Bleeding In LatePregnancy
Third Trimester Bleeding
Antepartum Hge

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OBJECTIVES

- Identify the major causes of third trimester bleeding
- Identify the steps needed to evaluate a patient with an antepartum hemorrhage
- Discuss the management of a patient with a third-trimester bleeding

Ante partum Hemorrhage

- Obstetrics is "bloody business."
- Death from hemorrhage still remains a leading cause of maternal mortality.

BACKGROUND

- Non-pregnant state: uterus receives 1% of cardiac output
- Plasma volume increases by 50%
- COP increases by 30-50%
- Third trimester: uterus receives 20% of an *increased* output
- Real potential for massive hemorrhage

BACKGROUND

- Third trimester bleeding occurs in approximately 4% of patients.
- Approximately 50% will have an inconsequential cause and 50% will have a life-threatening event

Definition

- (APH) is defined as bleeding from or in to the genital tract, occurring from **20 weeks** of pregnancy until 2nd stage of labor
- Complicates close to 4% of all pregnancies and is a MEDICAL EMERGENCY!
- Is one of the leading causes of ante partum hospitalization, maternal morbidity, and operative intervention.

Different terminologies used:

- Spotting – staining, streaking or blood spotting noted on underwear or sanitary protection
- Minor haemorrhage – blood loss less than 50 ml that has settled
- Major haemorrhage – blood loss of 50–1000 ml, with no signs of clinical shock
- Massive haemorrhage – blood loss greater than 1000 ml and/or signs of clinical shock.
- Recurrent APH - > one episode

RCOG Guidelines

DIFFERENTIAL DIAGNOSIS
LIFE THREATENING

- Placental abruption
- Placenta previa
- Uterine Rupture
- Vasa previa

DIFFERENTIAL DIAGNOSIS
NON-LIFE THREATENING

- Cervical effacement and dilatation (bloody show)
- Contact bleeding (trauma)
- Cervical inflammation
- Haemoroids
- Urinary bleeding
- Coagulation disorders
- Cervical cancer

Placental abruption

ABRUPTIO PLACENTA

- Premature separation of the *normally* implanted placenta
- Occurs in approximately 1 in 120 births
- Accounts for 15% of perinatal mortality

RISK FACTORS

Idiopathic

- Maternal hypertension (>140/90)
- Blunt abdominal trauma
- Chorioamnionitis
- Previous abruption
- Smoking
- Placental insufficiency
- Rapid decompression of the overdistended uterus (twins, polyhydramnios)
- Poor nutrition

TRIAD

- Uterine hypertonicity and/or hyperactivity
- Uterine bleeding
- Fetal distress and/or death

PATIENT HISTORY

- Pain
  - Varies from mild cramping to severe pain
  - Back pain—think posterior abruption
- Bleeding
  - May not reflect true amount of blood loss
- Trauma
- Other risk factors

Diagnosis

- History & physical examination

  A-Classically, AP presents with vaginal bleeding and acute onset of constant abdominal pain, whereas placenta previa presents with painless vaginal bleeding

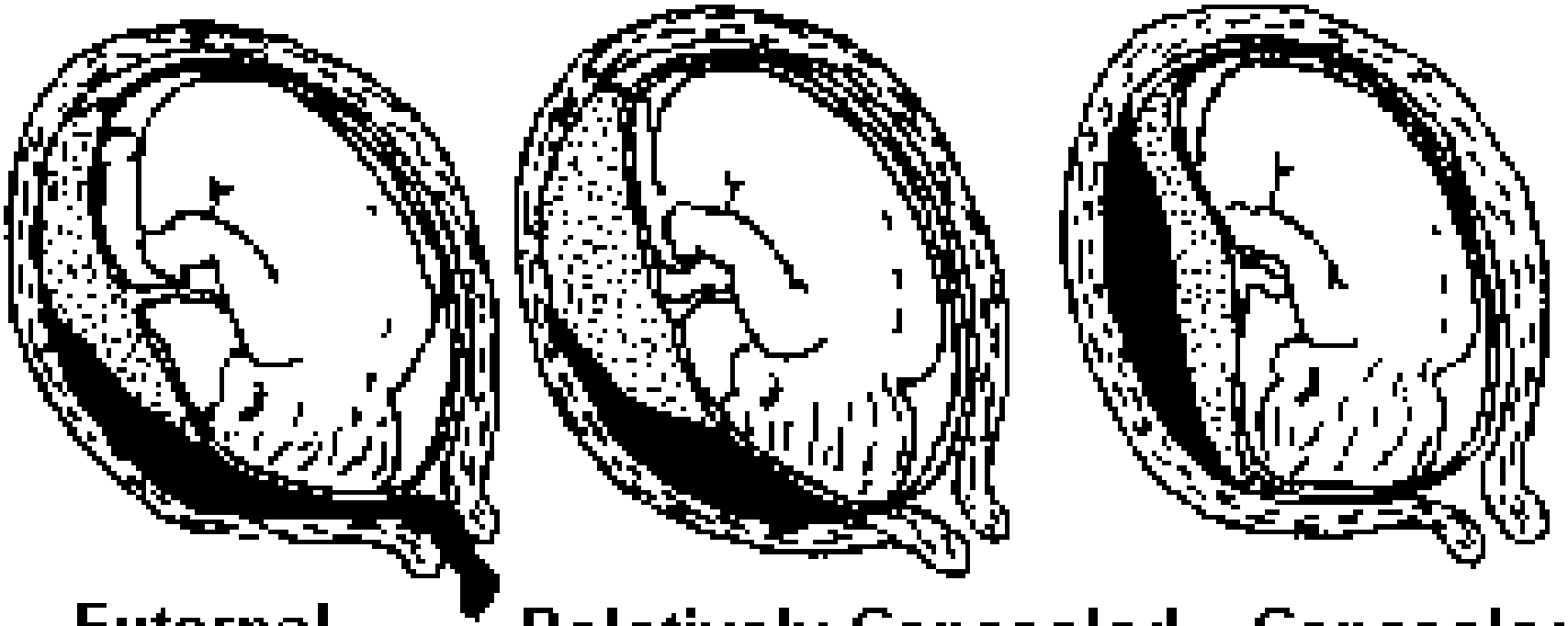
  B-A vaginal examination should not be performed until both placenta previa and vasa previa have been ruled out

- Maternal vital signs, fetal heart pattern, and uterine tone should be monitored.
- Fundal height can also be followed to look for concealed hemorrhage.

- Ultrasonography. Although ultrasonography is relatively insensitive in diagnosing AP, a hypoechoic area between the uterine wall and placenta may be seen with large abruptions.
- Pelvic Examination. If placenta previa is ruled out, perform a speculum examination to look for vaginal or cervical lacerations and evaluate vaginal bleeding.

Laboratory Tests.

- Complete blood cell count with a hematocrit and platelet count
- Prothrombin/activated partial thromboplastin time
- Fibrinogen and fibrin degradation product levels
- Fibrinogen levels below 200 mg/dL and platelets less than 100,000/µL are highly suggestive of severe abruption.
- Blood type and screen



