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Placenta Previa, Vasa Previa and Placenta Accreta Protocol

Placenta Previa

Background:

- Placenta previa – placenta that overlies, or is proximate to the internal os of the cervix. In placenta previa, the placenta either totally or partially lies within the lower uterine segment. The distance the placenta extends over the internal cervical os should be described in the diagnostic report.
- Low-lying – extends into the lower uterine segment but does not reach the internal os.[1] The most widely accepted definition of "low-lying" is a placental tip that extends to within 2 cm of the internal os.
- The diagnosis of placenta previa should be made with transvaginal ultrasound, which is safe even in the presence of active bleeding.
- Placenta previa is associated with multiple morbidities including maternal hemorrhage, prematurity, need for cesarean delivery, need for hospitalization, placenta accreta, need for hysterectomy, blood transfusion, perinatal morbidity and mortality, septicemia and thrombophlebitis.
- There is a threefold increased neonatal morbidity with placenta previa, largely attributable to prematurity.

Incidence:

- Previa – 1 in 200 pregnancies.
    - The incidence is much higher in the midtrimester
    - 90% resolve by the third trimester

Risk Factors:

- Prior cesarean delivery
- Prior pregnancy terminations
- History of intrauterine surgery
- Tobacco use
- Multiple gestation
- Multiparity
- Increased maternal age

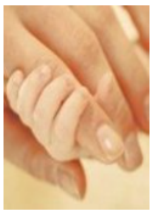
Management:

- Women with bleeding should have sonographic examination prior to digital examination to confirm/negate the presence of a placenta previa. Digital vaginal examination may provoke catastrophic hemorrhage and should not be performed.[1]
- Women incidentally noted to have a placenta previa do not routinely require limitations of activities including physical, work or pelvic, provided they are stable without hemorrhagic episodes.
- There is conflicting data regarding the association, if any, between placenta previa and fetal growth restriction. Consider serial growth scans in patients with a placenta previa who have had hemorrhagic episodes.

- When a previa or low-lying placenta is found in the midtrimester, follow-up ultrasound at 28-30 weeks should be performed to assess for clearing of the lower uterine segment. If it is found there is continued presence of a previa/ L-L placenta final ultrasound should be performed at 36-37 weeks to aid in delivery planning.

Management of <u>acute hemorrhagic episode</u>:

- Initial assessment of maternal stability via vital signs, physical examination, complete blood count and coagulation studies.
    - A fall in the fibrinogen is a concerning initial marker for the development of a coagulopathy and in the presence of active bleeding should increase consideration for delivery.



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Reference Values During Pregnancy

Home > Reference > Reference Values > Fibrinogen

Fibrinogen (plasma)

Units	Nonpregnant Adult	First Trimester	Second Trimester	Third Trimester
mg/dL	233 - 496	244 - 510	291 -538	373 -619
g/L	2.3 - 5	2.4- 5.1	2.9- 5.4	3.7 - 6.2

References:

Abbassi-Ghanavati M, Greer LG, Cunningham FG. Pregnancy and laboratory studies: a reference table for clinicians. Obstet Gynecol. 2009 Dec;114(6):1326-31. PMID:19935037

- Placement of one to two peripheral IV catheters or a central line, depending upon maternal stability, ease of IV access and probable need for surgical management and/or massive transfusion.
- RhoGAM as indicated for maternal Rh Status. Consider Kleihauer-Bettke test to guide dosage of RhoGAM necessary.
- Preparation of blood products as deemed medically necessary.
- TXA crosses the placenta and safety prior to fetal delivery is unknown. Can be considered in patients with active hemorrhage following delivery.

Gestational age is 20-24 weeks:

- Initial assessment of fetal status with fetal heart tones.
- Ultrasound for confirmation of dates, fetal size and placental location as clinically indicated, and dependent upon maternal stability.
- Continued admission for concerns for maternal stability.

