Early Pregnancy Complications

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Early Pregnancy Complications

Spontaneous abortion (SAB)

- First-trimester abortion
- Second-trimester abortion
- Recurrent pregnancy loss

Ectopic pregnancy (EP)

- Tubal/ovarian/peritoneal/cervical EP
- Cesarean scar pregnancy

SPONTANEOUS ABORTION (SAB)

Contents

Definition

Spontaneous Abortion :*The most common complication of pregnancy.*

- *The spontaneous loss of pregnancy before the fetus reaches viability.*
- In US: *prior to 20 weeks' gestation;* In UK: *24 weeks;* In China: *28 weeks.*

Definition

- *Early abortion:* before 12 weeks' gestation
- *Late abortion*: after 12 weeks' gestation and before 20/24/28 weeks.

Recurrent Abortion *(RAB) a.k.a.* ***Recurrent Miscarriage:*** *3 or more consecutive SABs.*

INCIDENCE

- SABs are estimated to occur in 15% to 25% of all pregnancies.
- About 15%~20% of clinically evident pregnancies and 60~70% of chemically evident pregnancies end in a recognized SAB.
- About 80% of SAB occur in the first trimester/ prior to 12 weeks' gestation.

ETIOLOGY

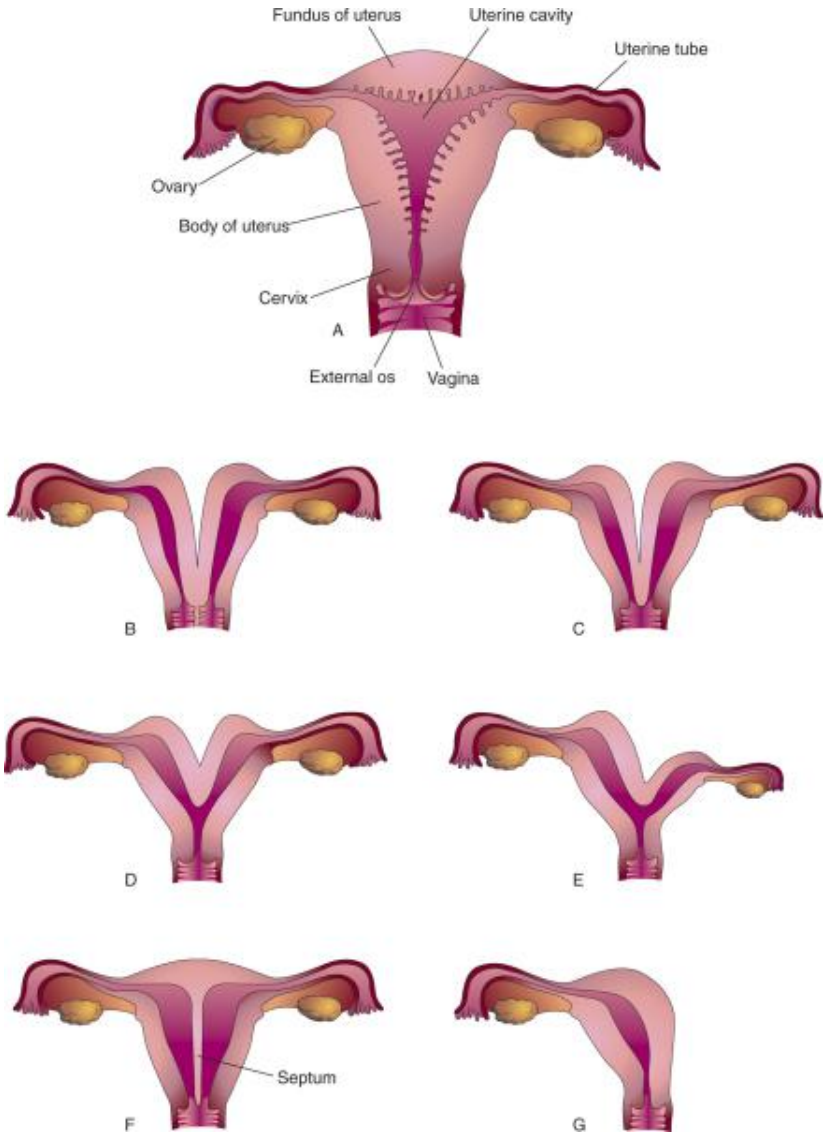
- **Chromosomal aneuploidy**: *95% due to errors in maternal gametogenesis, mostly Trisomy;*