External Abruption

Relatively Concealed Abruption

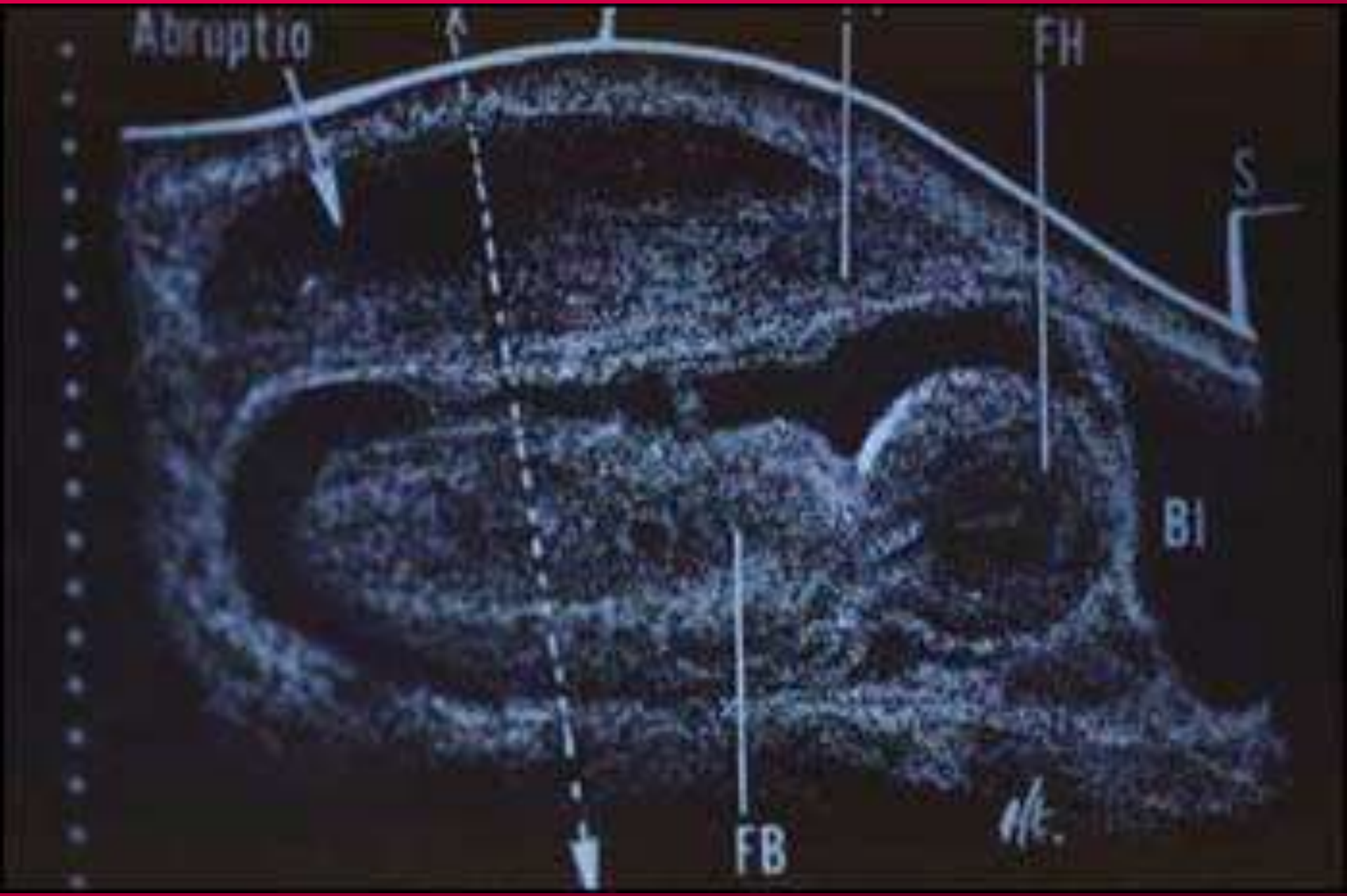
Concealed Abruption

ULTRASOUND

- Diagnostic in less than 25% of cases--helpful in *ruling-out* other causes

ULTRASOUND SIGNS

- Retroplacental echolucency
- Thickening of the placenta
- Abnormally round “torn edge”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Maternal Complications

- Hemorrhagic shock leading to ischemic necrosis of distant organs.
- Disseminated intravascular coagulation (occurs in 10% to 20% of cases that result in stillbirth)

Maternal Complications

- Couvelaire's uterus (extravasation of blood into uterine muscle) leading to uterine atony; rarely, Couvelaire's uterus may lead to uterine atony and massive hemorrhage, which necessitates aggressive measures, such as cesarean hysterectomy to control the bleeding

Fetal complications

- hypoxia leading to growth restriction,
- anemia,
- prematurity,
- fetal distress,
- hypoxic-ischemic encephalopathy,
- death.

Management

The management of AP depends on

the fetus's gestational age and

the hemodynamic status of both patient and fetus.

Standard management for all patients includes:

- Establishment of intravenous access with two large-bore catheters, fluid resuscitation, blood type and cross-match determination, and
- Continuous fetal monitoring.
- Rho(D) immunoglobulin should be administered to Rh-negative individuals.
- Maternal vital signs should be assessed frequently.
- A Foley catheter should be placed to monitor urine output.

Term Gestation, Maternal and Fetal Hemodynamic Stability

- One should plan for vaginal delivery with cesarean section reserved for the usual obstetric indications.
- If the patient does not present in labor, induction of labor should be initiated

Term Gestation, Maternal and Fetal Hemodynamic Instability

- Aggressive fluid resuscitation should be performed as well as transfusion of packed red blood cells, fresh frozen plasma, and platelets as appropriate.
- Once maternal stabilization is achieved, cesarean section should be performed, unless vaginal delivery is imminent.

- Preterm Gestation, Maternal and Fetal Hemodynamic Instability.
- Delivery should be performed after appropriate resuscitation.

GRADE I:

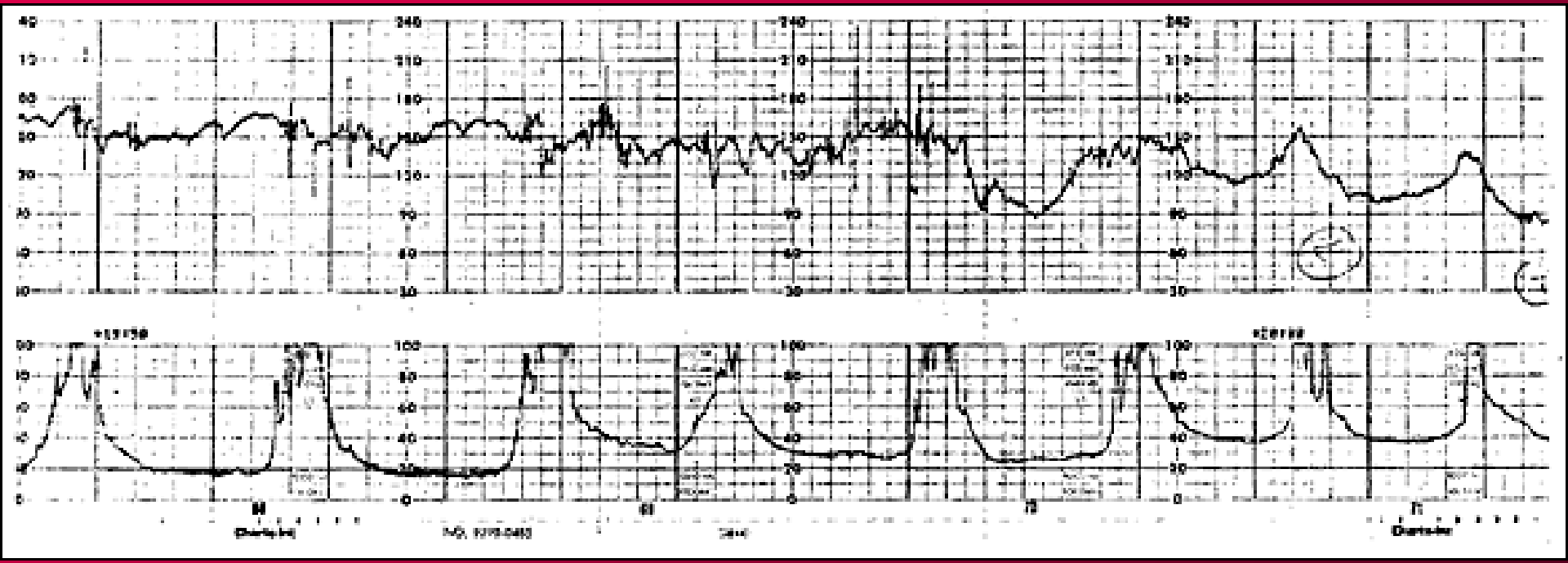
- slight vaginal bleeding
- uterine irritability
- normal maternal blood pressure
- normal maternal fibrinogen
- normal fetal heart rate pattern

TREATMENT--GRADE I

- Often diagnosed at delivery with placental clot

GRADE II:

- mild to moderate bleeding
- irritable uterus with tetanic contractions
- normal BP
- elevated pulse rate
- reduced fibrinogen level (150-250)
- fetal distress



TREATMENT--GRADE II

- Stabilize mother
- Maintain urine output > 30 cc/hr and HCT > 30%
- Amniotomy
- IUPC to document intrauterine pressure
- Expeditious operative or vaginal delivery
- Prepare for neonatal resuscitation

GRADE III:

- moderate to severe bleeding (may be concealed)
- tetanic and painful uterus
- maternal hypotension
- FETAL DEATH

GRADE III

- Grade III a: without coagulopathy

- Grade III b: with coagulopathy
  - fibrinogen reduced to less than 150 mg% with other overt signs of coagulopathy

TREATMENT—GRADE III

- Assess mother for hemodynamic and coagulation status
- Vigorous replacement of fluid and blood products
- Vaginal delivery preferred, unless severe hemorrhage

Placenta Praevia

Placenta Praevia

- Placenta that has implanted in part or all of the lower uterine segment encroaching upon or covering the internal cervical os.
- Responsible for 15-20% of APH's
- Haemorrhage is likely in the third trimester as the lower segment grows and thins or the cervix dilates.
- With the increase in LSCS the clinician should consider placenta accreta, increta & percreta with placenta praevia

Placenta Previa

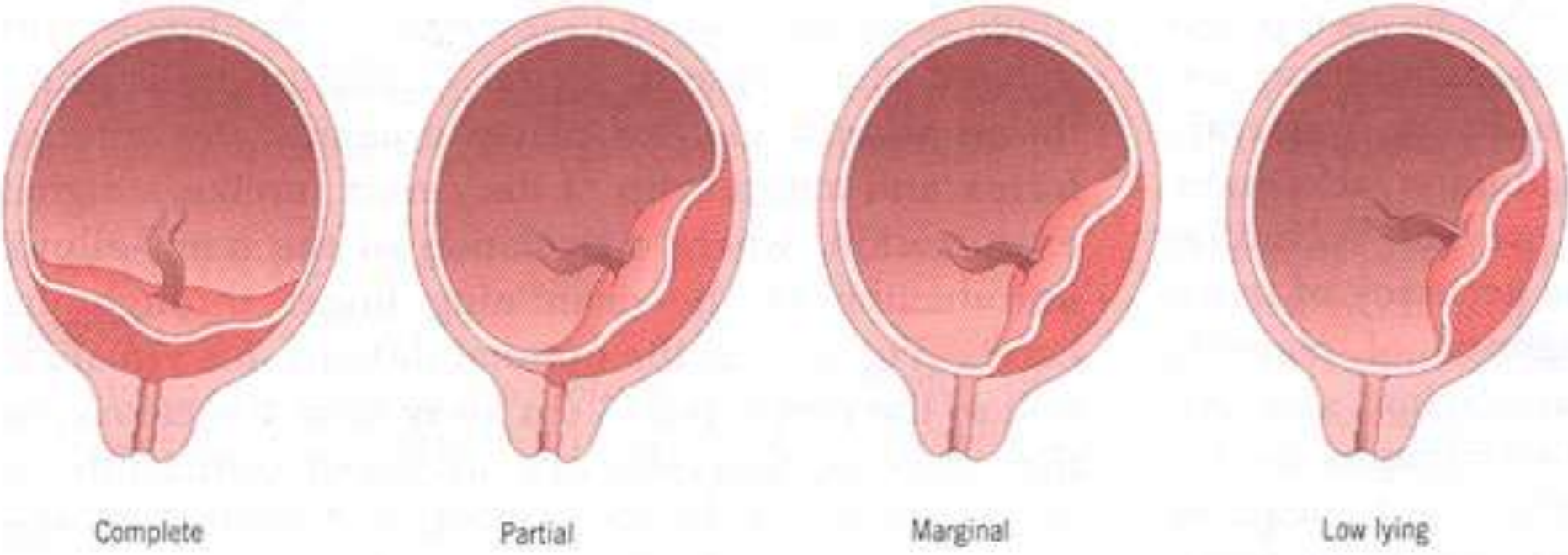
1. *Total placenta previa*. The internal cervical os is covered completely by placenta.

2. *Partial placenta previa*. The internal os is partially covered by placenta.

3. *Marginal placenta previa*. The edge of the placenta is at the margin of the internal os. Within 2 cm of I.O

4. *Low-lying placenta*. The placenta is implanted in the lower uterine segment such that the placenta edge actually does not reach the internal os but is in close proximity to it(located 2-3.5 cm).

Classification



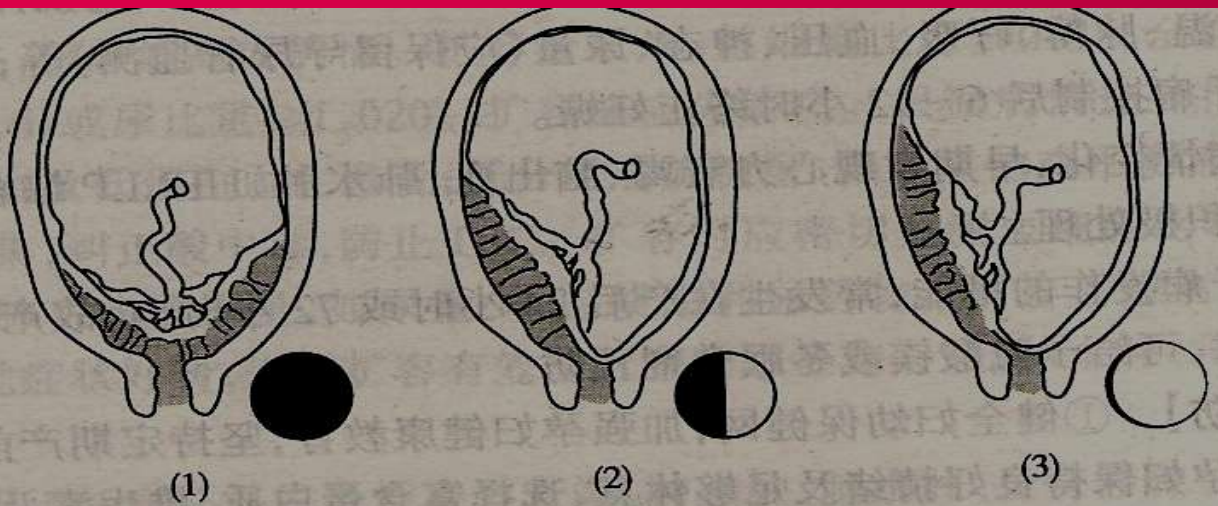


图 5-5　前置胎盘的临床类型

(1)完全性前置胎盘　(2)部分性前置胎盘　(3)边缘性前置胎盘

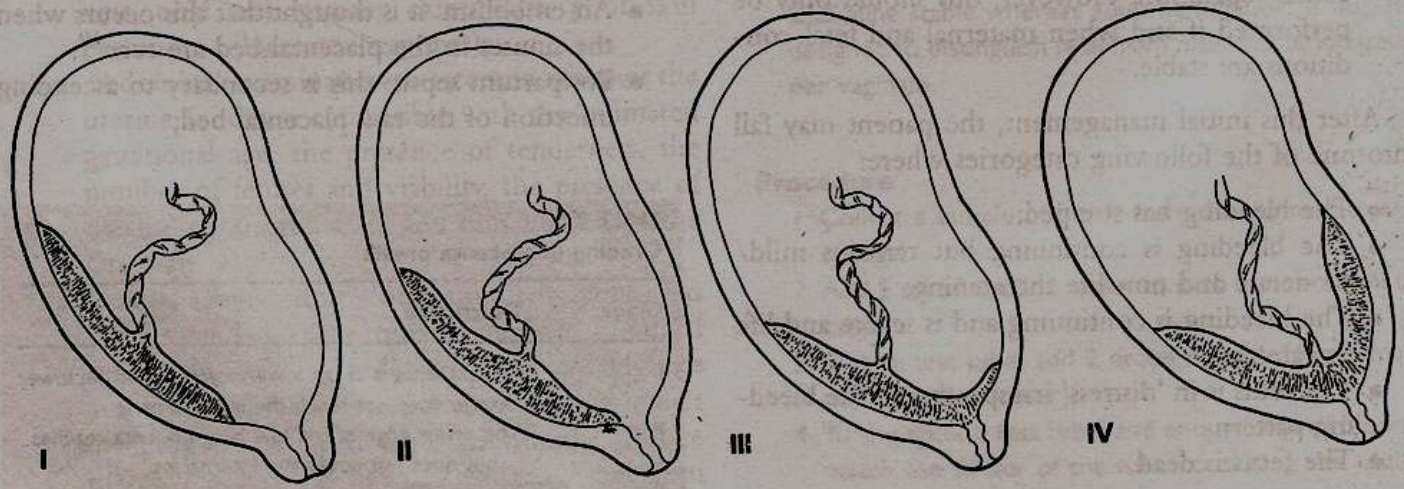


Fig. 8.3 Grades of placenta previa. **I** Encroaching on lower segment. **II** Reaching internal issue. **III** Asymmetrically covering internal os. **IV** Symmetrically covering internal os.

COMPLETE PREVIA

- Os completely covered
- Most serious/greatest blood loss

PARTIAL PREVIA

Partial occlusion of the os

MARGINAL PREVIA

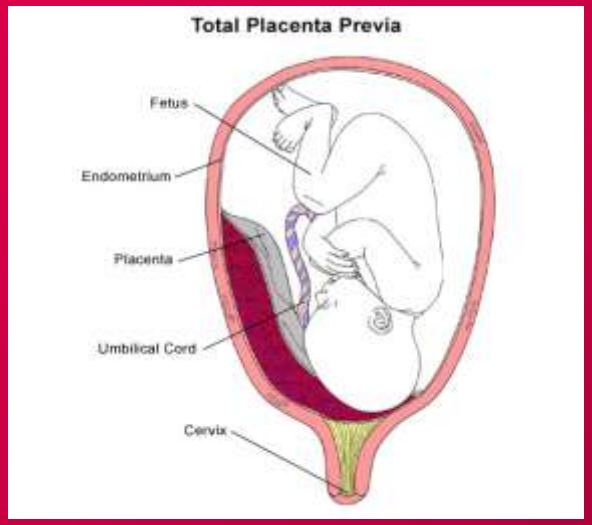
Encroachment to the margin of the os

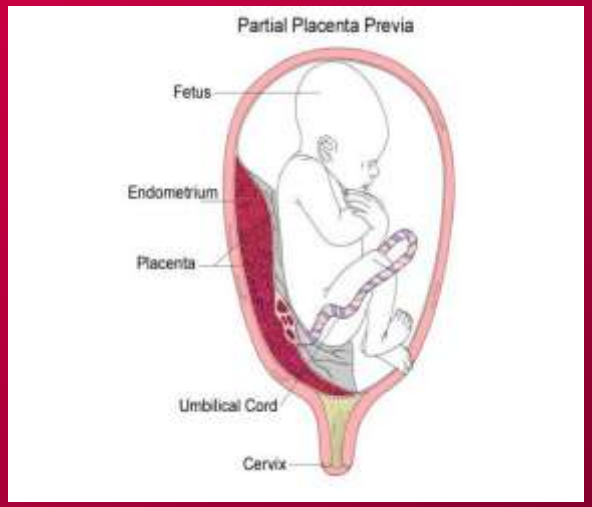
The new classification of placental location based on ultrasound

- **Normally situated placenta** – placental edge to internal os distance of over 3.5 cm at term.
- **Low placenta** – placental edge to internal os distance of 2.0–3.5 cm at term
- **Placenta praevia** – placental edge to internal os distance of less than 2.0 cm at term. The placental edge may overlap the internal os.

A new classification could describe the distance on TVS that is performed within 28 days of term in the following way: (1) >20 mm away from the internal os; cesarean section delivery for previa not indicated; (2) 11-20 mm; lower likelihood of bleeding and need for cesarean section delivery; (3) 0-10 mm; higher likelihood of bleeding and need for cesarean section delivery; and (4) overlap of the internal os by any distance: cesarean section delivery indicated.

