

**Abortion , miscarriage,
loss of pregnancy**

Definition:

Spontaneous termination of pregnancy before viability of fetus (before 24 week gestation).

Incidence: 15%

Early pregnancy loss: if it occurs before 12 weeks (80%)

Late pregnancy loss: if it occurs between 13 to 24 weeks (12%) (usually there is a fetus)

Factors influence rate of spontaneous miscarriage

Maternal age > 35 years

- Gravity
- Previous miscarriage
- Multiple pregnancies

Etiology

1) Abnormal conceptus:

- Chromosomal abnormalities: trisomy; Monosomy X;
- Structural abnormalities
- Gene defects (absence of specific enzyme)

2) Endocrine abnormalities

- Hypothyroidism
- Diabetes mellitus
- Progesterone deficiency

3) Incompetent cervix

- Painless dilatation of cervix in the 2nd or early in the 3rd trimester
 - prolapse & ballooning of membranes into vagina
 - rupture of membrane & expulsion of immature fetus
- Unless effectively treated, tends to repeat in each pregnancy.

4) Uterine anatomic abnormalities

5) Immunological factors – autoimmune factors

- Recurrent pregnancy loss patients : 15%
- Antiphospholipid antibody : most significant
 - LCA (lupus anticoagulant), ACA (anticardiolipin Ab)
 - Reduce prostacyclin production
 - facilitating thromboxane dominant milieu → thrombosis
 - Strong association with
 - Decidual vasculopathy , placental infarction, fetal growth restriction, Early-onset preeclampsia, recurrent abortion, fetal death

- Therapy of antiphospholipid antibody syndrome
 - : low dose aspirin, prednisone, heparin intravenous
 - affect both immune & coagulation system
 - counteract the adverse action of antibodies

6) Infections

- Uncommon causes of abortion in human
 - *Listeria monocytogenes*
 - *Chlamydia trachomatis*
 - *Mycoplasma hominis*
 - *Toxoplasma gondii*

7) Drug use and environmental factor

- Tobacco
 - More than 14 cigarettes a day → the risk twofold greater ↑
- Alcohol
 - Spontaneous abortion & fetal anomalies → result from frequent alcohol use during the first 8 weeks of pregnancy
- Caffeine
 - At least 5 cups of coffee per day → slightly increased risk of abortion
- Radiation
- Contraceptives
 - When intrauterine devices fail to prevent pregnancy → abortion↑
- Environmental toxins
 - Anesthetic gases , Arsenic, lead, formaldehyde, benzene, ethylene oxide

Categories of spontaneous abortion

- Threatened abortion
- Inevitable abortion
- Complete or incomplete abortion
- Missed abortion
- Recurrent abortion

Threatened abortion

■ Definition

- Any bloody vaginal discharge or bleeding during 1st half of pregnancy
 - Bleeding is frequently slight, but may persist for days or weeks

■ Frequency

- Extremely common (one out of four or five pregnant women)

■ Prognosis

- Approximately $\frac{1}{2}$ will abort
- Risk of preterm delivery, low birth weight, perinatal death ↑

■ Symptoms

- Usually bleeding begins first
- Cramping abdominal pain follows a few hours to several days later
- Presence of bleeding & pain
 - Poor prognosis for pregnancy continuation

■ Treatment

- Bed rest & acetaminophen-based analgesia
- Progesterone (IM) or synthetic progestational agent (PO or IM)
 - Lack of evidence of effectiveness
 - Often results in no more than a missed abortion
- D-negative women with threatened abortion
 - Probably should receive anti-D immunoglobulin

Inevitable abortion

- Gross rupture of membrane, evidenced by leaking amniotic fluid, in the presence of cervical dilatation, but no tissue passed during 1st half of pregnancy
- The gush of fluid is accompanied by bleeding, pain, or fever, abortion should be considered inevitable

Complete or incomplete abortion

■ Complete abortion

- Following complete detachment & expulsion of the conceptus

■ Incomplete abortion

- Expulsion of some but not all of the products of conception during 1st half of pregnancy
- The fetus & placenta may remain entirely in utero or may partially extrude through the dilated os
 - Remove retained tissue without delay

Missed abortion

- Retention of dead products of conception in utero for several weeks
 - Many women have no symptoms except persistent amenorrhea
 - Uterus remain stationary in size, but mammary changes usually regress → uterus become smaller
 - Most terminates spontaneously
 - Serious coagulation defect occasionally develop after prolonged retention of fetus

Recurrent abortion

- Definition : Three or more consecutive spontaneous abortions
- Clinical investigation of recurrent miscarriage
 - Parental cytogenetic analysis
 - Lupus anticoagulant & anticardiolipin antibodies assays

Induced abortion

- The medical or surgical termination of pregnancy before the time of fetal viability
- Therapeutic abortion
 - Termination of pregnancy before of fetal viability for the purpose of saving the life of the mother

Induced abortion

- Indication
 - