
In the name of God

Placenta Previa

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Case 1

- A 40-year-old woman, 29 weeks pregnant, presented to the emergency room with **painless** vaginal bleeding. This is the patient's fourth pregnancy (G4 P3), and three prior births were by cesarean section.

What's the Diagnosis??

Placenta Previa

- Placental plantation that overlies or is within 2 cm (0.8 in) of the internal cervical os
- Classification
  - **Complete**: Placenta completely covers the os
  - **Partial**: Placenta partially covers the os
  - **Marginal**: Placenta edge lies within 2 cm of the os
  - **Low lying**: Placenta edge lies 2 to 3.5 cm from the os
- Normal – positioned away from cervix (posterior position)

Incidence of Previa

- 1 in 200-250 live births (1 in 305-390 williams)
  - Complete 20-45%, partial 30%, marginal 25-50%
- U/S at 18 weeks shows 12-25% incidence of low lying placenta
  - Most of these (~90%) resolve by term
    - "placental migration" – placenta grows towards best blood supply located in upper uterine segment away from cervix

Risk Factors of Previa

- Chronic hypertension
- Multiparity
- Multiple Gestations
- Increased maternal age
- Previous cesarean delivery
- Tobacco use
- Uterine curettage

Presentation

- Sudden, painless, and profuse vaginal bleeding in pregnancy during the second/third trimester (usually after 28 weeks)
  - Thought to occur from placental detachment due to thinning of lower uterine segment in preparation for labor and/or during labor
- Often bright red blood
- First bleed
  - Usually not significant to cause homodynamic instability or threaten fetus
  - Rarely maternal death

Diagnosis

- Any pregnant woman who presents with significant vaginal bleeding needs evaluation
  - History and Physical
- Never do vaginal exam without knowing placental placement!
  - Could cause life-threatening hemorrhage
- Most common imaging study used for diagnosis is ultrasound (ultrasonography)
  - Most useful and inexpensive
  - Transvaginal provides almost 100% accuracy in identification, transabdominal 95%
- Sterile speculum exam can be done to evaluate for ruptured membrane

Ultrasound – Placenta Previa

- Can confirm diagnosis
- Full bladder can create false appearance of *anterior* previa
- Presenting part may overshadow *posterior* previa
- Transvaginal scan can locate placental edge and internal os

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Diagnosis

Can you see the placenta previa?

Placenta Previa

Partial

Low lying

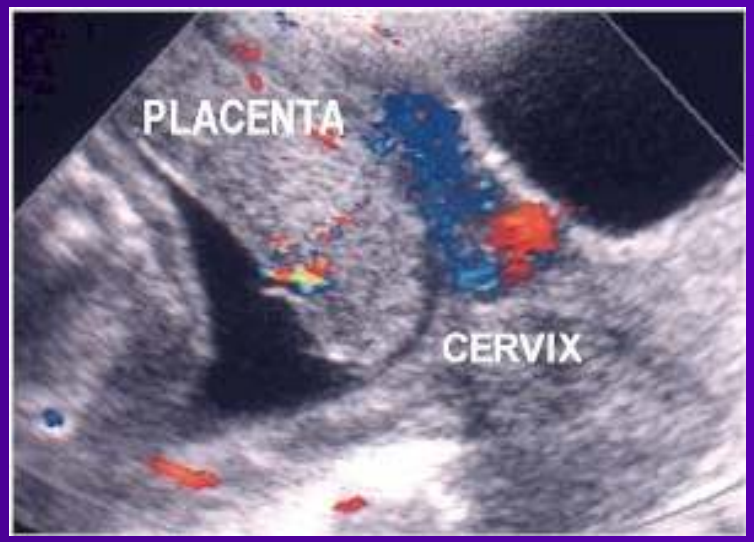
Complete

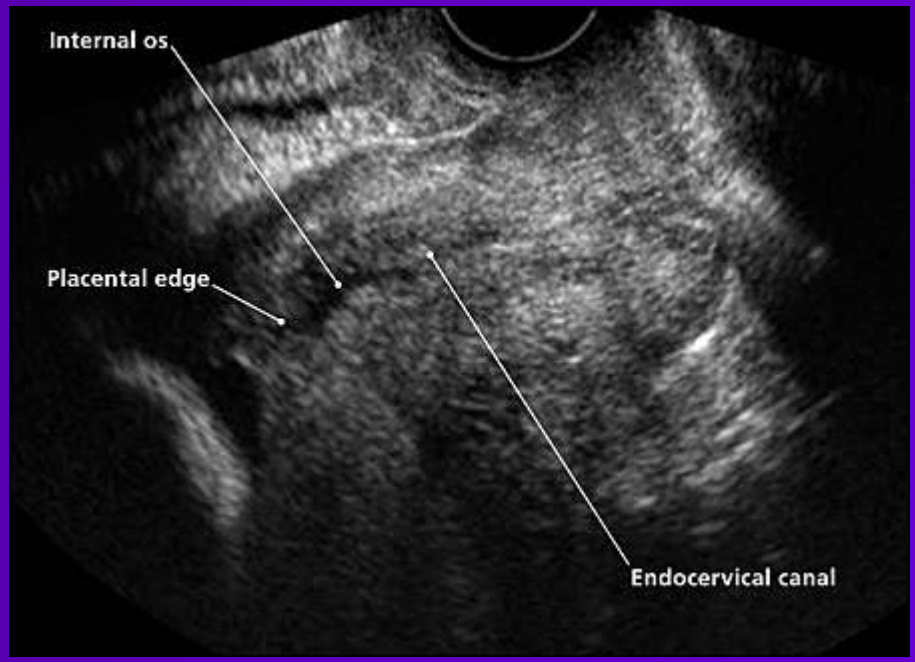
Placenta Previa

Low-Lying Marginal Complete 4

Diagnosis

More examples…





Diagnosis

And more…

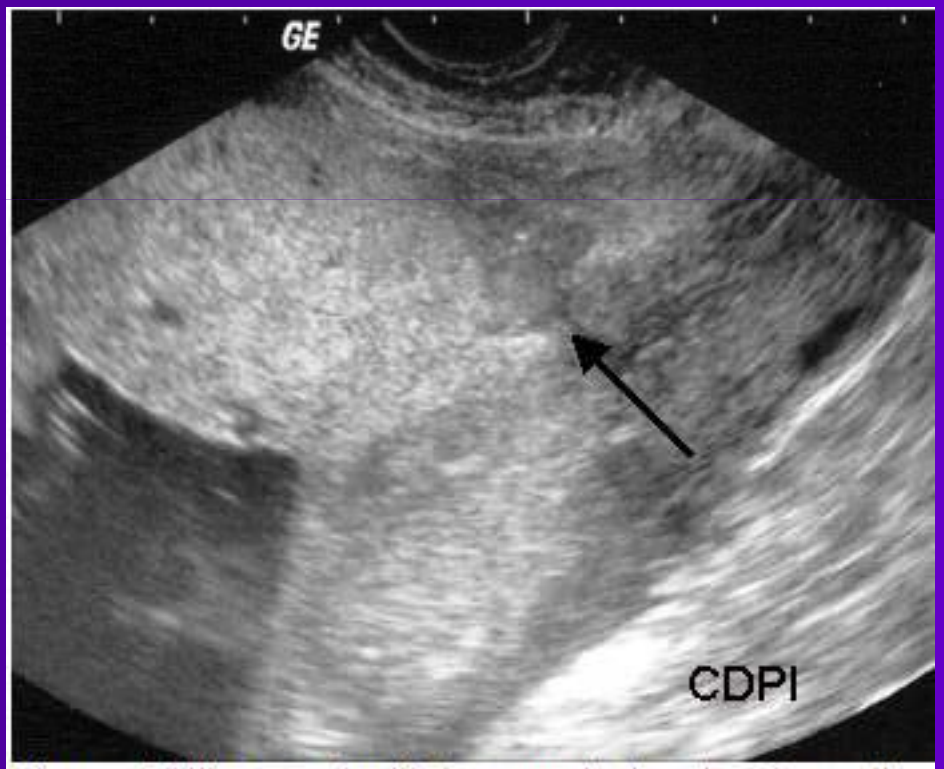


Figure 2: Ultrasound with transvaginal probe shows the placenta previa in central over the internal os (arrow).