Gestational age is > 24 weeks:

- Initial assessment and ultrasound as above.
  - Continuous fetal monitoring.
  - Administration of betamethasone course, if not previously given or if a candidate for rescue dose.
  - Consider immediate cesarean delivery for maternal instability, nonreassuring fetal status.
  - Consider tocolytics if patient is contracting, hemodynamically stable, and is a candidate for ANCS <34 weeks.
  - In general, prolonged tocolytic therapy is not recommended. Tocolytics may be considered in certain circumstances in the setting of maternal stability at early gestational ages.
  - For patient experiencing their first or second bleed, patients should remain under inpatient observation for at least 48 hours after their bleeding episode.
    - Duration of hospitalization may be individualized based upon severity of the hemorrhagic episode.
    - Upon discharge patients should be advised regarding pelvic rest precautions. Pelvic rest/ bedrest are not known to decrease recurrent hemorrhagic episodes or prolong pregnancy but may be considered on an individualized basis.
  - Patients who have experienced three bleeding episodes should remain hospitalized until delivery.

Delivery Indications:

- Maternal instability, regardless of gestational age.
- Acute hemorrhagic episode at greater than 34 weeks.
- ACOG recommends delivery for placenta previa at 36 0/7- 37 6/7 weeks.[2]

Mode of Delivery:

- Patients with a placenta previa should be delivered via cesarean section. Care should be taken at the time of delivery to avoid transaction of the umbilical cord at the cord insertion to prevent massive fetal hemorrhage. Ultrasound prior to delivery may of assistance in mapping of the placenta and cord insertion to avoid this complication.
- In patients with a low-lying placenta, several small studies have revealed a low risk of hemorrhage during labor if the placental edge is at least 2 cm from the internal os.
- In a trial of women scanned within 28 days of delivery[3]:

Location of Placental Tip	CD rate (%)	Hemorrhage rate (%)
1-10 mm (n=24)	75	29
11-20 mm (n=29)	31	3

Adapted from Vargani et al, Am J Obstet Gynecol, Sept 2009

Based upon this data a trial of labor may be considered in patients desiring a vaginal delivery, when the placental tip is over 1 cm from the internal os, after a detailed

informed consent process regarding the increased risk of bleeding during labor.[3]

Vasa Previa

Background:

- Fetal vessels traveling within the amniotic membrane unprotected by the placenta or umbilical cord, that overlie the cervix
- Perinatal mortality rate traditional has been quoted as being high as 60% secondary to fetal exsanguination (total fetal blood volume is approximately 100 mL/kg). With prenatal diagnosis, the perinatal mortality is likely substantially less, and has been reported to be 3% when known and accompanied by early delivery.
- Fetal distress may also occur from compression by the presenting part onto the unprotected vessels, particularly during contractions or labor.

Incidence:

- 1 in 2500 deliveries

Risk Factors:

- Multiple gestation
- Low-lying placenta
- Seen more commonly with velamentous insertion of the umbilical cord, accessory placental lobes, multiple gestation, IVF pregnancy.
    - In IVF pregnancies incidences can be as high as 1 in 300.

Diagnosis:

- Ultrasound
    - Prenatal diagnosis is the key to management success when a vasa previa is present. Therefore the placental cord insertion should be routinely examined during the detailed anatomical survey.
    - Vaginal sonography should be considered if a velamentous cord insertion is suspected. Given the distance in which the vessels may traverse the membranes is highly variable, endovaginal ultrasound should be performed even if the placenta itself appears to be removed from the cervix in cases of velamentous cord insertion.
    - In addition, in cases with a suspected succenturiate lobe or bi-lobed placenta in which there is not a clear and easily traceable vascular connection removed from the lower uterine segment, endovaginal ultrasound should be performed to insure the absence of bridging fetal vessels running in proximity to the cervix.
- Outpatient management is appropriate in patients who are stable without evidence of impending labor or rupture of membranes.
- Inpatient management should be considered for those patients deemed to be at higher risk for labor or rupture of membranes.
    - Criteria for Inpatient Management

    - Most experts recommend consideration for inpatient management beyond 30-32 weeks in patients with the following risk factors for PTL/PROM:
        - Uterine activity
        - Short cervix
        - History of premature delivery
        - Multiple pregnancy
        - Noncompliance with care
        - Concurrent maternal or fetal comorbidities
        - Concurrent fetal growth restriction
    - These patients may be candidates for prophylactic betamethasone therapy between 24 and 34 weeks, depending upon the individual scenario.
    - The intensity or frequency of monitoring should be individualized to each patient's unique circumstance.
    - Patients with vasa previa should be delivered via cesarean section.
    - Care and judicious use of preoperative ultrasound should be utilized to avoid transection of the fetal vessels at the time of entry in to the uterus.
- Delivery Indications:
    - Independent of gestational age
        - Rupture of membranes
        - Nonreassuring fetal status
        - Labor
    - 34-35 weeks
        - Decision Analysis Model (Level III evidence) suggests that for women with a vasa previa, delivery at 34-35 weeks of gestation may balance the risk of perinatal death with the risks of infant mortality, respiratory distress syndrome, mental retardation, and cerebral palsy related to prematurity. [4]

Placenta Accreta

Background:

- Abnormal placentation whereby trophoblastic invasion beyond the normal boundary occurs (Nitabuch's fibrinoid layer of the decidua). Secondary to this abnormal trophoblastic invasion, placental villi directly attach to the uterine myometrium.
    - Accreta- placental villi attach directly to the myometrial layer of the uterus
    - Increta- invades into the uterine myometrium
    - Percreta- into adjacent pelvic and/or abdominal organs
- The abnormal implantation prevents the normal mechanisms of placental separation and hemostasis, resulting in hemorrhage, sometimes massive and even life-threatening or fatal. In addition damage to local organs, particularly the bladder and ureters and sometimes bowel, can occur.
- Maternal mortality has been reported to be as high as 7%.[5,6]

Risk Factors: (multifactorial)

- Main
  - Placenta previa
  - Prior cesarean delivery

Frequency of Placenta accreta according to number of cesarean deliveries and presence or absence of placenta previa [7]

Cesarean Delivery	Placenta Previa	No Placenta Previa
First (Primary)	3.3	0.03
Second	11	0.2
Third	40	0.1
Fourth	61	0.8
Fifth	67	0.8
≥ Sixth	67	4.7

- Other
  - Maternal age
  - Multiparity
  - Other prior uterine surgery
  - Prior uterine curettage
  - Uterine irradiation
  - Endometrial ablation
  - Asherman syndrome
  - Uterine leiomyomata
  - Uterine anomalies
  - Hypertensive disorders of pregnancy
  - Smoking

Diagnosis:

Women with a prior cesarean delivery and/or placenta previa should undergo sonographic evaluation specifically for placenta previa.

- 2nd or 3rd trimester ultrasound
  - Sensitivity of 0.77 and specificity of 0.96 for the diagnosis of placenta accreta.[8]
- Sonographic findings
  - Loss of normal hypoechoic retroplacental zone
  - Multiple vascular lacunae within placenta – "Swiss Cheese"
  - Blood vessels or placental tissue bridging the uterine-placental margin, myometrial-bladder interface or crossing uterine serosa
  - Retroplacental myometrial thickness < 1mm
  - Coherent vessels visualized with 3-demensional power Doppler

- If placenta accreta is suspected on ultrasound, further evaluation with MRI is indicated. Characteristic findings on MRI
  - Thickened, dark nodular contour of the placenta-uterine interface with extensions of these dark bands into to placenta
  - Mass effect of the placenta on the uterus and into adjacent tissue
  - Heterogenous placental signal on the T2-weighted HASTE sequences with large placental lakes or vessels.

    - The integrity of the cervix, myometrium, bladder, and parametrial structures can also be evaluated.

- The importance of prenatal diagnosis has been demonstrated to improve maternal outcome, reducing estimated blood loss, need for transfusion and amount of blood products transfused.[9,10]
- Patients with high risks for accreta (suspicious ultrasound findings, previa with a prior cesarean section should be referred to the Placenta Accreta multidisciplinary clinic at Hoxworth.