Placenta Previa





- Bleeding results from small disruptions in the placental attachment during normal development and thinning of the lower uterine segment

Placenta Previa

- *Incidence* about 1 in 200
- GMP 5 %
- *Perinatal morbidity and mortality are primarily related to the complications of prematurity, because the hemorrhage is maternal.*

PLACENTAL MIGRATION

- At 17 weeks gestation, placental tissue will cover the os in 5-15% of all patients
- Differential growth of the lower uterine segment
- 90% will resolve by term

Etiology

- Precise cause unknown, probably multifactorial
- Endometrium factors:
  - a scarred endometrium (lining of the uterus)
  - Curretage for several times
  - an abnormal uterus
- Placental factors
  - Large
  - abnormal formation of the placenta.

RISK FACTORS

- Previous cesarean delivery (1%)—linear increase. 4 or more, risk is 10%
- Multiparity
- Previous previa
- Instrumentation or surgical procedure: inability of placenta to migrate
- Maternal age > 35 years
- Multiple pregnancy
- Prior suction curettage for spontaneous or induced abortion
- Smoking

Associated disorders

- Placenta accreta
- Vasa previa
- Malpresentation
- Persistent high fetal station
- Postpartum hemorrhage
- Increased incidence of small-for-gestational-age babies

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 in unable to contract adequately to stop the flow from the open vessels

Clinical findings

- **Symptoms**
  - Spotting during the first and second trimesters
  - Sudden, painless, and profuse vaginal bleeding in pregnancy during the third trimester (usually after 28 weeks)
  - 1/3 bleeding before 30 weeks
  - 1/3 bleeding after 36 weeks

  --10 % Bleeding may not occur until after labor starts in some cases

  --Anemia,shock

- **Signs**
  - The uterus is usually soft and relaxed.
  - The fetal position is oblique (//) or transverse (==) in about 15% of cases.doubling rate of cong.anomalies
  - Fetal distress is not usually present unless vaginal blood loss has been heavy enough to induce maternal shock, placenta abruptio, or a cord accident occurs.
  - **No digital examination**!

Complications

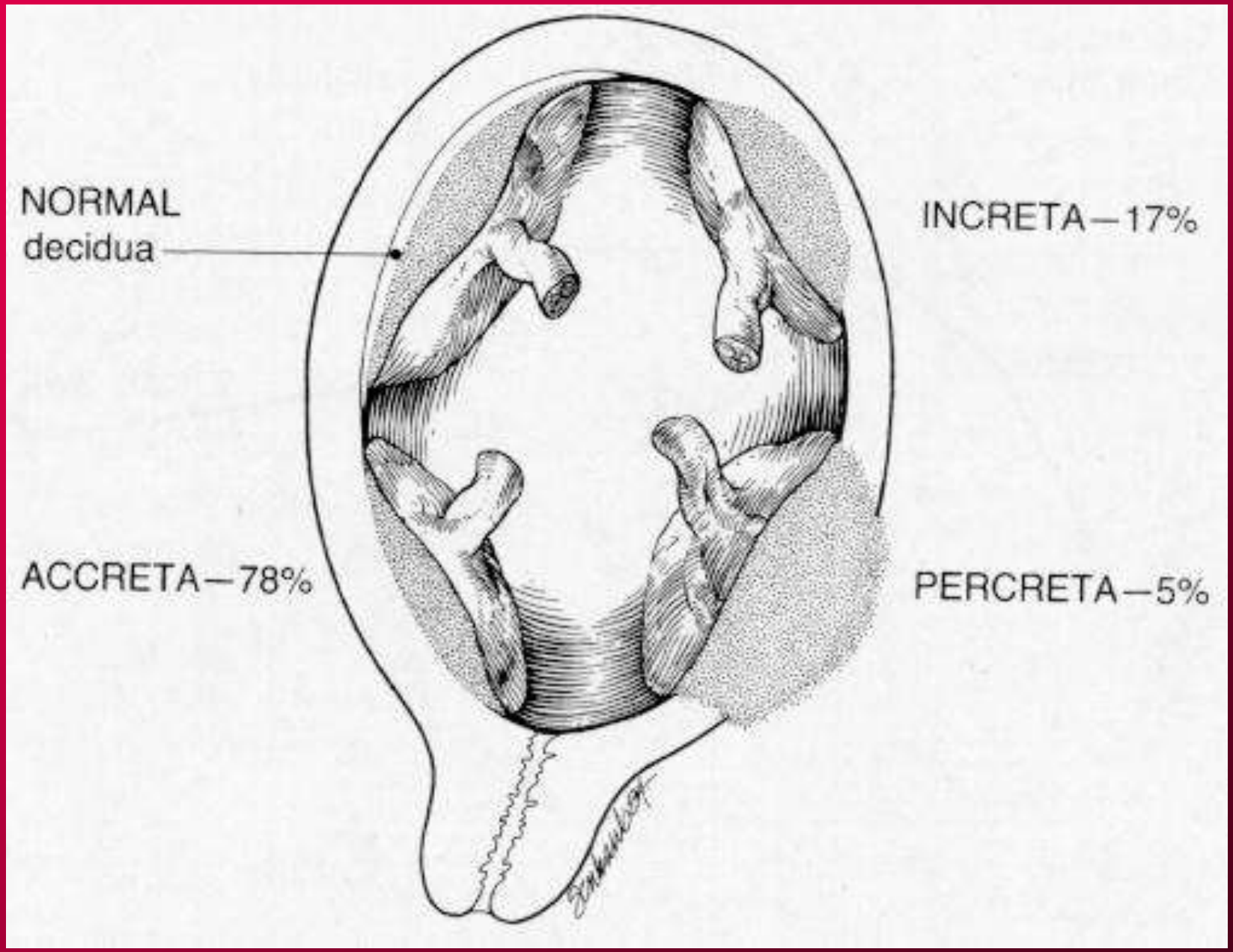
- Maternal complications
  - major hemorrhage, shock, and death.
  - Placenta accreta- 4% without surgery
    25% with previous CS
    60 % with previous 4 CS
  - Anemia and infection

Complications

- Fetal complications
  - Prematurity (infant is less than 37 weeks gestation) is responsible for about 60% of infant deaths secondary to placenta previa.
  - Fetal blood loss or hemorrhage may occur because of the placenta tearing away from the uterine wall during labor. It may also occur with entry into the uterus during a C-section delivery.
    Maternal complications

CO-EXISTING PLACENTAL CONDITIONS

- Placenta accreta
  - No prior uterine surgery + previa = 4%
  - Previous c-section + previa = 10-25 %
  - Multiple c-sections + previa = 60-65%
  - 2/3 with previa/accreta will require cesarean hysterectomy
- Placenta increta
- Placenta percreta


NORMAL
decidua
INCRETA—17%
ACCRETA—78%
PERCRETA—5%

Diagnosis

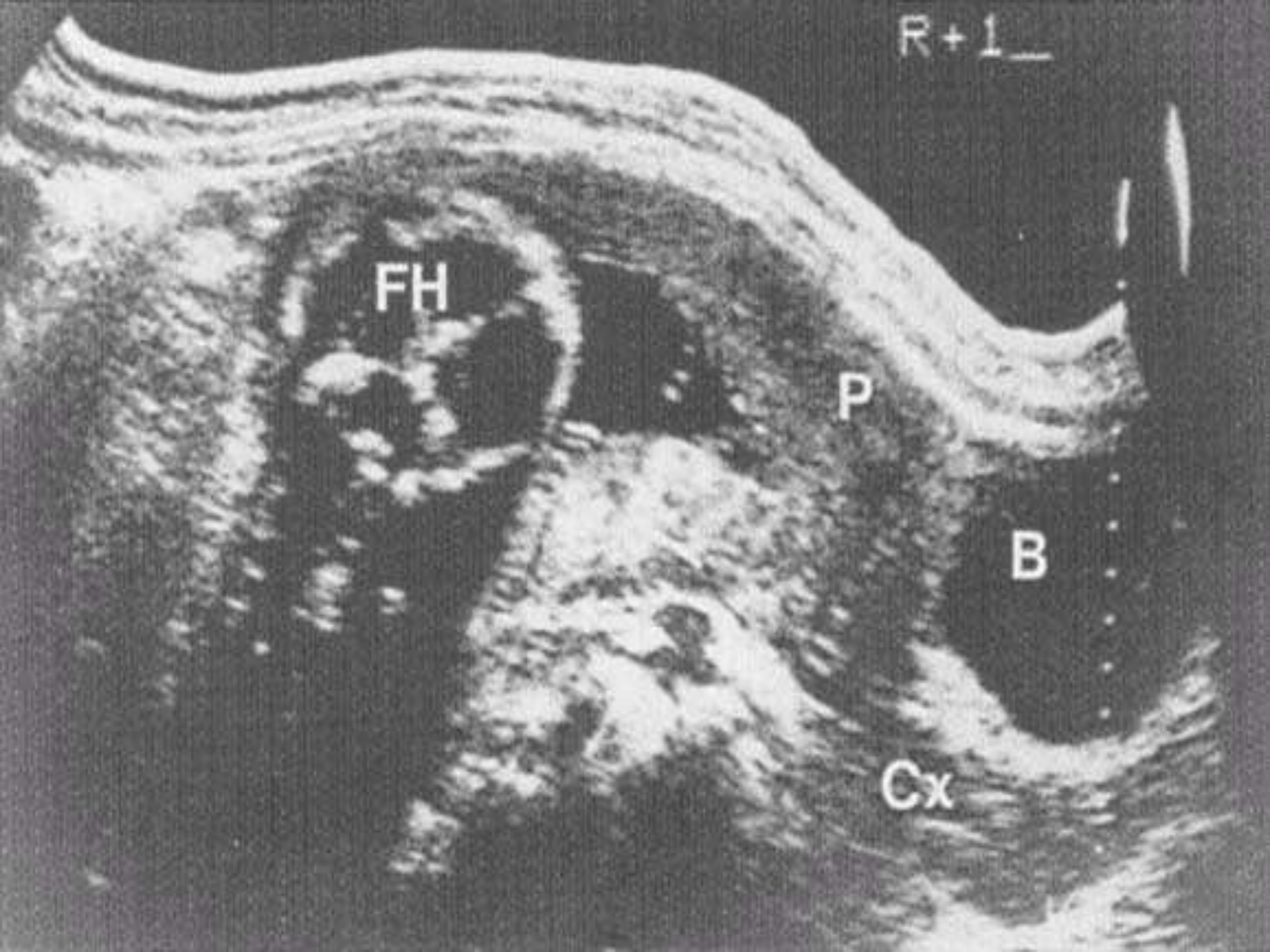
- History
- Labs
  - Complete blood cell count
  - Type and cross-match determination
  - Prothrombin time and activated thromboplastin time
  - Kleihauer-Betke test to assess for fetomaternal hemorrhage
  - The Apt test may be performed to determine whether vaginal blood is maternal or fetal in origin
- Fetal monitoring
- Ultrasound evaluation