Diagnosis

- MRI – not often used, but can be of benefit if placenta accreta is also suspected
  - Large trials concerning safety and efficacy have not been done

Diagnosis

T2

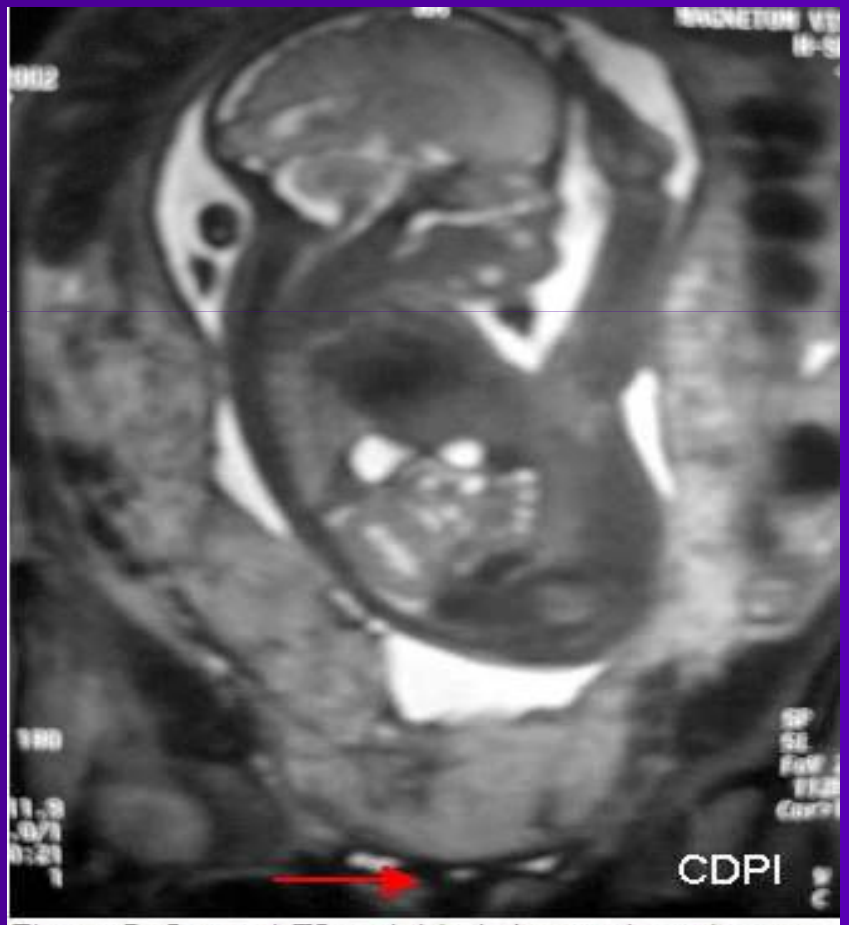


Figure 5: Coronal T2-weighted shows placenta over the internal os (arrow).

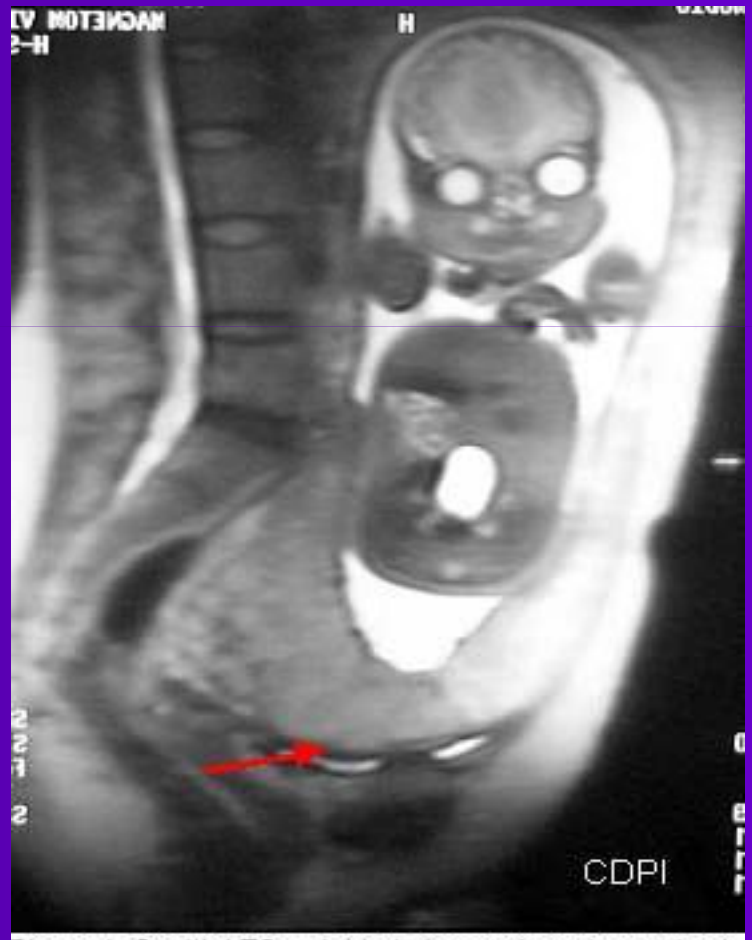


Figure 4: Sagittal T2-weighted shows placenta previa at 28 weeks gestation (arrow).