  Generally constitutes 60~80% of SAB: 50-70% of 1st trimester, 30% of 2nd trimester, 3% of stillbirths;
- **Advanced age***: younger than 35 yrs (11%~15%), 35~39 yrs (25%), while older than 40 yrs (more than 51%);* directly related to the incidence of trisomic abortions.
- **Endocrine causes: ***Luteal-phase Deficiency (LPD), Polycystic Ovary Syndrome (PCOS), Thyroid Disease, Diabetes Mellitus, etc.*

ETIOLOGY

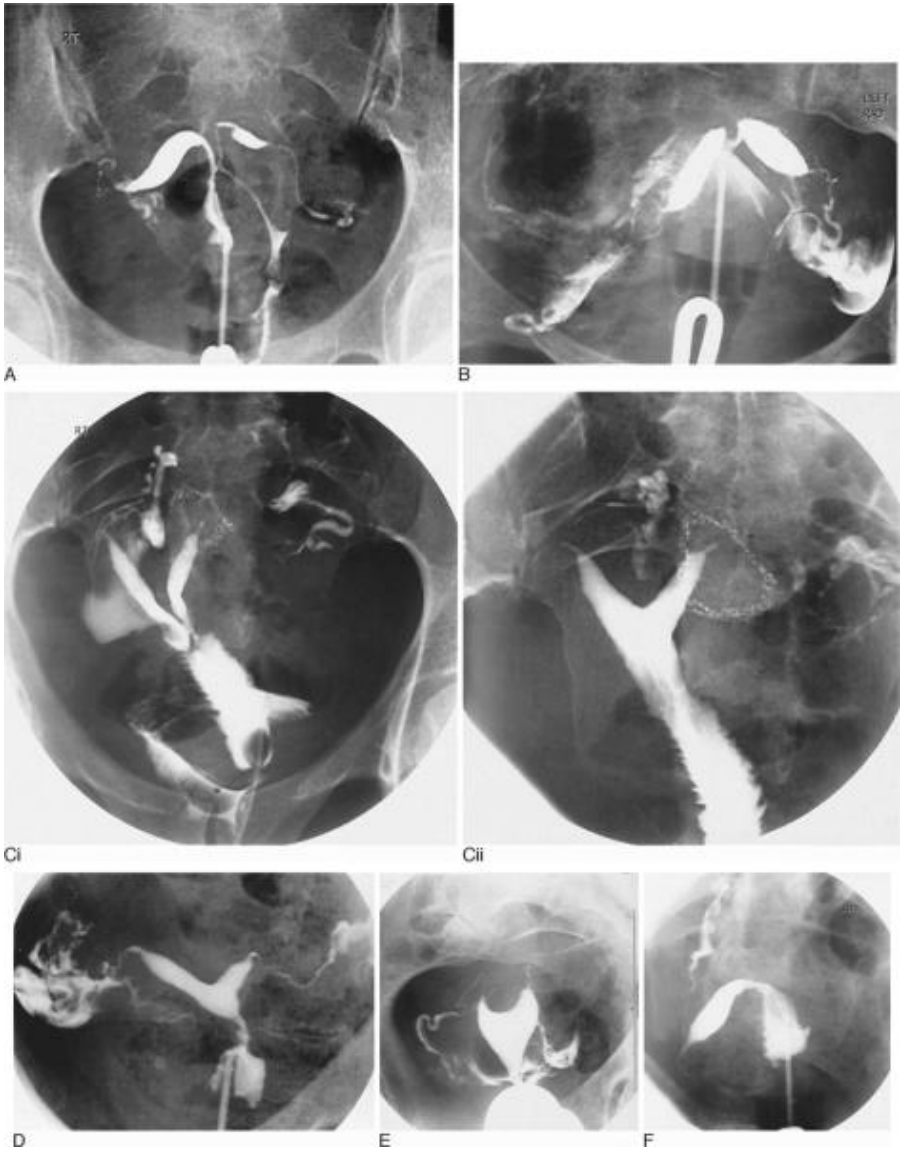
- **Immunologic Factors**: *Histocompatability Locus Antigens (HLA) incompatability, Antiphospholipid Syndrome (APS) and SLE* ⟹ **RAB**
- **Congenital Uterine Anomalies**: *Unicornuate, bicornuate and septate uterus; Cervical incompetence* ⟹ **Late miscarriage**
- **Acquired Uterine Defects**: *Leiomyomas (submucosal), Endometrial polyps; Intrauterine adhesions (IUA) and Cervical incompetence* due to **induced abortions** or **intrauterine operations.**
- **Infections and toxins**.