- Continuous electronic fetal monitoring may be used to monitor fetal status
- Ultrasound examination can help determine the position of the placenta, usually done abdominally to confirm placental location. Sometimes, vaginal ultrasound is needed for accurate assessment of placental location
- Biophysical profile can also help evaluate fetal status

- A hematologic investigation should be performed including a complete blood count, maternal blood group, and antibodies test
- Biochemical studies are commonly ordered to assess for abnormalities in glucose (gestational diabetes), electrolytes, and renal functions

- Coagulation studies may be performed but disseminated intravascular coagulation is rare in cases of placenta previa and tests for maternal coagulation abnormalities do not need to be routinely performed

- Apt test or Ogita test for determining if fetal hemoglobin is present in maternal blood
- Kleihauer-Betke test determines the amount of Rh immune globulin, which will be required in cases of Rh incompatibility


R+1
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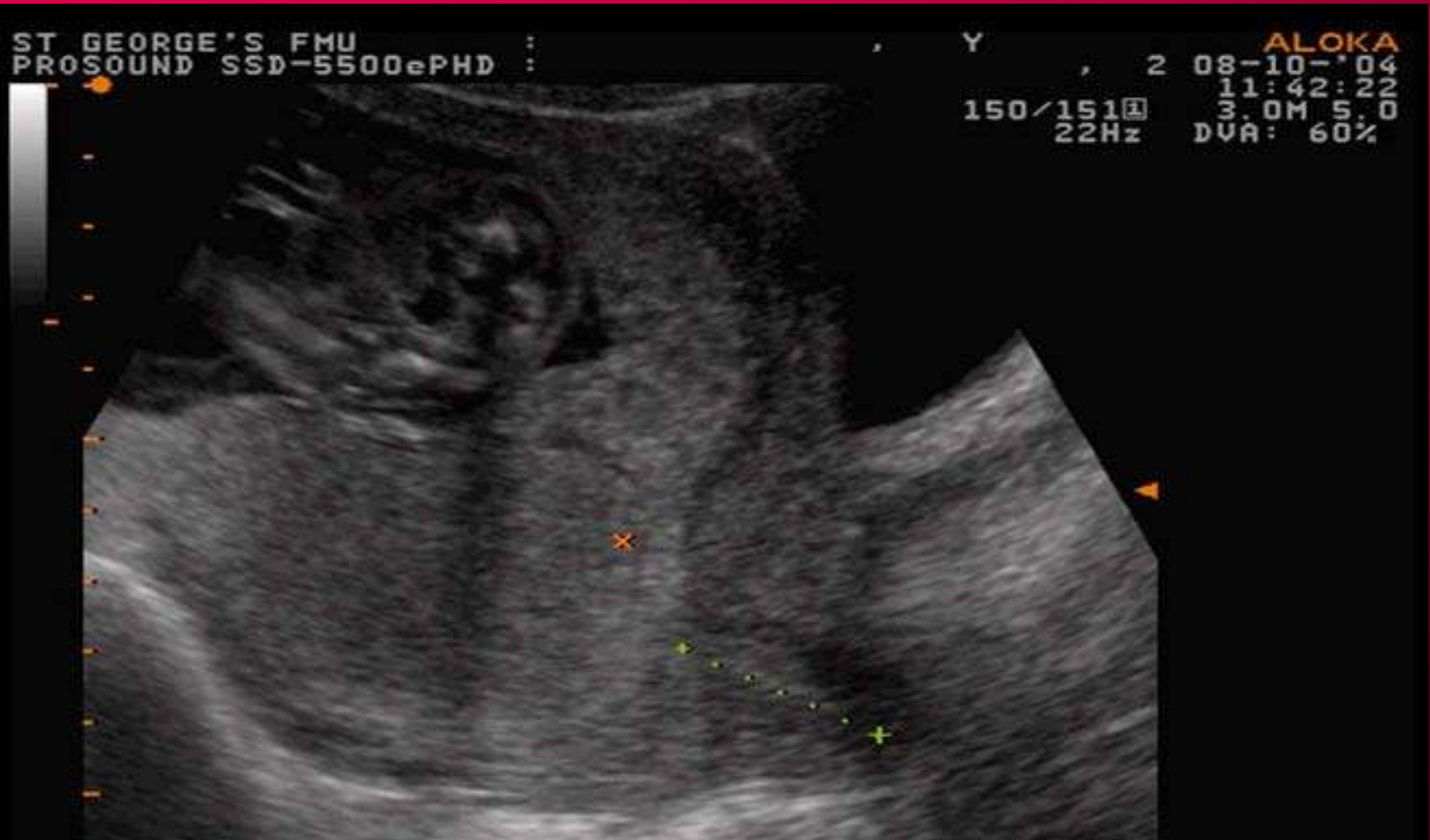
P
B
Cx

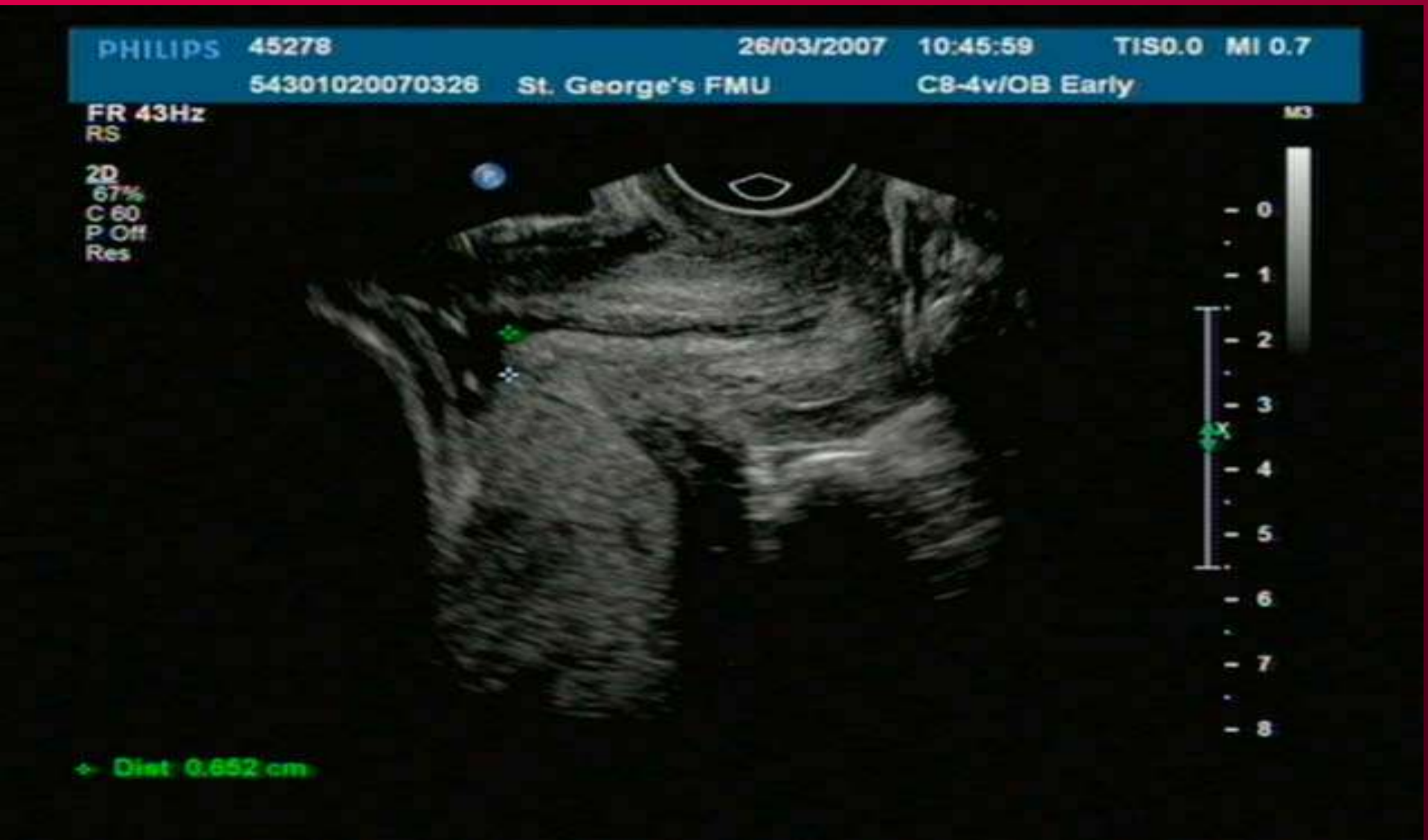
Placenta Previa

- The simplest and safest method of placental localization is provided by *transabdominal sonography*.
- *Transvaginal ultrasonography* is the gold standard for diagnosis of previa& improved diagnostic accuracy of placenta previa.
- MRI

Abdominal ultrasound scan showing placenta covering the internal os.



