Placenta Previa and Vasa Previa

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Authors: Dr. Hennie Lombaard, Dr. Martha Rac, Dr. Alex Saucedo, Dr. Amir Shamshirsaz
Editor: Dr. Alex Saucedo

This guideline has been separated from the PAS guideline and information added regarding Vasa Previa Type 3.

Summary

Placenta Previa

- Patients diagnosed with placenta previa in the second trimester should have a follow up ultrasound at 32-34 weeks to determine persistence of the previa.
- These patients should be delivered via Cesarean delivery at 36w0d-37w6d weeks gestation, or sooner if labor or clinically significant bleeding occurs.
- Find overview of management in Figure 1.

Vasa Previa

- The placental cord insertion should be visualized at the midtrimester anatomy scan. If the cord insertion is suboptimally visualized, the lower uterine segment should be evaluated transabdominally and/or transvaginally to determine whether a vasa previa exists.
- Patients with vasa previa should be hospitalized 30-34 weeks based on clinical presentation and shared decision making with the patient
- Cesarean Delivery is recommended no later than 35w0d-36w0d. The use of intraoperative ultrasound can be used to identify the location of the fetal vessels to avoid surgical transection at the time of Cesarean delivery.
- Find overview of management in Figure 1.

Placenta Previa

Background

Placenta previa complicates ~0.3-0.5% of pregnancies and risk factors include:[1]

- History of prior cesarean delivery (CD)
- Uterine surgery
- In vitro fertilization (especially with cryopreserved embryos)
- Increasing age
- Multiparity
- Multiple pregnancy
- Smoking
- History of pelvic radiation

Definitions

- **Placenta previa:** a placenta that overlies the internal os of the cervix; all placentas overlying the os (to any degree) are termed previas
- **Low-lying placenta**: a placenta that is near to but not overlying the os[2], diagnosed when the distance between the internal cervical os and the placental edge is 1-20 mm.[3,4]
- **The terms "partial" and "marginal" have been eliminated from the nomenclature**.

Diagnosis

Uterine scarring predisposes to placental implantation in the lower uterine segment (LUS). As pregnancy progresses, >90% of these low-lying placentas identified early in pregnancy will appear to move away from the cervix and out of the LUS. This is thought to be due to the placenta preferentially growing towards a better vascularized fundus, whereas the placenta overlying the less well vascularized cervix may undergo atrophy. In some cases, this atrophy leaves vessels running through the membranes, unsupported by placental tissue or cord (vasa previa). In cases where the atrophy is incomplete, a succenturiate lobe may develop.[1]

The majority of cases of placenta previa are diagnosed during routine sonography in asymptomatic People, usually during the 2nd trimester.[1] Transvaginal ultrasound (TV-US) is superior to transabdominal ultrasound (TA-US) for this indication and therefore, TV-US must be performed to confirm the diagnosis. Once a placenta previa or low-lying placenta has been diagnosed in the midtrimester, follow up ultrasounds should be scheduled for evaluation of placental location and placental cord insertion. If a placenta previa is diagnosed at <24 weeks, up to 88% will resolve by delivery.[5]

Imaging Pearls

When the diagnosis of placenta previa/low lying placenta is made on ultrasound, the ultrasound report should document the following:

- The location of the placenta and the presence of a placenta previa or low-lying placenta. For a low-lying placenta, the distance (in centimeters) from the internal os to the leading edge of the placenta (to include a marginal sinus, if present) should be described.
- A discussion with the person that she has been informed of her diagnosis of placenta previa or low-lying placenta and advised to present to the hospital immediately for vaginal bleeding, that the diagnosis may resolve, and that follow up ultrasounds will be scheduled.
- A recommendation for follow up ultrasound for placental location and placental cord insertion
- In stable patients, follow up ultrasound can be performed at 32 weeks of gestation. If the previa persists, an additional study can be performed at 34-36 weeks of gestation to determine the optimal route and timing of delivery.[2,3]
- If placenta previa or low-lying placenta resolves, the ultrasound report should document the following:

- The placenta is no longer a previa/low-lying and there is/is not suspicion for vasa previa. **This should include a cine sweep of the lower uterine segment with color Doppler to confirm absence of fetal vasculature.**[6]
- The findings were conveyed to the patient.
- No further ultrasounds currently appear indicated.

At 32-34 week follow up scan when placenta previa/low-lying placenta persists:

- The ultrasound report should document the following:
  - Recommendation for cesarean delivery by 36w0d to 37w6d when placenta previa is present.
  - Mode of delivery to be discussed with primary provider when a low-lying placenta is present.
  - The findings were conveyed to the patient and her primary Ob provider.
- Coordination of care: at Ben Taub, the MFM will notify a High-Risk Ob Clinic Resident of the diagnosis and patient information so that delivery arrangements can be made (i.e., resident/faculty to schedule for CD vs. discussion regarding trial of labor).