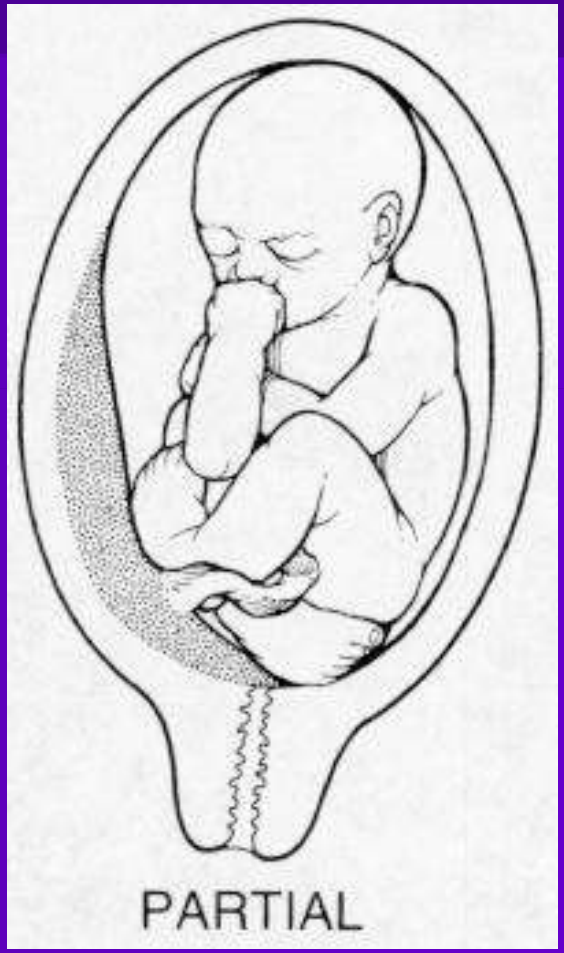
COMPLETE PREVIA

- Os completely covered

- Most serious/greatest blood loss

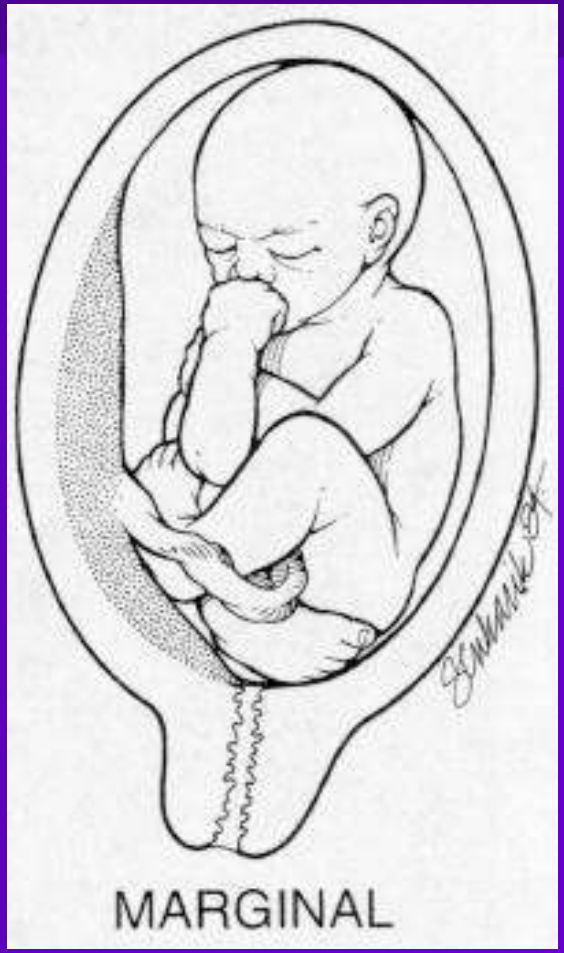
PARTIAL PREVIA

Partial occlusion of the os



MARGINAL PREVIA

Encroachment to the margin of the os



Indications of placenta previa

- The fetal head is not engaged in a primigravida (after 36 weeks)
- There is a malpresentation especially Breech
- The lie is oblique or transverse
- The lie is unstable, usually in a multigravida