Transvaginal ultrasound scan showing placental edge very close to the internal os



Placenta Previa Management

- Admit to hospital
- ***NO VAGINAL EXAMINATION***
- IV access
- Placental localization

MANAGEMENT

Dependent on:

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

EXPECTANT MANAGEMENT
Preterm with resolution of bleeding

- Bedrest
  - Hospitalization
- Rh-immune globulin
- Tocolytics
  - Magnesium sulfate

Corticosteroids

- **Indication**
- Accelerate fetal pulmonary maturity in all patients between 24 to 34 weeks of pregnancy who are at risk of preterm delivery
- **Dose information**
- Betamethasone:
- 12 mg intramuscularly every 24 hours

- Treatment course: two doses only
- Dexamethasone:
- 6 mg intramuscularly every 12 hours
- Treatment course: four doses only

Mode of Delivery

- Trial of vaginal delivery

is appropriate if the placental edge to internal os distance is 2.0 cm or more,

- Caesarean section

is recommended if this distance is less than 2.0 cm.

CESAREAN DELIVERY

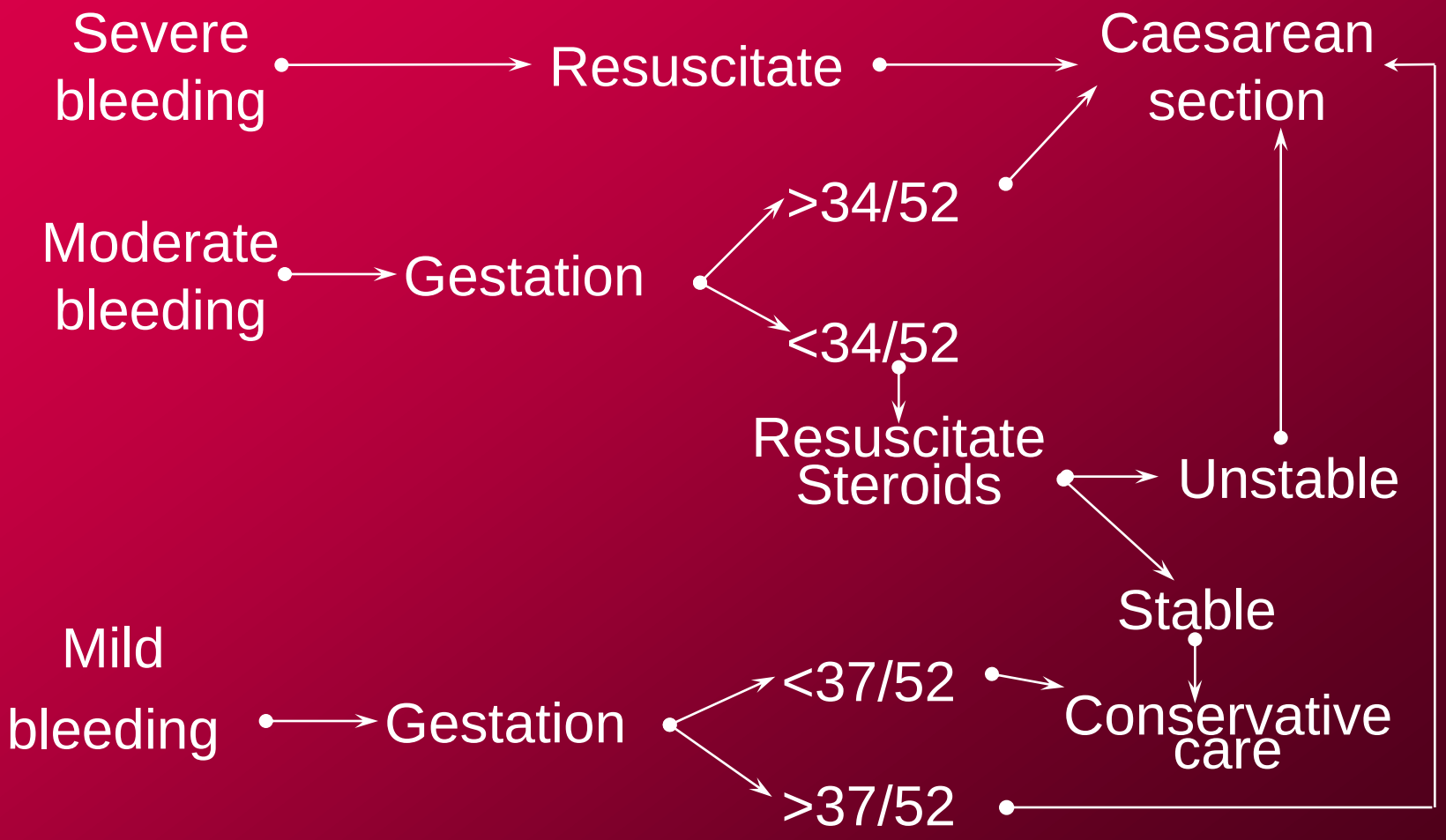
- Indications:
  - Complete previa,partial,or marginal at term
  - Term or preterm gestation, Maternal and Fetal Hemodynamic Instability

VAGINAL DELIVERY

- Pre-viable gestations
- Intrauterine fetal demise
- Type 1.vertex,mild bleeding,reasuring

CTG

Placenta Previa Management



Placenta Previa Management

- Delivery is by Caesarean section
- Occasionally Caesarean hysterectomy necessary.

UTERINE RUPTURE

UTERINE RUPTURE

- Spontaneous rupture: 0.03 to 0.08% of all delivering women

- Patients with a history of uterine scar: 0.3-1.7%

What are the risk factors associated with uterine rupture?

Uterine Rupture

- Excessive uterine stimulation
- Hx of previous C/S
- Trauma
- Prior rupture
- Previous uterine surgery
- Multiparity
- Malpresentation
- Shoulder dystocia
- Forceps delivery

Uterine Rupture

Classic presentation includes:

- vaginal bleeding,
- pain,
- cessation of contractions,
- absence/ deterioration of fetal heart rate,
- loss of station of the fetal head from the birth canal,
- easily palpable fetal parts, and
- profound maternal tachycardia and hypotension.

ASSOCIATED MATERNAL MORBIDITY

- Hemorrhage/Transfusion
- Bladder rupture
- Hysterectomy

FETAL MORBIDITY

- Respiratory distress
- Hypoxia
- Acidemia
- Death

Management

Resuscitation

Immediate Laparotomy

Hysterectomy VS Uterine Repair

Comparison of Presentation of Abruption v. Previa v. Rupture

	abruption	***previa***	***rupture***
Abd pain	*present*	*absent*	*variable*
Vag bleeding	*old*	*fresh*	*fresh*
DIC	*common*	*rare*	*rare*
Acute fetal distress	*common*	*rare*	*common*