Various types of congenital uterine anomalies:

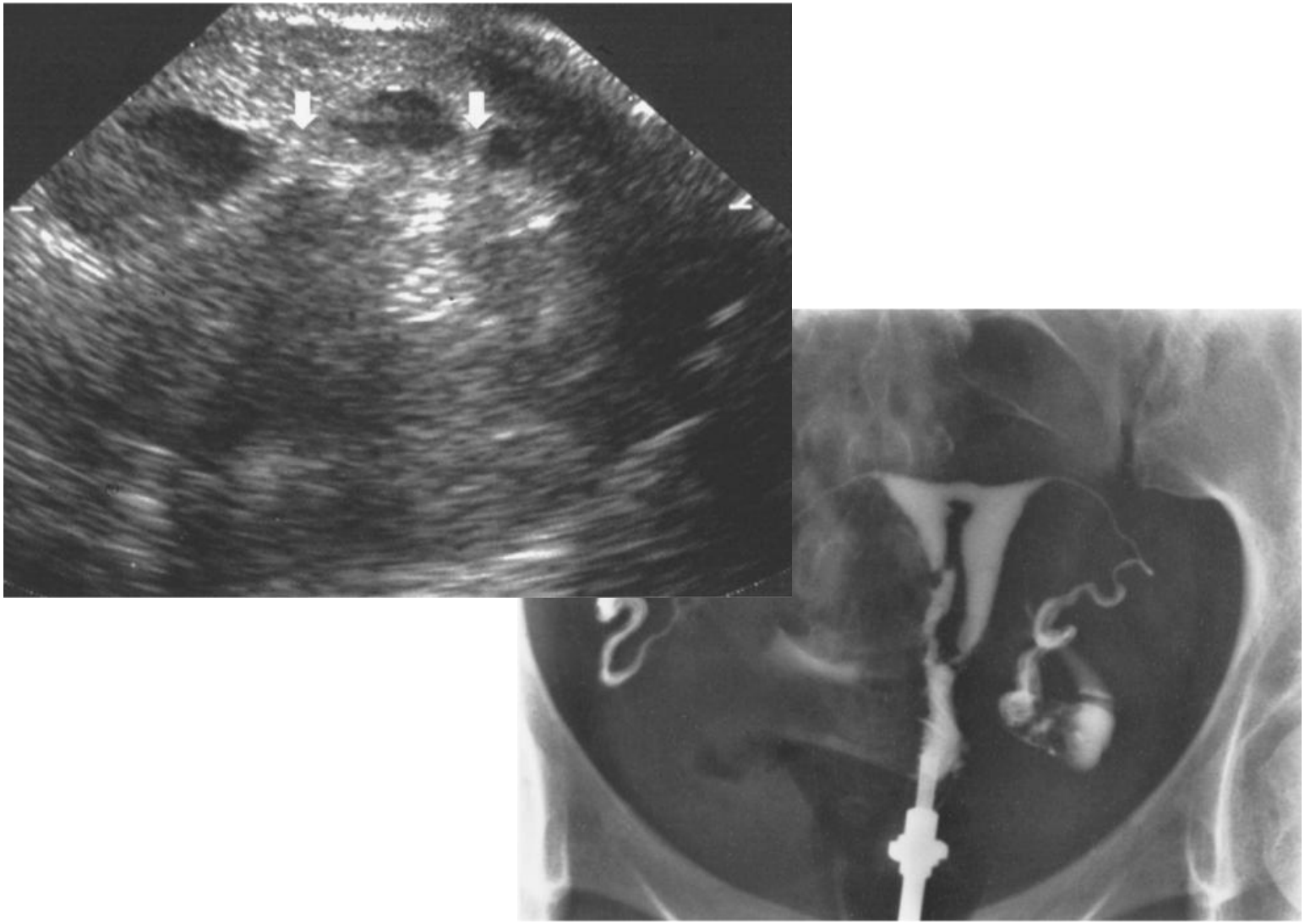


A, Normal uterus and vagina.
B, Double uterus (uterus didelphys) and double vagina.
C, Double uterus with single vagina.
D, Bicornuate uterus.
E, Bicornuate uterus with a rudimentary left horn.
F, Septate uterus.
G, Unicornuate uterus.

Congenital uterine anomalies in **Hysterosalpingography (HSG)**:

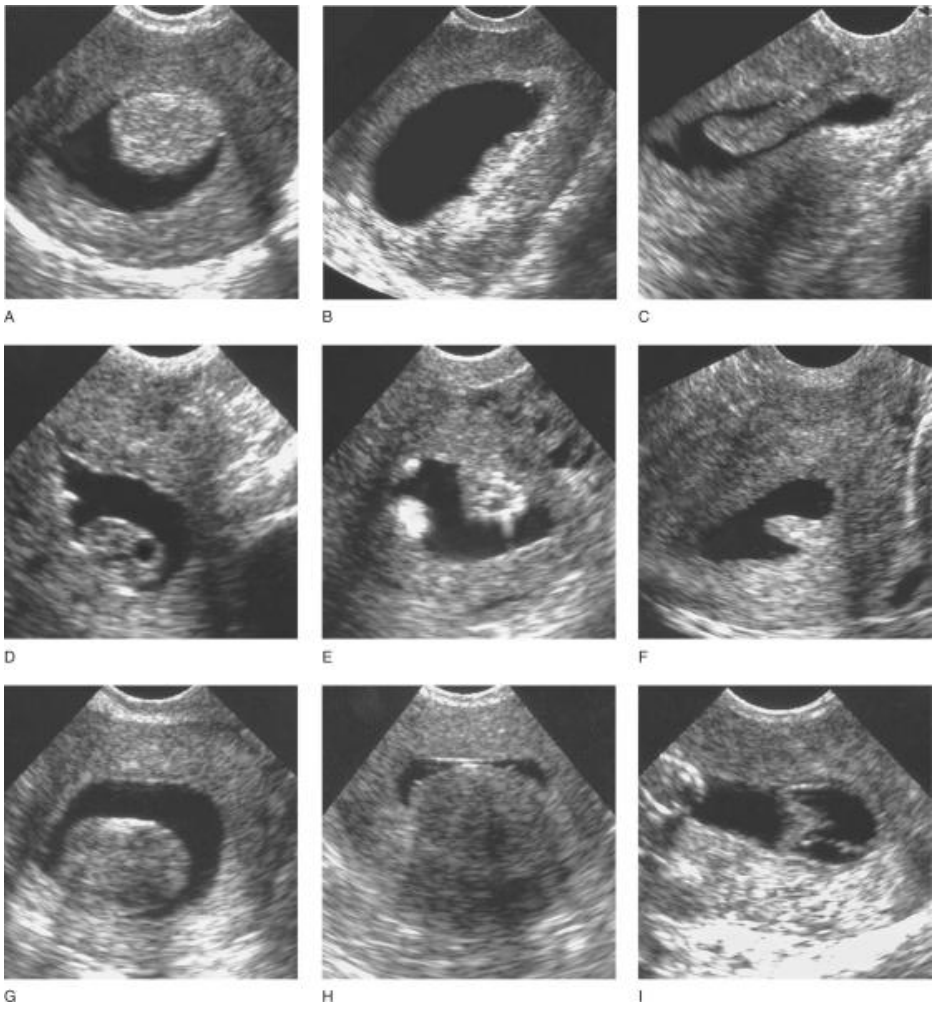


(A) Double uterus (single vagina, two cervices, two separate uterine horns).
(B) Bicornuate (single vagina, single cervix, two separate uterine horns).
(C) Septate – preoperative (i) and initial post resection (ii) images.
(D) Subseptate – deep fundal indentation.
(E) Arcuate uterine fundus
(F) Unicornuate



Endometrial adhesions in sonography and HSG

Uterine polyps and submucosal fibroid in sonohysterograms



A, Well-defined, round echogenic polyp.
B, Carpet of small polyps. **C,** Polyp on a stalk.
D, Polyp with cystic areas.
E, Small polyp.
F, Small polyp.
G, Hypoechoic submucosal fibroid.
H, Hypoechoic attenuating submucosal fibroid.
I, Endometrial adhesion tape.