Physical Exam - Placenta Previa

- Vital signs
- Assess fundal height
- Fetal lie
- Estimated fetal weight (Leopold)
- Presence of fetal heart tones
- Gentle speculum exam
- **NO** digital vaginal exam *unless* placental location known

Laboratory – Placenta Previa

- Hematocrit or complete blood count
- Blood type and Rh
- Coagulation tests

BLEEDING

- Associated with the development of the lower uterine segment in the third trimester
- Placental attachment is disrupted as the lower uterine segment thins
- Uterus is unable to contract adequately to stop the flow from the open vessels

EVALUATION

- Maternal stabilization
- Labs
- Fetal monitoring
- Ultrasound evaluation
- Gentle speculum exam

MANAGEMENT

Dependent on:

- Gestational age of fetus
- Amount of bleeding
- Fetal condition

CESAREAN DELIVERY

- Indications:
  - Complete previa at term
  - Persistent bleeding in pre-term patient

VAGINAL DELIVERY

- Pre-viable gestations
- Intrauterine fetal demise
- Double set-up: patients with marginal or partial placenta previa in labor with minimal bleeding and ability to tamponade with fetal head

EXPECTANT MANAGEMENT Preterm with resolution of bleeding

- Bed rest
  - Hospitalization
  - Home care
- Rh-immune globulin
- Tocolytics
  - Magnesium sulfate
- Corticosteroids

Approximately 25-30% of patients can be expected to complete 36 weeks gestation without labor or recurrence of bleeding

CO-EXISTING PLACENTAL CONDITIONS

- Placenta accreta
  - No prior uterine surgery + previa = 4%
  - Previous c-section + previa = 10-35%
  - Multiple c-sections + previa = 60-65%
  - 2/3 with previa/accreta will require cesarean hysterectomy
- Placenta increta
- Placenta percreta