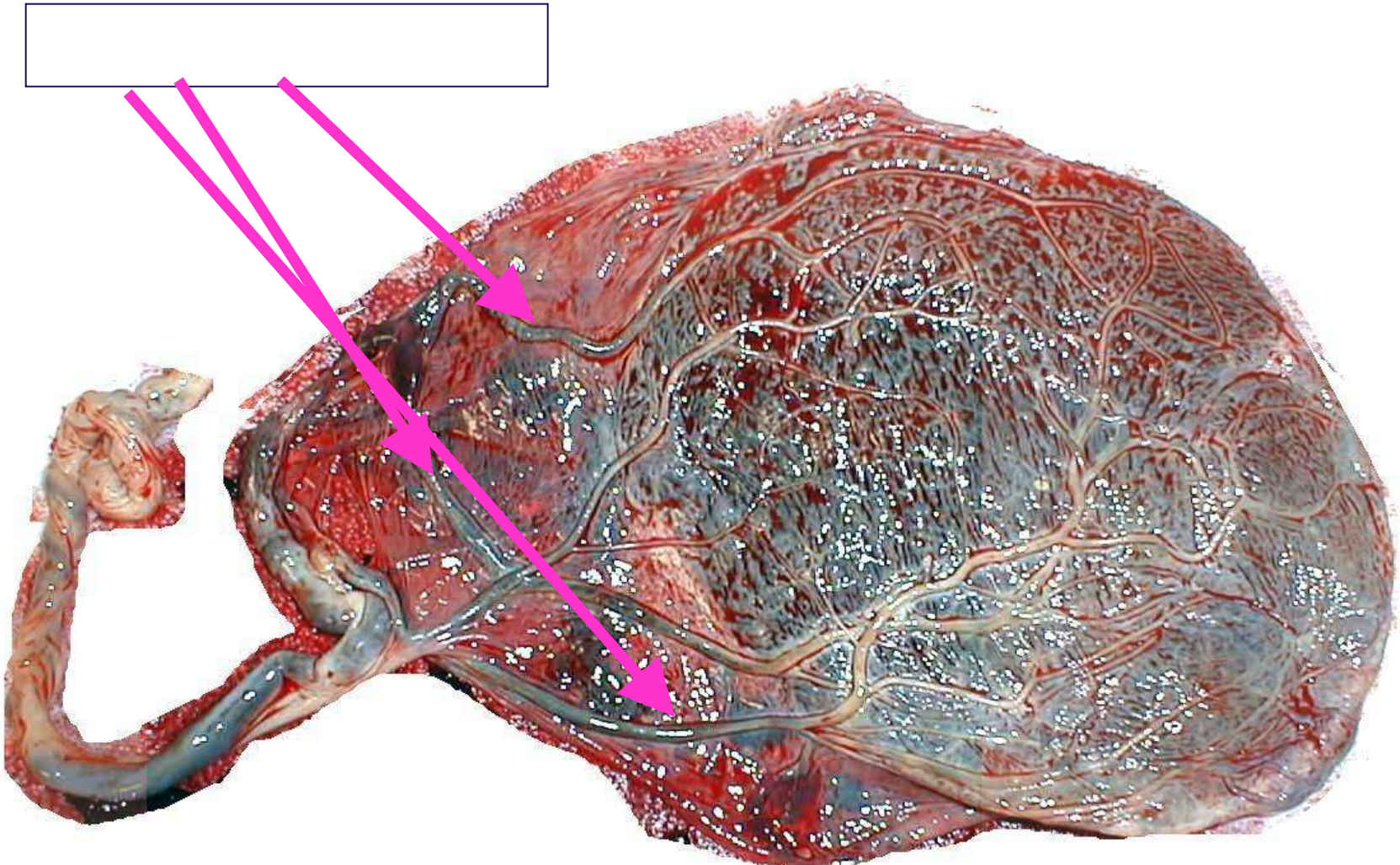
VASA PREVIA

Vasa previa (VP) can occur when the umbilical cord inserts into the membrane of the placenta instead of the central region of the placenta

VASA PREVIA

- Rupture of a fetal vessel
- Result of a velamentous insertion of the umbilical cord into the membranes
  - Veins travel across the amniotic membranes before coming together in umbilical cord
- Onset of bleeding coincides with rupture of membranes

Vasa Praevia

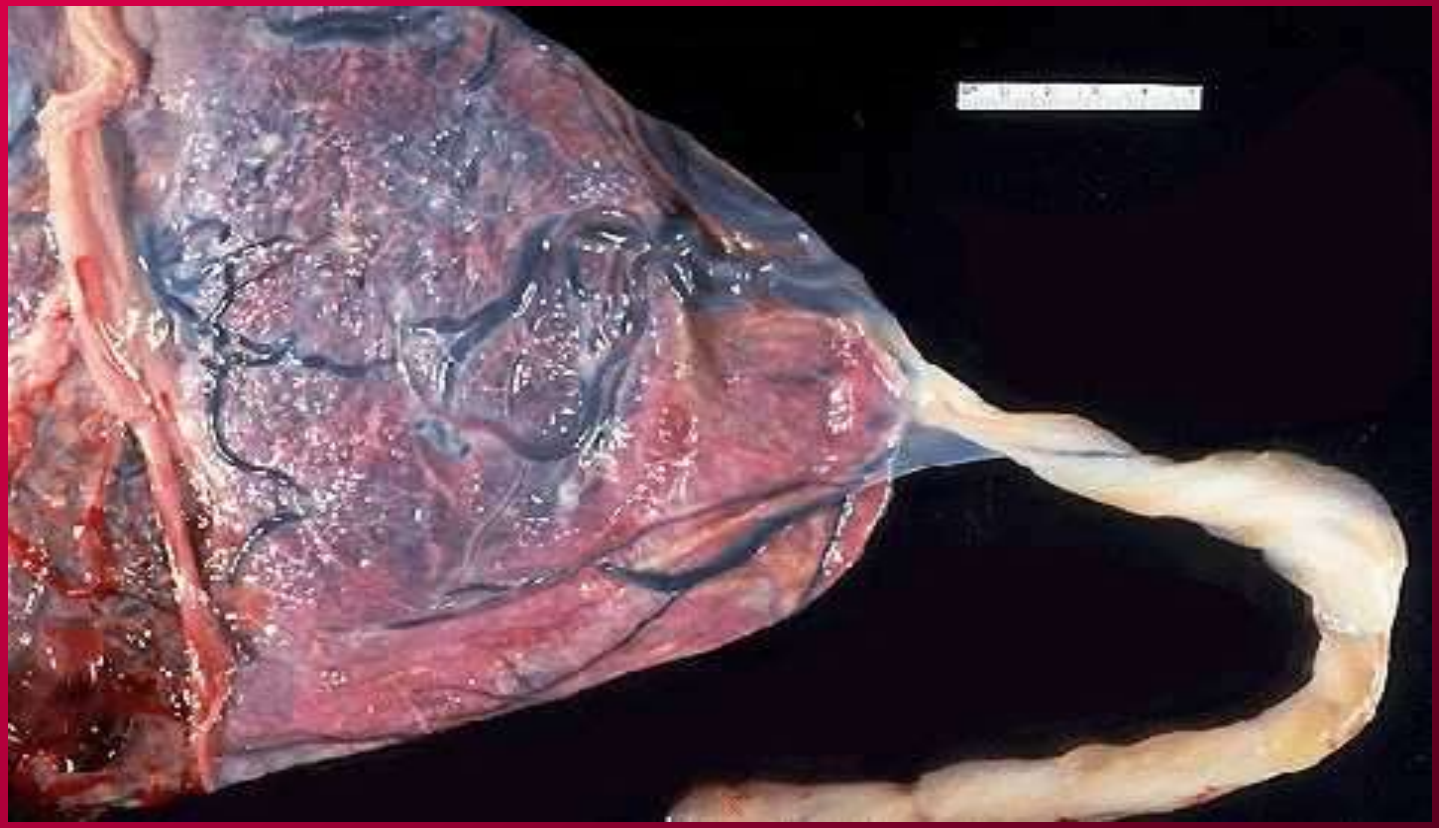


Vasa Previa

- There are three causes typically noted for vasa previa:

1. Bi-lobed placenta
2. Velamentous insertion of the umbilical cord
3. Succenturiate (Accessory) lobe

Vasa Previa



Vasa Previa

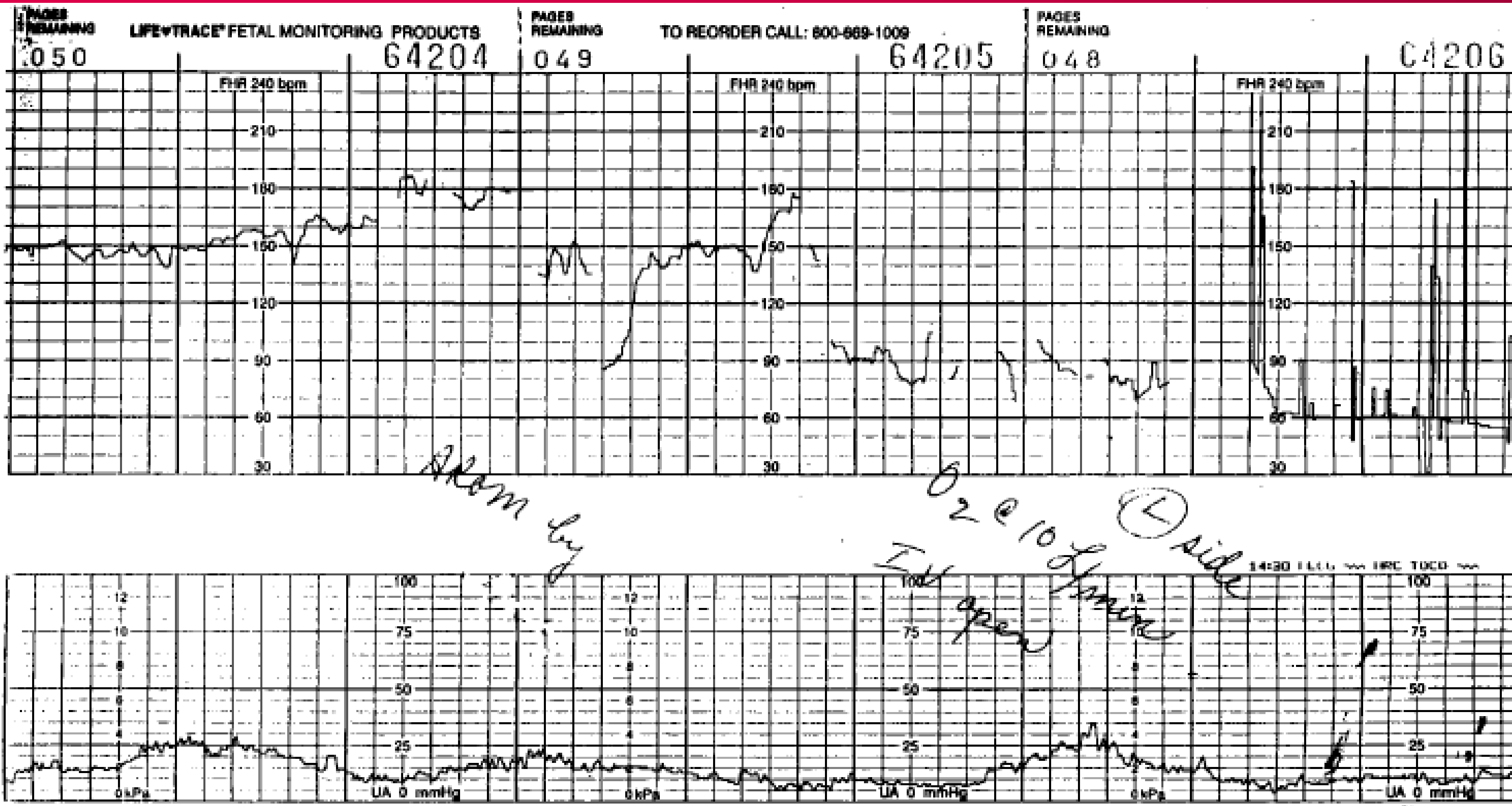
- Risk Factors:
  - Bilobed and succenturiate placentas
  - Velamentous insertion of the cord
  - Low-lying placenta
  - Multiple gestation

Incidence

- The incidence of vasa previa is between 0.1% and 1.8% of pregnancies.
- Fetal mortality has been reported to be as high as 60%, with intact membranes and 75% when membranes rupture .