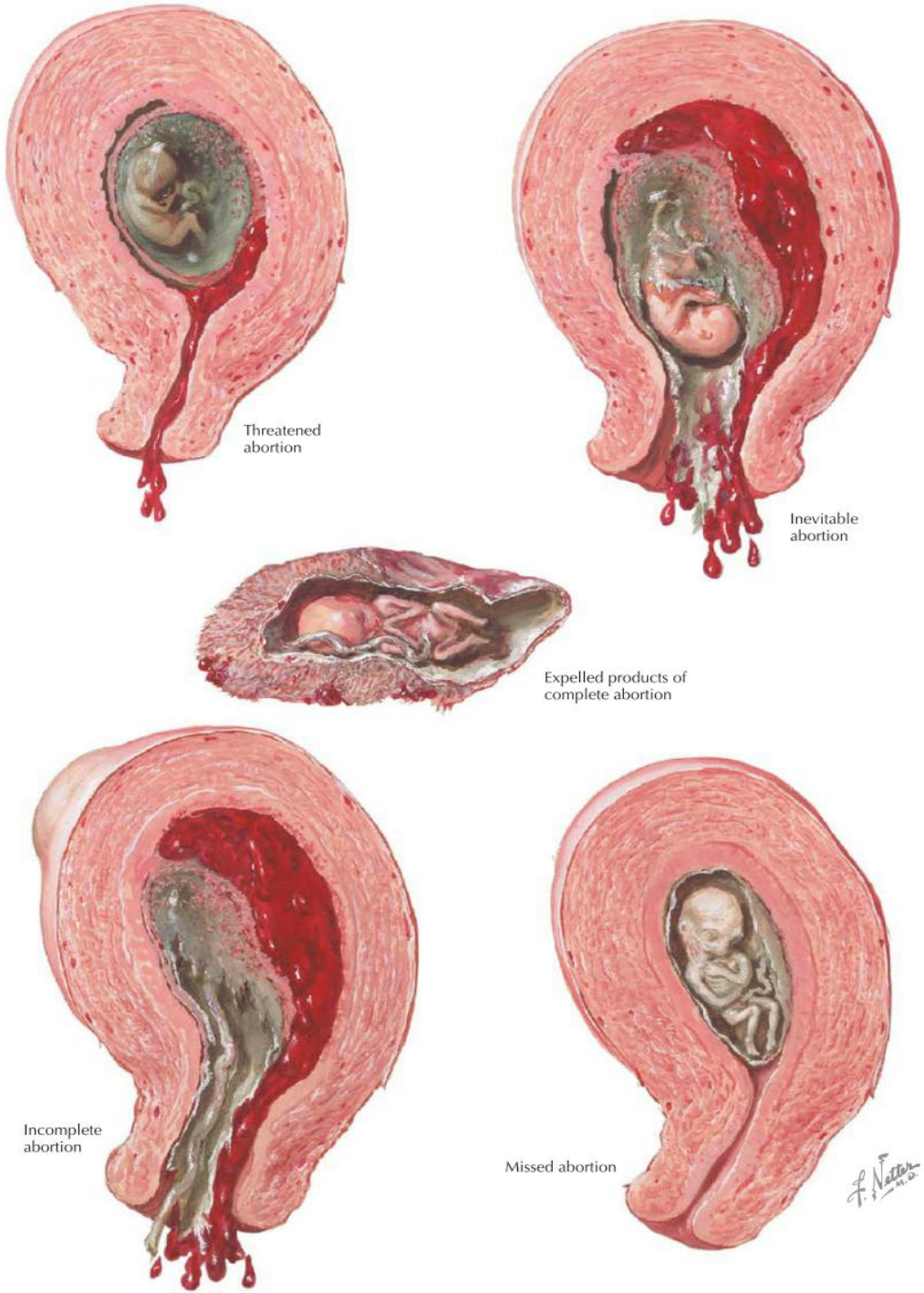
Clinical Findings

The subtypes of **SAB**:

- **Threatened Abortion:** *Uterine bleeding from a gestation of less than 20 weeks without any cervical dilation or effacement (bleeding with a viable pregnancy).*
- **Inevitable Abortion:** *Uterine bleeding from a gestation of less than 20 weeks accompanied by cervical dilation but without expulsion of any tissue through the cervix.*

Clinical Findings

- **Incomplete Abortion**: *Passage of some but not all fetal or placental tissue (the os opens and some tissue already passed).*
- **Complete Abortion**: *Spontaneous expulsion of all fetal and placental tissue (an empty uterus).*
- **Missed Abortion**: *Fetal death without expulsion of any fetal or maternal tissue for at least 8 weeks thereafter (the cervical os is closed).*
- **Septic Abortion**: *Any type of abortion that is accompanied by uterine infection.*


Threatened abortion
Inevitable abortion