Management:

- Given a high likelihood of hemorrhage, delivery at a Placenta Accreta Center of Excellence, capable of multi-disciplinary care of the critically ill is recommended by ACOG and SMFM.[11]
- Patients diagnosed with placenta accreta may be managed outpatient in the absence of hemorrhagic episodes.
    - Maintain a low threshold for prolonged admission for bleeding complications.
    - Patients with co-morbidies or noncompliance may also be candidates for admission prior to scheduled delivery.
- Placenta accreta has not been shown to be associated with fetal growth restriction or stillbirth, and therefore antenatal surveillance is not indicated for this indication alone.
- Expert opinion states the optimal management of placenta accreta is planned cesarean hysterectomy without attempted placental removal, and in fact this has been demonstrated to reduce maternal morbidity.[19,20,21]
- If preserved fertility is desired, attempts at placental removal can be undertaken, but this has been demonstrated to be associated with increased blood loss and volume of transfusion and therefore this requires proper informed consent.
    - Various conservative management strategies, that preserve the uterus either temporarily or long-term, have been reported in single case reports and small series, but these techniques are considered investigational. Conservative management may be considered in select cases with extensive pelvic and abdominal involvement of adjacent viscera. No technique of conservative management has conclusively been demonstrated to improve morbidity.
    - Patients who undergo conservative management must be followed very closely for infectious and hemorrhagic complications which are common in this setting.
- Delivery Timing
    - Indications for delivery include:
        - Maternal instability secondary to hemorrhage
        - Nonreassuring fetal status

        - Chronic hemorrhage of any severity, or single recent hemorrhage, at or beyond 34 weeks
    - In patients with obstetrical indications for earlier delivery, planned delivery is recommended at 34 **0/7-35 6/7 weeks**. [11]

References:

1. Oyelese Y, JC Smulian. Placenta Previa, Placenta Accreta and Vasa Previa. Obstetrics and Gynecology. 2006; 107 (4): 927-941.
2. ACOG Committee Opinion #832. Medically indicated late preterm and early term deliveries. July 2021.
3. Vargani P, , S Ornaghi, I Pozzi, P Beretta, FM Russo, I FOllesa, A Ghidini. Placenta previa: distance to internal os and mode of delivery. Am J of Obstet Gynecol 2009; 201: 266.e1-5.
4. Robinson BK, Grobman WA. Effectiveness of timing strategies for delivery of individuals with vasa previa. Obstet Gynecol. 2011 Mar;117(3):542-9
5. Hudon L, Belfort MA, Broome DR. diagnosis and management of placenta percreta; a review. Obstet gynecol Surv 1998; 53: 509-17.
6. O'Brien JM, Barton JR, Donaldson ES. The management of placenta pecreta: conservative and operative strategies. Am J Obstet Gynecol 1996; 175: 1632-8.
7. Silver RM, Landon MB, Rouse DJ, et al; National Institute of Child Health and Human Development Maternal-Fetal Medicine Units Network. Maternal morbidity associated with multiple repeat cesarean deliveries. Obstet Gynecol 2006;107:1226-32
8. Warshak CR, Eskander R, Hull AD, Scioscia AL, Mattrey RF, Benirschke K and Resnik R. Accuracy of ultrasound and magnetic resonance imaging in the diagnosis of placenta accreta. Obstet Gynecol 2006; 108 (3): 573-581.
9. Warshak CR, Ramos GA, Eskander R, Benirshke K, Saenz CC, Kelly TF, Moore TR, Resnik R. Effect of predelivery diagnosis in 99 consecutive cases of placenta accreta. Obstet Gynecol 2010; 115 (1): 65-69.
10. Eller AG, Porter TF, Soisson P, Silver RM. Optimal management strategies for placenta accreta. BJOG 2009: 648-654.
11. SMFM Clinical Guideline/ Obstetrical Care Consensus. Placenta Accreta Spectrum December, 2018.