ALTERATIONS IN THE FETAL HEART RATE

- Initial fetal tachycardia—fetus attempts to compensate for acute blood loss
- Bradycardia
- Intermittent accelerations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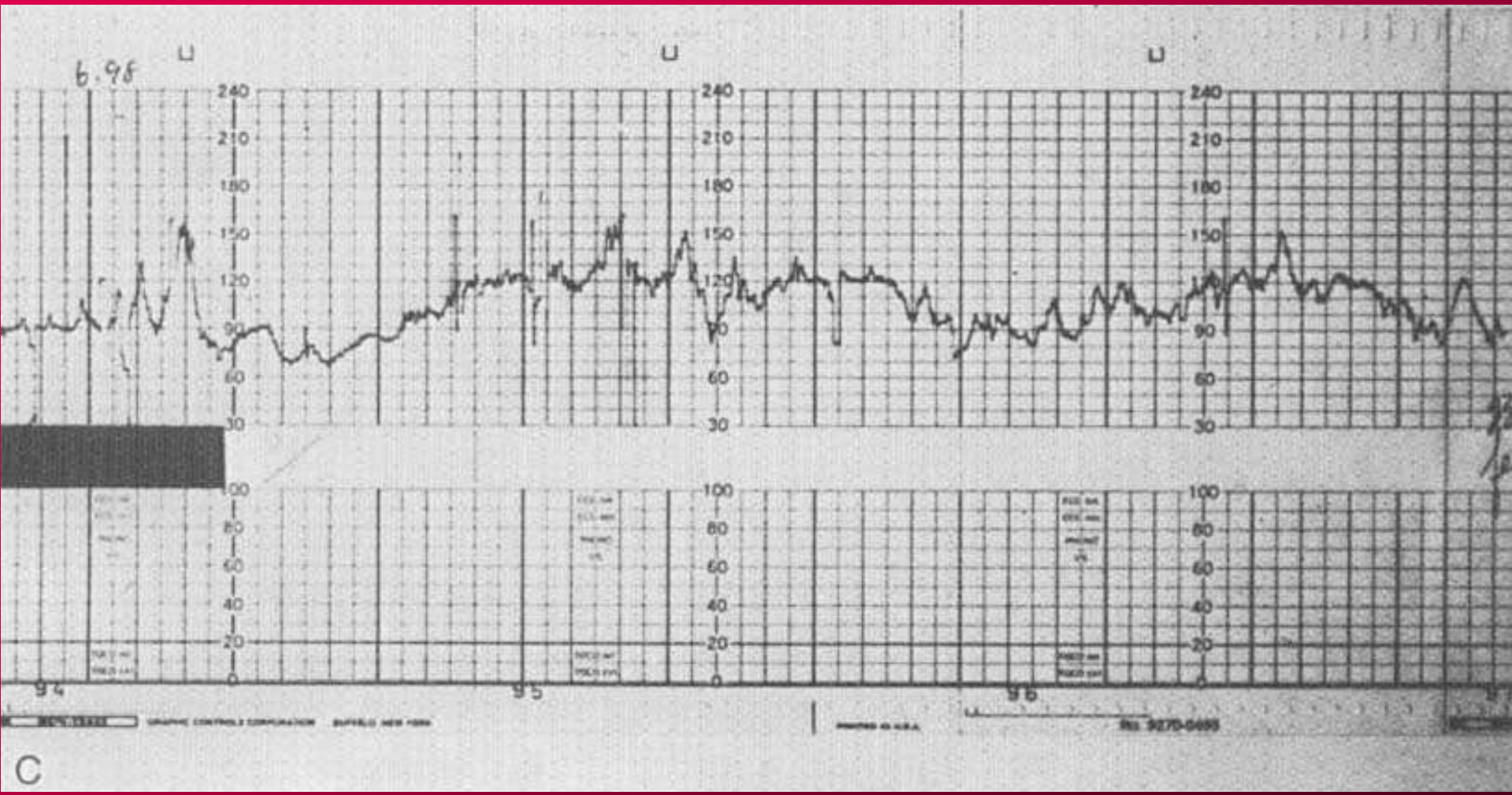

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VASA PREVIA

- High index of suspicion
- Must make diagnosis rapidly and institute definitive therapy and delivery
- Fetal mortality reported to be greater than 60%

Apt test

- The test allows the clinician to determine whether the blood originates from the infant or from the mother.
  - Place 5 mL water in each of 2 test tubes
  - To 1 test tube add 5 drops of vaginal blood
  - To other add 5 drops of maternal (adult) blood
  - Add 6 drops 10% NaOH to each tube
  - Observe for 2 minutes
  - Maternal (adult) blood turns yellow-green-brown; fetal blood stays pink.
  - If fetal blood, deliver STAT.

Diagnosis of VP

- Antenatal diagnosis –reduced perinatal mortality and morbidity.
- Painless vaginal bleeding at the time of spontaneous rupture of membrane or post amniotomy
- Fetal bradycardia
- Fetal shock or death can occur rapidly at the time of diagnosis due to blood loss constitutes a major bulk of blood volume is fetus (3kg fetus-300ml)
- Hence, ALWAYS check the fetal heart after rupture of membrane or amniotomy.
- Definitive diagnosis by inspecting the placenta and fetal membrane after delivery.

Obstetrics today

Vasa Previa

- Management:
  - When vasa previa is detected prior to labor, the baby has a much greater chance of surviving.
  - It can be detected during pregnancy with use of transvaginal sonography.
  - When vasa previa is diagnosed prior to labor, elective caesarian is the delivery method of choice.

Kleihauer-Betke Test

- Is a blood test used to measure the amount of fetal hemoglobin transferred from a fetus to the mother's bloodstream.
- Used to determine the required dose of Rh immune globulin.
- Used for detecting fetal-maternal hemorrhage.

EFFACEMENT AND DILATATION(Bloody Show)

- Bleeding may be presenting complaint of labor
- Usually accompanied by passage of cervical mucous, although not always

CONTACT BLEEDING

- Increased vascularity of cervix
- Intercourse can rupture a vessel
- Impressive bleeding
- Diagnosis made when suggested by history and physical and other causes excluded

CERVICAL INFLAMMATION

- Vaginal infection may cause spontaneous bleeding
- Quantity of blood usually small
- Other causes should be excluded

OTHERS (uncommon)

- Cervical cancer
  - Check prenatal pap
  - Visualize the cervix
- Coagulation disorders
  - Initial labs
  - Family history

Complications of APH

Maternal complications	Fetal complications
Anaemia	Fetal hypoxia
Infection	Small for gestational age and fetal growth restriction
Maternal shock	Prematurity (iatrogenic and spontaneous)
Renal tubular necrosis	Fetal death
Consumptive coagulopathy	
Postpartum haemorrhage	
Prolonged hospital stay	
Psychological sequelae	
Complications of blood transfusion	

RCOG Guidelines

Clinical assessment in APH

- First and foremost → **Mother and fetal well being** (mother is the priority)
- establish whether urgent intervention is required to manage maternal or fetal compromise.
- Assess the extent of vaginal bleeding, cardiovascular condition of the mother
- Assess fetal wellbeing.

Full History

Should be taken after the mother is stable.

- associated pain with the haemorrhage?

Continuous pain : Placental abruption.

Intermittent pain : Labour.

- Risk factors for abruption and placenta praevia should be identified.
- reduced fetal movements?
- If the APH is associated with spontaneous or iatrogenic rupture of the fetal membranes : ruptured vasa praevia
- Previous cervical smear history possibility of Ca cervix. Symptomatic pregnant women usually present with APH (mostly postcoital) or vaginal discharge.

Examination

- **General**: PULSE & BP (a MUST!)
- **Abdomen**:

- The tense, tender or ‘woody’ feel to the uterus indicates a significant abruption.
- Painless bleeding, high fetal presenting part – Placenta praevia
- soft, non-tender uterus may suggest a lower genital tract cause or bleeding from placenta or vasa praevia.

Examination

- **Speculum** :

-identify cervical dilatation or visualise a lower genital tract cause.

- **Digital vaginal examination**

- Should NOT be done until Placenta Praevia has been excluded by USG.

RCOG Guidelines

Investigations

- FBC
- Coagulation profile
- Blood Grouping and CXM.
- Ultrasound- TRO PP
- D-dimer : AP
- colour doppler TVS – VP
- In all women who are RhD-negative, a Kleihauer test should be performed to quantify FMH to gauge the dose of anti-D Ig required.

Fetal monitoring:

- CTG monitoring

RCOG Guidelines


Thank you