Expelled products of complete abortion
Incomplete abortion
Missed abortion

Medical history

- Most patients present with vaginal spotting, some with menses-like bleeding and tissue discharge
- Amenorrhea
- Accompanying symptoms: lower abdominal cramping, and morning sickness.

Physical examination

- The physical examination should include vital signs to rule out shock and febrile condition.
- A pelvic examination aims to ascertain:

  Where the blood comes from

  Whether cervix is open

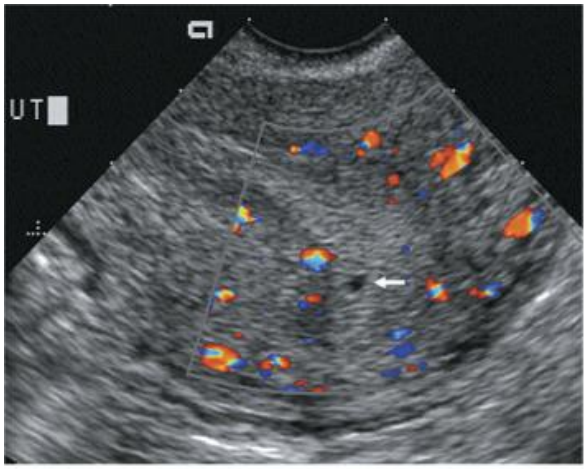
  Any tissue in the cervical canal or vagina

Laboratory tests

- The laboratory tests include serum β-hCG, complete blood cell count (CBC), blood type and screen.
- β-hCG of a low level for gestational age and/or slow rise indicates miscarriage.
- In normal **intrauterine pregnancy, the trophoblastic** cells secrete β-hCG in a predictable manner that will double (or at least an increase of two-third or more) approximately every 48 hours.