Management

Acute Bleeding Episode

People who present with bleeding in the 2nd half of pregnancy should have a sonographic examination (preferably by TV approach) for placental location *prior* to any attempt to perform a digital examination. **Digital vaginal examination with a placenta previa may provoke brisk hemorrhage and should not be performed**.[1,7]

In people with a placenta previa who present with an acute bleeding episode or uterine contractions, the following management plan may be employed:

1. Hospitalization
2. Place 2 large-bore IVs
3. CBC ± coags
4. Type and cross for 4 units of PRBCs, in accordance with our hospitals' postpartum hemorrhage risk assessment and stratification tool
5. Administer Rh immune globulin to Rh-negative people; Kleihauer-Betke test should be performed to determine amount of Rh immune globulin necessary.
6. Consider administration of antenatal corticosteroids (ACS) for fetal maturity up to 35 6/7 weeks of gestation
   a. May consider tocolysis up 34 weeks gestation to allow for steroid administration
7. Consider administration of magnesium sulfate for fetal neuroprotection up to 31 6/7 weeks of gestation.
8. Prior to 32 weeks of gestation, moderate to severe bleeding when there is no maternal or fetal compromise may be managed aggressively with blood transfusions rather than resorting to delivery.[1]
9. Discharge home may be considered after 24-48 hours of no further bleeding.[1] Other considerations may include:
   a. Patient has access to a telephone and distance she lives from the hospital.
   b. Patient has a responsible adult and transportation available at all times.
   c. Patient accepts blood product transfusion.
   d. Number of previous hospitalizations for vaginal bleeding.

Antenatal Monitoring and Delivery Planning

See Figure 1 for recommended management.

Repeat US for placental localization and placental cord insertion at 32 weeks, as a majority of previas will resolve by this time.[5]

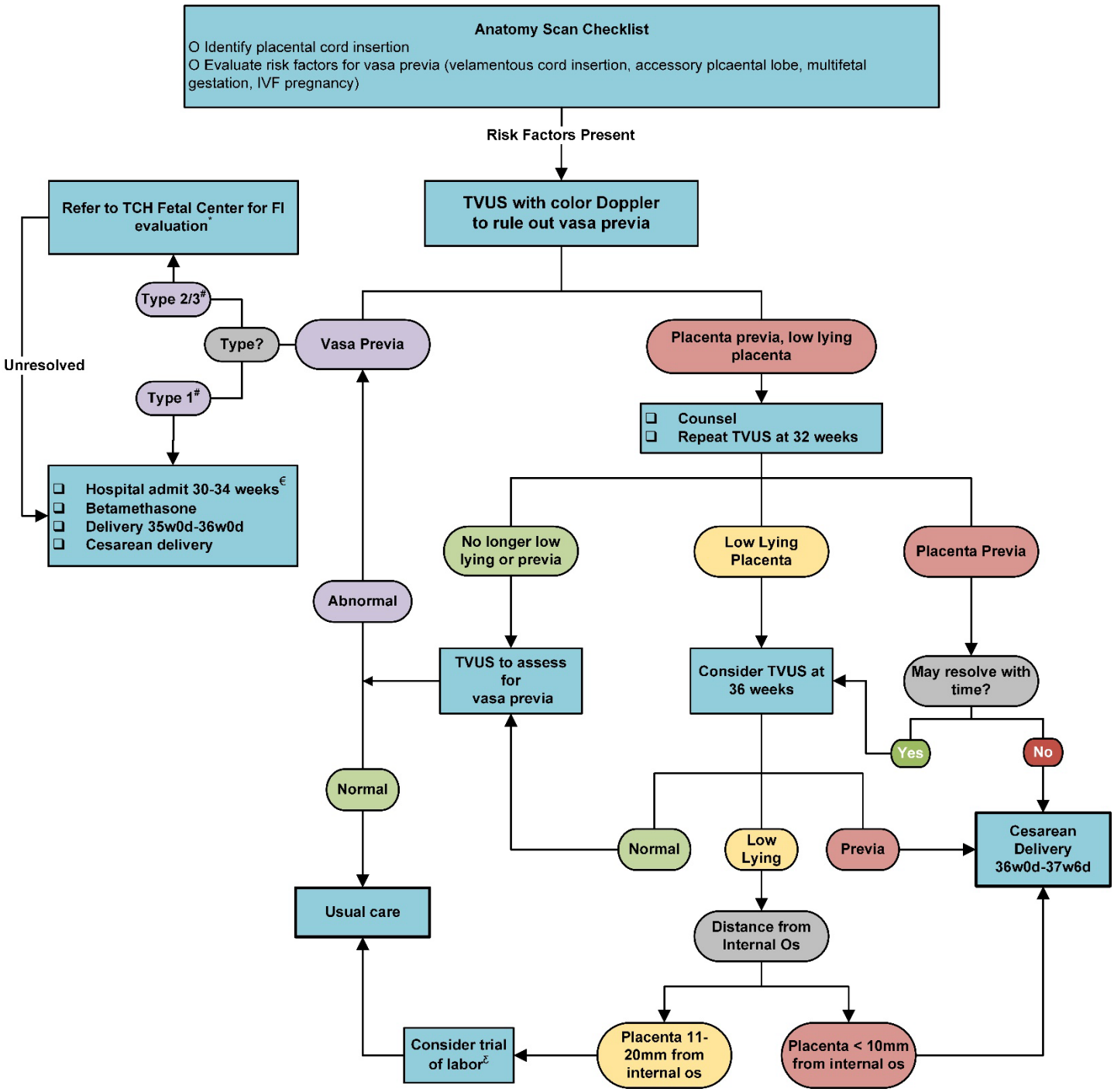
a. In a patient with a placental edge to cervical os distance of >10 mm, vaginal delivery may be considered, and management should be individualized.[8-11*]
b. Consider repeat TV-US at 34-36 weeks if a low-lying placenta seems likely to resolve and permit vaginal delivery
c. In a patient with prior CD(s) but no sonographic evidence of placenta accreta, **consider placing the patient in the dorsal lithotomy position** should an accreta be diagnosed intraoperatively (as per accreta protocol below).

