arrow = RPOC Dotted arrow = EMV	Residual intracavitary tissue or thickened endometrium following EPL, typically with internal vascularity; ± persistent GS	'Embryonic tissue' 'Fetal tissue'	▪ Option to substitute *residual* for *retained* as tissue may spontaneously expel and retained may imply tissue is fixed prompting unnecessary intervention; treatment is based on clinical factors or persistent GS ○ If GS in lower uterine segment/endocervix, see EPL in progress above ▪ Vascular flow in endometrial cavity confirms tissue ▪ Endometrium <10 mm without vascular flow is unlikely to represent incomplete EPL ▪ Enhanced myometrial vascularity (EMV) typically seen
Completed EPL *Completed miscarriage* *Completed SAB*		Calipers = endometrial thickness (ET = 7 mm)	No intracavitary tissue or persistent GS following EPL		▪ Used in following scenarios: ○ Prior visualized GS that is no longer seen and no residual intracavitary tissue ○ In differential diagnosis of pregnancy of unknown location (PUL)
- Enhanced myometrial vascularity (EMV)		Arrow = EMV	Focal myometrial vascularity deep to prior pregnancy implantation site		▪ Transient/expected finding following EPL (incomplete or completed); typically, resolves spontaneously ▪ Should NOT be confused with: ○ Arterio-venous fistula (AVF): rare; most commonly due to sharp curettage ○ Arterio-venous malformation (AVM): rare; congenital anomaly ○ Subinvolution of the placental site (SIPS): pathologic diagnosis

SRU= Society of Radiologist in Ultrasound; IUP = intrauterine pregnancy; cm = centimeters; YS = yolk sac; GS = gestational sac; *Doubilet et.al. NEJM 2013, PMID 24106937, DOI 10.1056/NEJMra1302417; TVUS = transvaginal US; MSD = mean sac diameter; CRL = crown-rump length; LMP = last menstrual period; GA = gestational age; CM = cardiac motion; SAG =sagittal; COR = coronal; "±" = with or without; ET = endometrial thickness

Figure 15. Early pregnancy loss (EPL). There are five main categories of EPL: concerning for, diagnostic of, in progress, incomplete, and completed. Enhanced myometrial vascularity (EMV) is included in the lexicon since increased myometrial vascularity deep to a prior implantation site is commonly

confused with other rare entities, such as an arteriovenous fistula and arteriovenous malformation, which may lead to unnecessary work-up.
High-res (TIF) version