Ultrasound

- Ultrasonography is the only method to assess fetal viability and placentation.
- Transvaginal ultrasonography can visualize:
  - Gestational sac at 4.5 wks
  - Yolk sac by 5.5 wks
  - Fetal cardiac activity at 6-6.5 wks
- If the embryo is viable at 8 weeks, the subsequent abortion rate is only about 2%~3%.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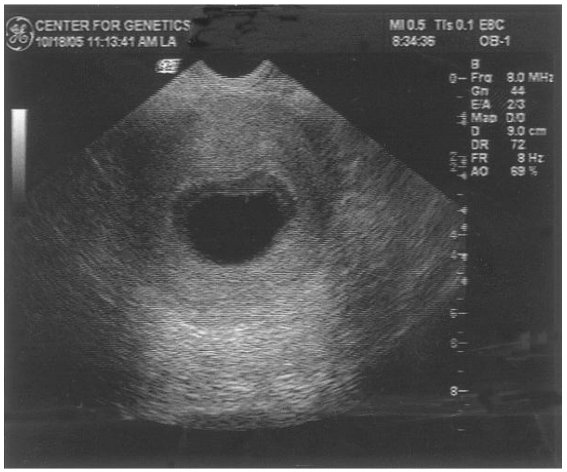
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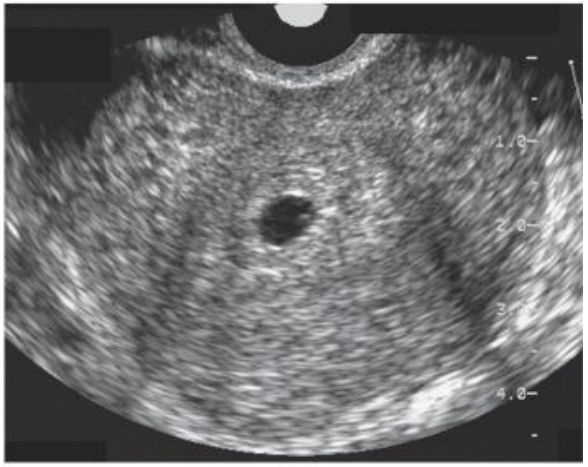
Map D10
D 9.0 cm
DR 72
FR 8 Hz
AO 69 %

A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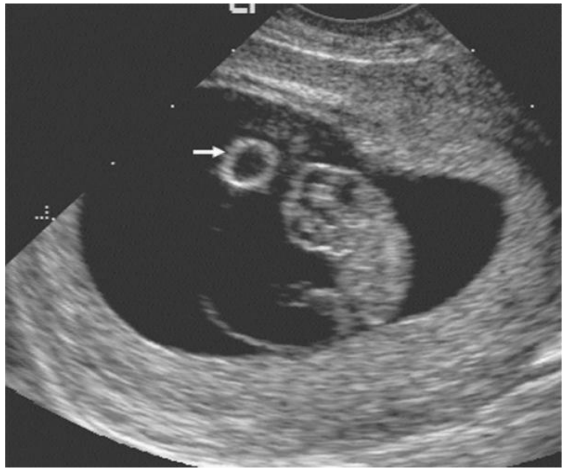

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DIAGNOSIS

- Medical history: vaginal bleeding with amenorrhea;
- PE: enlarged uterus, bleeding from an open or closed cervix;
- HCG values: normal or less than supposed;
- Ultrasonography: intrauterine gestational sac, yolk sac, fetus pole or cardiac activity.

TRATMENT-SAB

Threatened Abortion

- Bed rest is recommended but not really effective.
- Treatment with progesterone, synthetic progestins or HCG: commonly used, but evidence lacking; may not be helpful except for LPD.
- Rh immunoglobulin to Rh-negative women after vaginal bleeding or abortion.
- Threatened abortion occurs in about 30%~40% of human gestations, with about half of these pregnancies ending in SAB.