A placenta previa requires delivery by cesarean.[1] In a stable patient, CD should be performed at 36 0/7 – 37 6/7 weeks.[1,12]

There is an increased risk of postpartum hemorrhage in the setting of previa, even without accreta, often attributable to diffuse bleeding at the placental implantation site in the LUS. In addition to uterotonics, measures such as "oversewing" of the placental bed, intrauterine balloon tamponade, and B-Lynch or other compression sutures may be helpful.[2]

* Three small retrospective studies suggest that people with placenta previa should have a TV-US in the late 3rd trimester and that those with a placenta-internal os distance of less than 2 cm, thus all low-lying placentations, should be delivered by cesarean.[7-9] Another small retrospective study demonstrated that more than two-thirds of people with a placental edge to cervical os distance of >10 mm deliver vaginally without increased risk of hemorrhage. This study has been referenced to demonstrate low-lying placentation as a potentially modifiable obstetric indication for first CD.[10]

Figure 1. Management of vasa previa, placenta previa, low lying placenta



* Some patients may be eligible for ablation of the vasa previa that connects a succenturiate lobe to the main placental mass. The goal of therapy is to permit patients to extend delivery beyond 34 weeks of gestation and for vaginal delivery at term, absent other risk factors.

Type 1 vasa previa velamentous cord insertion and the fetal vessels course unprotected over or within 2 cm of the internal cervical os; Type 2 vasa previa there is a succenturiate lobe or multilobed placenta with unprotected fetal vessels traversing the two lobes of the placenta that cross over the internal cervical os or are within 2 cm of the internal cervical os.

€ Timing of admission should be based on shared decision-making discussion, symptoms (i.e. contractions). In patients who cannot be admitted inpatient can consider cervical length with hospital admission for TVCL < 2.5mm.

£ Studies suggest low lying placenta 11-20mm from internal os are not at increased risk of hemorrhage with a vaginal delivery.

Vasa Previa

Vasa previa is a condition in which fetal vessels run within the fetal membranes and course unprotected over or within 2cm of the internal cervical os. It occurs in approximately 0.46/1000 deliveries. Due to the widespread use of ultrasound and pre-labor cesarean delivery, the perinatal mortality rate is now <10%.[3,4,12,13]

Risk Factors:

- Velamentous cord insertion
- Succenturiate lobe/bilobed placenta
- Low-lying placenta or placenta previa in the second trimester
- In vitro fertilization (incidence of Type I Vasa Previa 1/250)
- Multiple gestation

Definitions

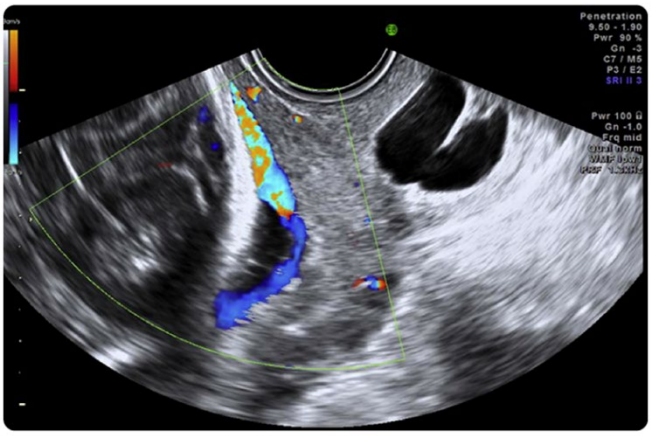
Type I Vasa Previa: there is a velamentous cord insertion and the fetal vessels course unprotected over or within 2 cm of the internal cervical os.