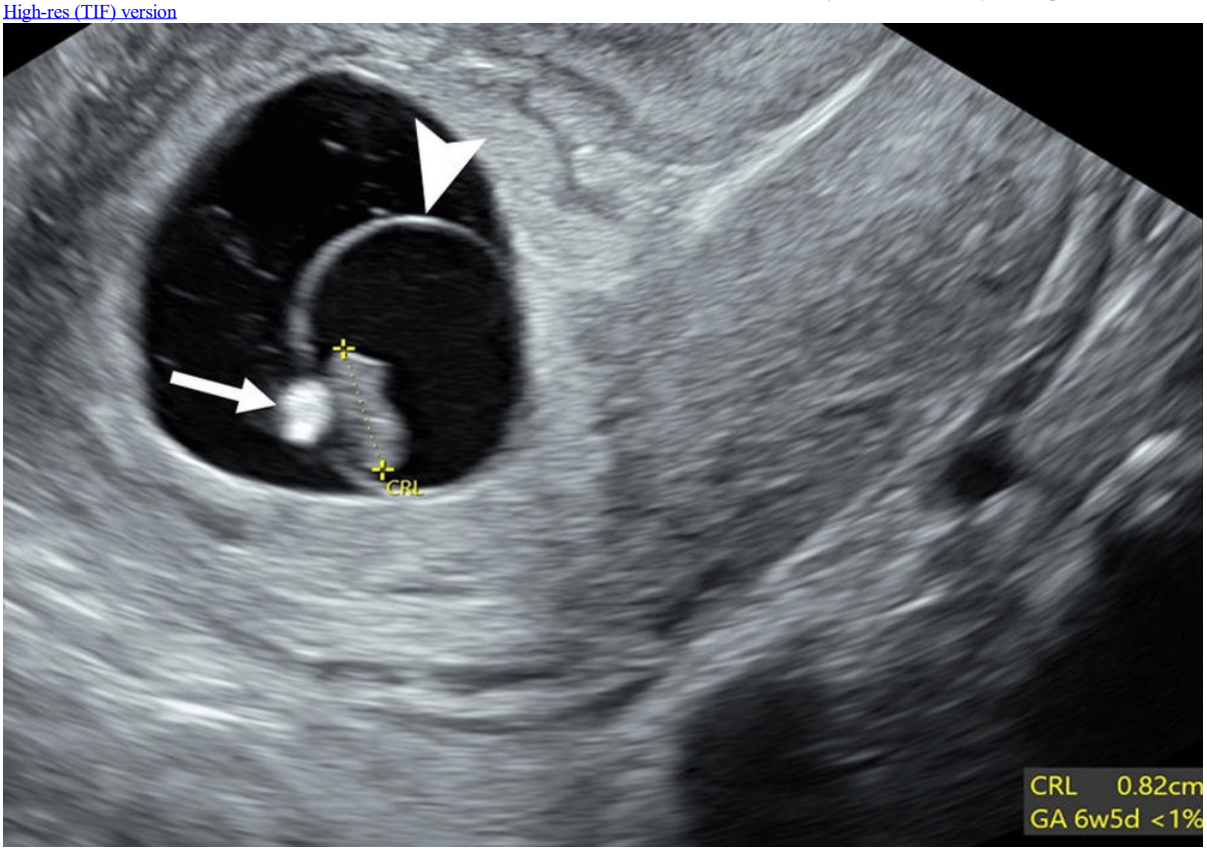


Figure 16. Poor prognosticators: calcified yolk sac and expanded amnion sign. Transvaginal sagittal grayscale US image in a 27-year-old pregnant patient shows an 8-mm embryo (calipers) without cardiac activity (M-mode not shown) sufficient for the interpretation of diagnostic of early pregnancy loss (EPL). Additional poor prognosticators include a calcified yolk sac (arrow) and an enlarged amniotic cavity (arrowhead) relative to the crown-rump length (CRL) of the embryo, called the expanded amnion sign. These additional observations, on their own, are only concerning for EPL. GA = gestational age.
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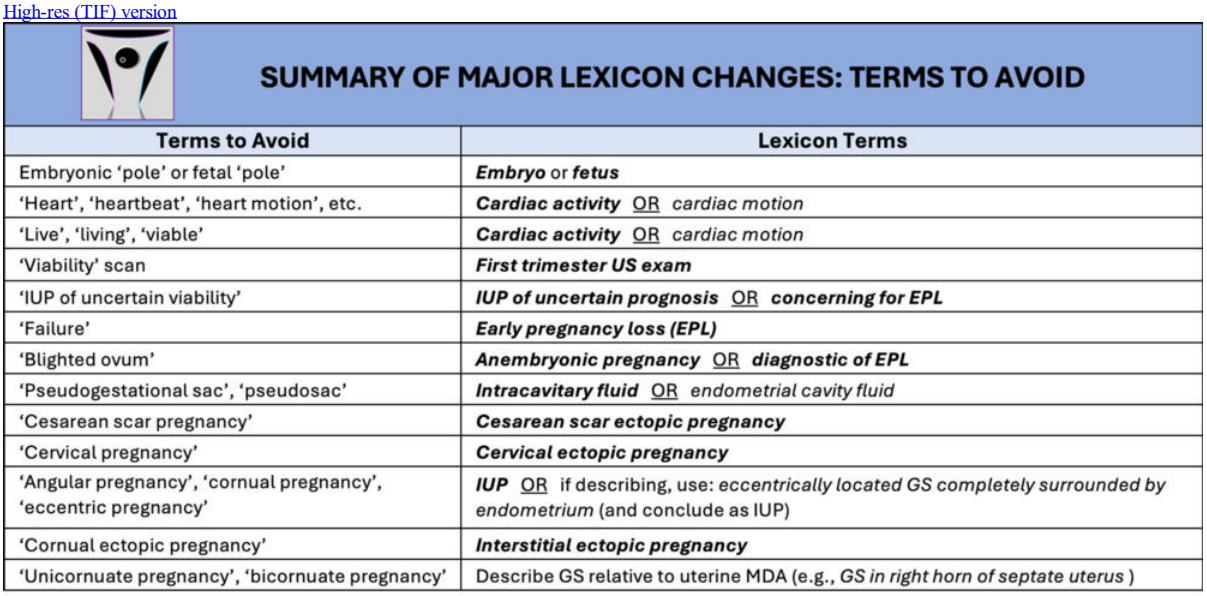
SUMMARY OF MAJOR LEXICON CHANGES: TERMS TO USE