TREATMENT-SAB

Inevitable, incomplete & missed abortion

- Immediate dilation and curettage (D&C)

  Emergent operation for hemodynamically unstable patients.

- Medical therapy (mifepristone & misoprostol)

  For patients who is stable or in late abortion; might fail or lead to tissue retention.

- Expectant management

  Not recommended; might lead to DIC for missed abortion more than 4-5 wks

TREATMENT-SAB

Medical therapy

- Misoprostol (prostaglandin E1 analogue), given orally or vaginally, 600 µg every 12 hours for four doses is most commonly prescribed.
- Mifepristone (progesterone receptor antagonist) given 24 to 48 hours prior to misoprostol will increase successful passage of a fetus (9 to 14 weeks' gestation)

Septic Abortion

- Often ensue illegal abortion by unqualified practitioner.
- Also in threatened or incomplete miscarriage (1%) or elective abortion.
- Motality rate:0.4 to 0.6/100,000 SAB.
- Treatment: Prompt broad-spectrum antibiotic therapy (with anaerobic coverage); uterine contents are evacuated under effective antibiotic coverage.
- Prevention: prophylactic antibiotics before surgical or medical intervention.

Prognosis of SAB

- The risk of a subsequent SAB after one prior SAB is 20% to 25%; after two consecutive SABs, 25% to 30%; and after three consecutive SABs, 30% to 35%, i.e. 70% chances of livebirth.
- The incidence of RAB is around 1% of couples trying to conceive.

Recurrent abortion

- A diagnostic evaluation may be considered after one second-trimester or two first-trimester abortions.
- Etiology: parental chromosomal abnormalities (2-4%), uterine abnormalities (15%), autoimmune or alloimmune diseases (15%), etc.
- For about 30%~50% of RABs, the cause can not be identified.
- Couples with RAB require careful, sympathetic care by the practitioners.

Recurrent abortion

The evaluation for women with RAB:

- karyotype of the couple(both wife and husband)
- Uterine: unicornuate, bicornuate and septate uterus; submucosal myomas, endometrial polyps, intrauterine adhesions and cervical incompetence
- Immune system: antiphospholipid antibody syndrome (APS), systemic lupus erythematosus (SLE)
- Endocrinology:severe DM, hypothyroidism, luteal-phase defect (LPD) and polycystic ovarian syndrome (PCOS)
- History of exposures to toxins
- Family history of miscarriages or birth defects

TREATMENT-RAB

- Chromosomal abnormality → *Genetic counseling-- PGD or other assisted techniques*
- Bicornuate, septate uteri, leiomyomas, IUA, polyps → *Hysteroscopic resection*
- Cervical incompetence → *Cervical cerclage*
- LPD → *Administration of progesterone in the luteal phase*
- APS → *Low-dose aspirin plus small molecular heparin*
- Hypothyroidism → thyroxin supplementation
- Diabetes mellitus → control blood glucose with insulin

Prognosis of RAB

- Women with RAB as a result of bicornuate and septate uteri have a decline in the abortion rate from about 88% to 15% after surgical correction.
- In women with an incompetent cervix, the rate of fetal survival increases from about 20% to 80% after cerclage.
- Aspirin and heparin reduce miscarriage rate by 54% in APS patients.
- Even without pharmacological intervention, women with unexplained RAB have a relatively good prognosis for future pregnancy (as high as 75%).

Home work

- 1. the definition of spontaneous abortion?
- 2.when a patient accompanied with amenorrhea and lower abdominal pain comes to your clinics, what is the first step?
- 3. Continue with question 2. if the ultrasound examination showed a intrauterine embryo without yolk sac at 5.0 gestational weeks, and the HCG level is more than 2000mIU/mL, what is your suggestion to the patient?

Thank You !