UIHC FETAL DIAGNOSIS AND THERAPY
OBSTETRIC ULTRASOUND PROTOCOL
PLACENTA PREVIA, ACCRETA AND VASA PREVIA

Background:

- This protocol will address diagnosis and ultrasound management of low lying placenta, placenta previa, placenta accreta and vasa previa.

- Placenta previa refers to the presence of placental tissue that extends over or lies proximate to the internal cervical os.

- Transvaginal ultrasound is integral to the diagnosis and management of previa, accreta and vasa previa.

- Terminology to describe placental location and ultrasound criteria for diagnosis: (9)

Type of Placentation	Clinical Criteria	Proposed Sonographic Criteria
Complete previa (listed as "total previa" in R4)	Placenta completely covers the internal os	Placenta covers the internal os or reaches the internal os and is not a measurable distance away.
Partial previa	Placenta partially covers the internal os.	Placenta partially covers a *dilated* internal os (rarely applies).
Marginal previa	Placental edge reaches the margin of the internal cervical os.	Do not use this term.
Low-lying placenta	Placenta implants on lower uterine segment, does not reach the cervix.	Placental edge does not reach the internal os but is $\leq$ 20 mm from the os.
Vasa previa	Fetal vessels between the chorion and amnion over the cervix, unprotected by placenta or umbilical cord. (2)	Fetal vessels fixed in fetal membranes are seen to traverse the internal cervical os by color Doppler.
Placenta accreta	Placenta invades into myometrium, through myometrium to serosa or through serosa.	See below.

Protocol:

1: Placenta previa:

- At second trimester anatomy ultrasound, abdominal ultrasound should be utilized to screen for placenta previa. An image of the lower uterine segment should be acquired in a midline sagittal plane.

- Unless the placenta is clearly fundal and the lower segment is clear, the distance from the inferior edge of the placenta to the internal cervical os should be measured. **If this measurement is less than 2.0 cm and gestational age is ≥ 18 wk, a *transvaginal ultrasound* should be recommended and performed. If the woman declines the transvaginal ultrasound, please document this in the report.** (10)

- At ≥ 16 wk gestation, placenta previa will be reported if the placenta covers the internal os or reaches the internal os and is not a measurable distance away. The sonographer does not have to alert the physician about previa on a screening (OB) ultrasound unless the patient has risk factors for accreta or ultrasound findings associated with accreta. (See below.)

- No Follow-up is indicated if the placenta inferior edge is >1 cm away from the cervical os at 20 weeks unless there are risk factors for placenta accreta [8]. (See below.)

- A follow-up ultrasound study should be performed at 28 weeks' gestation to evaluate the placental position if placenta previa or low lying placenta < 1 cm is diagnosed in second trimester. Serial growth ultrasound and NST are not indicated in pregnancies with placenta previa [6].

- The pregnancy should be delivered at 36-37 weeks gestation if there is no active bleeding[3]. BMTZ will be administered 48 hours before delivery.

- Vaginal delivery can be attempted if placenta inferior edge is >1 cm from internal os with 69% successful rate. [4]

- If a patient is admitted to Labor and Delivery from an outside hospital with a diagnosis of placenta previa or low lying placenta and no prior ultrasound in our facility, the following exams should be performed on admission:

  -Detailed fetal anatomy ultrasound.

  -Transvaginal ultrasound for placenta location is recommended. Light bleeding or spotting is not a contraindication to a vaginal ultrasound. Confirm with MFM on performing transvaginal ultrasound in the setting of heavy vaginal bleeding, PROM and/or dilated cervix.

2: Placenta accreta

- Risk factors for placenta accreta include: placenta previa, prior cesarean deliveries, prior uterine surgery (myomectomy, endometrial ablation, resection of uterine septum), Asherman syndrome, fibroids, uterine abnormalities and radiation.(11)

- Highest risk women: placenta previa with multiple prior cesarean deliveries. Risk of accreta in these women is 11% with 1 prior cesarean; 40% with 2 prior cesareans and >60% with ≥3 prior cesareans. Risk of accreta with NO previa and a prior cesarean section is <1%. (11)

- Ultrasound findings to suggest accreta/morbidly adherent placenta (MAP): (11,12)