Terms to Use	Comments
Early Pregnancy Loss (EPL)	▪ General term endorsed by OB-Gyn communities and societies to describe a pregnancy that may or will not progress, is in the process of expulsion, or has incompletely or completely passed; replaces 'failure' ▪ Modifiers to differentiate above scenarios are as follows: ○ ***Concerning for*** = GS normally located but with findings that it may not progress ○ ***Diagnostic of*** = GS normally located but with findings that it will not progress ○ ***In progress*** = GS located in cavity of LUS or endocervical canal in process of expulsion ○ ***Incomplete*** = Intracavitary tissue, thickened endometrium or persistent GS following EPL ▪ Alternate terms: • *Retained* (or *residual*) *products of conception (RPOC)* • Description of findings in lieu of a term (e.g., *intracavitary vascularized tissue*, etc.) ○ ***Completed*** = No persistent GS or intracavitary tissue following EPL ▪ Alternate terms for EPL to be used along with above modifiers: ○ *Miscarriage* ▪ Preferred by patients in one survey ○ *Spontaneous abortion in progress (SAB)* ▪ If using, consider reporting as synonymous with miscarriage for patient clarity
Cardiac activity	▪ Term for embryonic/fetal rhythmic pulsations; replaces 'heart', 'heart motion', 'heartbeat', etc. ▪ Alternate term: *cardiac motion* ▪ Avoid the terms 'live', 'living' and 'viable' in the 1st trimester
Ectopic Pregnancy	▪ Defined as a pregnancy implanted in an abnormal location, whether extrauterine or intrauterine ○ Clarifies cervical and Cesarean scar sites as ectopic pregnancies ▪ Use ***probable*** if no YS or embryo seen ▪ Use ***definite*** if YS or embryo seen

OB-Gyn = Obstetrical and Gynecologic; GS = gestational sac; LUS = lower uterine segment; YS = yolk sac; 1st = first

Figure 17. Summary of major lexicon changes highlighting terms to use. The major changes from currently used terminology to describe sonographic findings in the first trimester are *(a) early pregnancy loss* in lieu of 'failure'; *(b) cardiac activity* in lieu of 'heart motion'; and *(c)* defining *ectopic pregnancy*

as an abnormal implantation site. The terms 'live,' 'living,' and 'viable' are commonly used terms to describe cardiac activity. However, as these terms may be misleading, they are best avoided in the first trimester.
High-res (TIF) version



SUMMARY OF MAJOR LEXICON CHANGES: TERMS TO AVOID

Terms to Avoid	Lexicon Terms
Embryonic 'pole' or fetal 'pole'	***Embryo*** or ***fetus***
'Heart', 'heartbeat', 'heart motion', etc.	***Cardiac activity*** OR *cardiac motion*
'Live', 'living', 'viable'	***Cardiac activity*** OR *cardiac motion*
'Viability' scan	***First trimester US exam***
'IUP of uncertain viability'	***IUP of uncertain prognosis*** OR ***concerning for EPL***
'Failure'	***Early pregnancy loss (EPL)***
'Blighted ovum'	***Anembryonic pregnancy*** OR ***diagnostic of EPL***
'Pseudogestational sac', 'pseudosac'	***Intracavitary fluid*** OR *endometrial cavity fluid*
'Cesarean scar pregnancy'	***Cesarean scar ectopic pregnancy***
'Cervical pregnancy'	***Cervical ectopic pregnancy***
'Angular pregnancy', 'cornual pregnancy', 'eccentric pregnancy'	***IUP*** OR if describing, use: *eccentrically located GS completely surrounded by endometrium* (and conclude as IUP)
'Cornual ectopic pregnancy'	***Interstitial ectopic pregnancy***
'Unicornuate pregnancy', 'bicornuate pregnancy'	Describe GS relative to uterine MDA (e.g., *GS in right horn of septate uterus*)

US = ultrasound; IUP = intrauterine pregnancy; EPL = early pregnancy loss; GS = gestational sac; MDA = Müllerian duct anomaly

Figure 18. Summary of major lexicon changes highlights terms to avoid. Equally important as terms to use are those terms that are best avoided since they are obsolete or confusing (single quotation marks). This is accompanied by recommended lexicon terms (bold and italicized) to use instead.
High-res (TIF) version

Resources:

Editorial
Study abstract