- Can occur after a low-lying placenta or placenta previa resolves.

Type II Vasa Previa: there is a succenturiate lobe or multilobed placenta with unprotected fetal vessels traversing the two lobes of the placenta that cross over the internal cervical os or are within 2 cm of the internal cervical os.

Type III Vasa Previa: there is a normal placental cord insertion into the disk, aberrant fetal vessels run from the placenta to the amniotic membrane, near the internal cervical os, before returning to the placenta.[14]

FIGURE 2
Transvaginal ultrasound with color Doppler image of vasa previa



In this image obtained by transvaginal ultrasonography, a fetal blood vessel is seen traversing across the cervical os suggestive of a vasa previa.

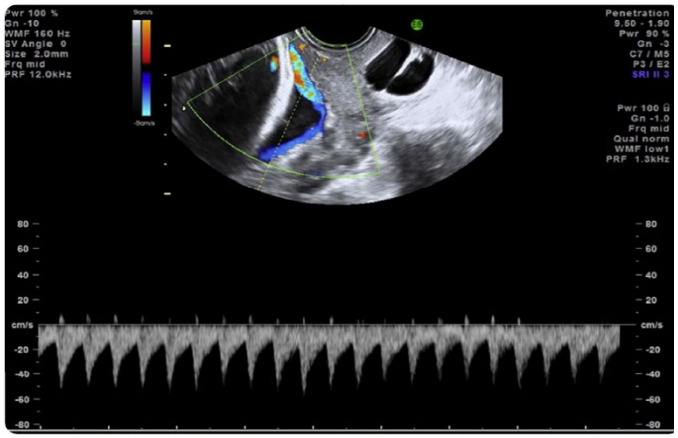
SMFM. Diagnosis and management of vasa previa. Am J Obstet Gynecol 2015.

Diagnosis

Diagnosis of Vasa Previa is routinely made with prenatal ultrasound via evaluation of the lower uterine segment and cervix, supplemented with color and pulsed Doppler imaging. The placental cord insertion site should be documented if technically feasible. Prenatal ultrasound for the detection of vasa previa has high sensitivity at 93% and specificity at 99%. Vasa previa is most commonly diagnosed during routine anatomy survey between 18-26 weeks. If diagnosed during the second trimester, there is a 20% chance of resolution by the third trimester and follow-up imaging is recommended for delivery planning.

When a vasa previa is suspected with transabdominal imaging, a transvaginal ultrasound with color and pulsed Doppler should be performed. Fetal vessels (versus maternal vessels) can be confirmed with pulsed Doppler imaging to document a rate equal to the fetal heart rate.

FIGURE 3
Transvaginal ultrasound scan with color Doppler image and pulsed wave Doppler image shows fetal heart rate



Pulsed wave Doppler of the vessel over the cervical os depicts a fetal heart rate, confirming a diagnosis of vasa previa.

SMFM. Diagnosis and management of vasa previa. Am J Obstet Gynecol 2015.

Management:

Once the diagnosis of Vasa Previa is confirmed, the goal of management is to balance pregnancy prolongation with avoidance of preterm labor or rupture of membranes that lead to disruption of fetal vessels and bleeding.

See Figure 1 for management guidelines.[1,9]

The decision to hospitalize should be individualized and take into consideration the following factors:

- Presence of symptoms such as preterm contractions and vaginal bleeding
- History of prior spontaneous preterm birth
- How far the patient lives from the hospital and reliability of transportation

In patients who cannot be or decline to be hospitalized, some experts recommend transvaginal cervical length screening and hospitalization for symptoms and/or TVCL less than 25mm as the risk for preterm birth is higher.

ACOG recommends delivery between 34 0/7 – 37 0/7 weeks of gestations. **The BCM Ob/Gyn Perinatal Guidelines Committee recommends delivery no later than 35-36 weeks of gestation** and via a cesarean delivery for persistent vasa previa. Delivery is recommended earlier for signs and symptoms of preterm labor, PPROM or evidence of fetal distress.

The presence of a sinusoidal fetal heart rate pattern with or without vaginal bleeding should prompt concern for fetal anemia due to ruptured fetal vessels and immediate delivery is recommended. The neonatology team should be notified of the potential need for a neonatal transfusion of O-negative blood. In the absence of available type and crossmatched or emergency blood, consider drawing 50-60mL of maternal blood to give to the neonate if routine emergency release will be delayed.

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