First trimester: -Gestational sac in lower uterine segment -Multiple irregular vascular spaces in placental bed -Implantation of gestational sac imbedded onto cesarean delivery scar (cesarean ectopic)
Second trimester: -Multiple vascular lacunae within placenta
Third trimester: -Loss of normal hypoechoic retroplacental zone -Presence of multiple vascular lacunae within placenta (Swiss-cheese appearance) -Abnormalities of uterine serosa-bladder interface (interruption, thickening, irregularity, increased vascularity) -Extension of villi into myometrium, serosa or bladder -Retro-placental myometrial thickness <1mm -Turbulent blood flow through lacunae on Doppler ultrasonography -Increased subplacental vascularity -Vessels bridging from placenta to uterine margin -Gaps in myometrial blood flow

- Transvaginal ultrasound should be performed if MAP is suspected on transabdominal imaging. A partially full bladder may help with visualization of the bladder/uterine interface.

- Indications for MRI include suspected placenta percreta, posterior placenta previa or poor visualization of the placenta in obese patients with risk factors for MAP. MRI is not indicated in all cases of placenta accreta; sensitivity 80-85%, specificity 65-100%.

- Ultrasound recommendations:

    1. The sonographer should page the MFM physician if u/s signs of MAP are observed < 20 weeks on a screening OB ultrasound. Recommend follow-up in FDT at 20 weeks.

    2. If MAP diagnosed at 20 week scan, recommend follow-up in FDT at 24 weeks if not done previously.

    3. Return at 28 weeks if the patient has previa, risk factors for MAP but not ultrasound findings associated with MAP.

- See MAP Protocol for full details on managing women with placenta accreta/percreta.

3: Vasa previa:

- In all cases in which a multilobed or succenturiate placenta, a low-lying placenta or velamentous cord insertion is identified using transabdominal ultrasound, a detailed examination of the lower uterine segment and cervix should be performed with color Doppler or TVUS. [1]

- Hospitalization at 30-32 weeks and delivery at 35-36 weeks can be offered but not required.[5,7]

- BMTZ will be administered at admission and repeat 48 hours before delivery.

- A repeat ultrasound at 32 weeks to evaluate fetal growth and confirm the diagnosis giving the background of abnormal cord insertion.

- NST and serial ultrasound are not indicated although there is one case report of fetal decelerations considering secondary to cord compression [7]. Despite limited evidence, recommend started NSTs at 32 weeks.

Reference list:

1: Hull AD, Resnik R. Placenta previa, placenta accreta, abruptio placentae, and vasa previa. In: Creasy RK, Resnik R, Iams JD, et al., eds. Creasy and Resnik's Maternal-Fetal Medicine: Principles and Practice. 6th ed. Philadelphia, PA: Saunders; 2008: 725–737.

2: Oyelese KO, Turner M, Lees C, et al. Vasa previa: an avoidable obstetric tragedy. Obstet Gynecol Surv. 1999; 54: 138–145.

3: ACOG committee opinion. 2013, Number 560.

4: Vergani P, Ornaghi S, Pozzi I, et al. Placenta previa: distance to internal os and mode of delivery. Am J Obstet Gynecol. 2009; 201: 266.e1–266.e5.

5: Oyelese Y, Smulian JC. Placenta previa, placenta accreta, and vasa previa. Obstet Gynecol. 2006; 107: 927–941.

6. Harper LM, Odibo AO, Macones GA, Crane JP, Cahill AG. Effect of placenta previa on fetal growth. Am J Obstet Gynecol. 2010 Oct;203(4):330.e1-5.

7. Gagnon R, Morin L, Bly S, Butt K, Cargill YM. Guidelines for the management of vasa previa. J Obstet Gynaecol Can. 2009 Aug;31(8):748-60.

8. Berghella V. Obstetric Evidence Based Guidelines. 2008, 187-193.

9. Dashe JS. Toward consistent terminology of placental location. Seminars in Perinatology 2013;37:375-379.

10. Quant HS et al. Transabdominal ultrasonography as a screening test for second-trimester placenta previa. Obstet Gynecol 2014;123:628-33.

11. Silver RM et al. Center of excellence for placenta accreta. Am J Obstet Gynecol 2015;212(5):561-8.

12. Warshak CR et al. Accuracy of ultrasonography and magnetic resonance imaging in the diagnosis of placenta accreta. Obstet Gynecol 2006;108(3):573-81.