Management

Placenta previa in a pregnancy of viable gestational age

+ -

Torrential and/or Fetal distress

- **Expectant management**

+ **C/Section**

+ **Fetal lung maturity**

Sono assessment q 3-4 weeks

- **Placental migration**

+ - **Bleeding**

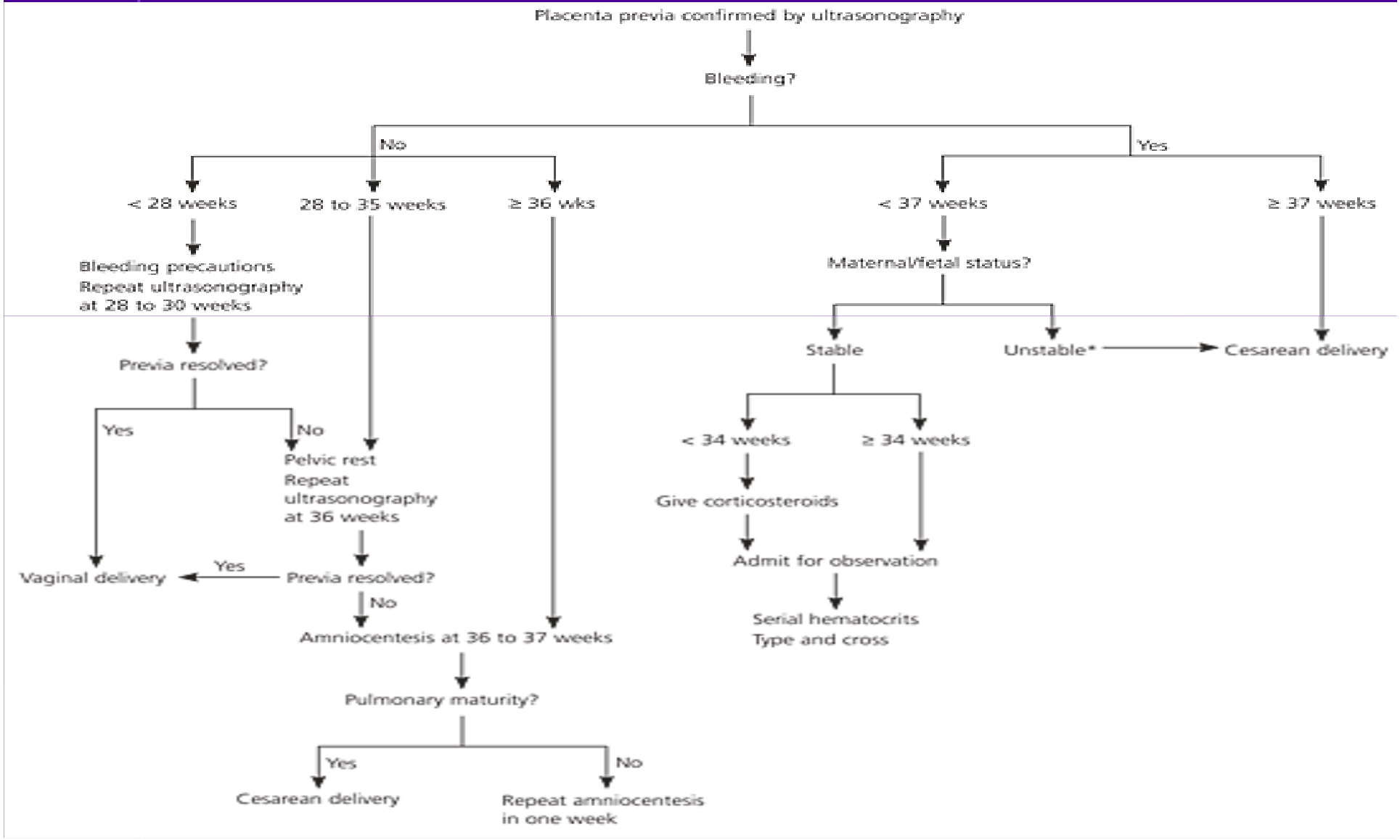
Trial of labor

+ **Complete resolution**

- **Double set-up**

+ **Trial of labor (low-lying only)**

Management


Placenta previa confirmed by ultrasonography
Bleeding?
No
Yes
< 28 weeks
28 to 35 weeks
≥ 36 wks
< 37 weeks
≥ 37 weeks
Bleeding precautions
Repeat ultrasonography
at 28 to 30 weeks
Maternal/fetal status?
Previa resolved?
Stable
Unstable*
Cesarean delivery
Yes
No
Pelvic rest
Repeat
ultrasonography
at 36 weeks
< 34 weeks
≥ 34 weeks
Give corticosteroids
Vaginal delivery
Yes
Previa resolved?
Admit for observation
No
Serial hematocrits
Type and cross
Amniocentesis at 36 to 37 weeks
Pulmonary maturity?
Yes
No
Cesarean delivery
Repeat amniocentesis
in one week

Morbidity with Placenta Previa

- Maternal hemorrhage
- Operative delivery complications
- Transfusion
- Placenta accreta, increta, or percreta
- Prematurity
- Abnormality(2.5)

Conclusion

Previa vs. Abruption

Characteristic	Previa	Abruption
Amt. Blood loss	Variable	Variable
Duration	Usu. 1-2 hrs.	Usu. Continuous
Abdominal pain	None	Usu. Present
FHR Pattern	Normal	Often Abnormal
Coag. Defects	Rare	DIC possible, but infrequent
Assoc. history	None	See risk factors

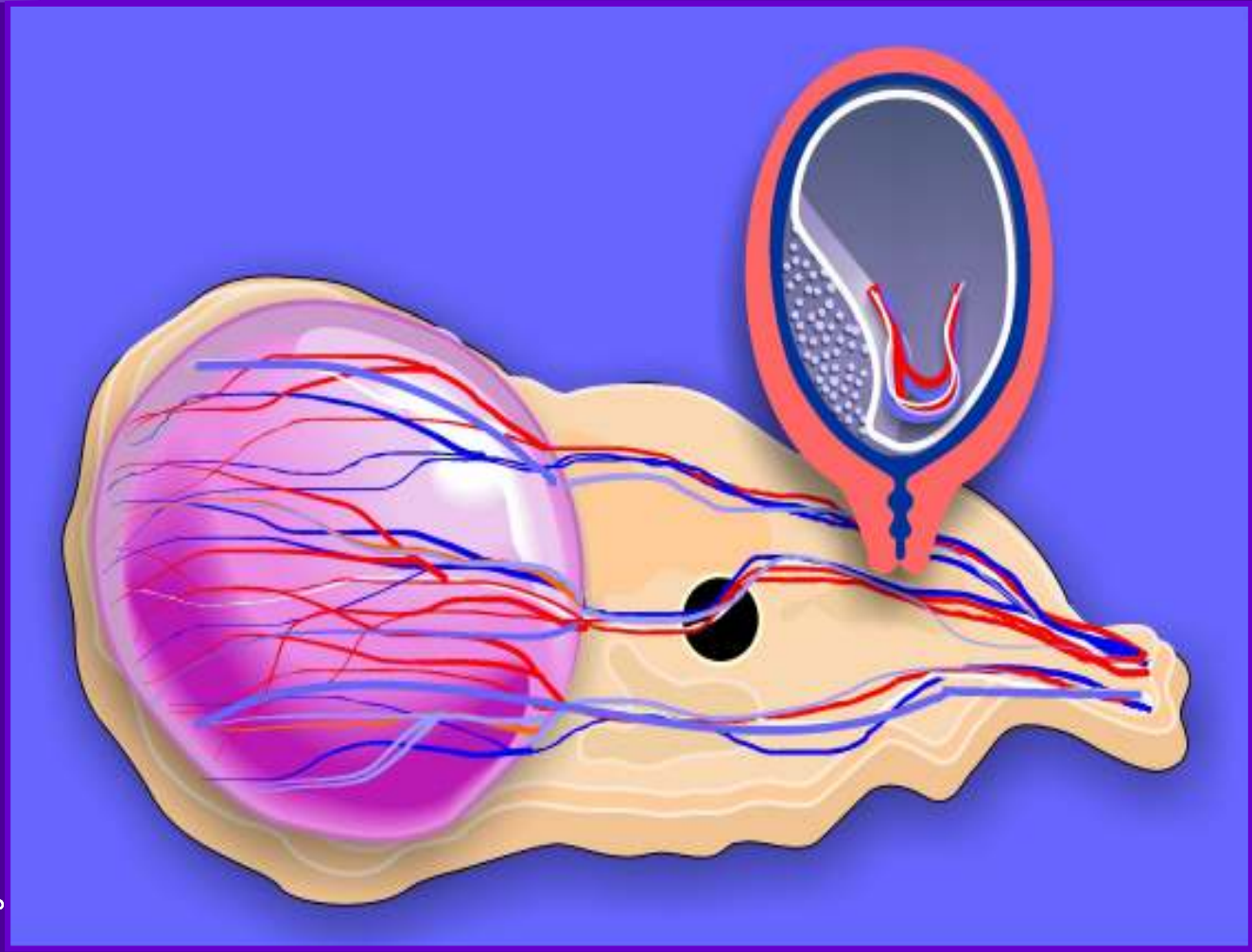
- Any pregnant woman who presents with vaginal bleeding must be evaluated
- Never do digital exam without knowing placental placement!
  - Ultrasound

Vasa Previa

- Rarest cause of hemorrhage
- Associated with
  - In vitro fertilization
  - Placenta previa in 2nd or 3rd trimester
  - Bilobed and succenturiate lobe placentas
  - Velamentous insertion of the cord

Velamentous Insertion

Partially dilated cervix, seen from above



Vasa Previa

- Bleeding occurs with membrane rupture
- Blood loss is fetal
  - 56% mortality when undetected before onset of labor
  - 3% mortality when detected prenatally

Antepartum Diagnosis – Vasa Previa

- Amnioscopy
- Ultrasound
  - Vasa previa is highly associated with placenta previa on 2nd trimester US
  - Perform follow-up US with color-flow Doppler to R/O vasa previa
- Palpate vessels during vaginal examination

Management – Vasa Previa

- Apt test to determine presence of fetal blood
  - Based on colorimetric response of fetal hemoglobin
  - Don't delay urgent delivery for this test
- Immediate cesarean delivery if fetal heart rate non-reassuring
- Administer normal saline 10-20 cc/kg bolus to newborn if in shock after delivery

Summary

- Late pregnancy bleeding may herald diagnoses with significant morbidity/ mortality
- Determining diagnosis important, as treatment dependent on cause
- Avoid vaginal exam when placental location not known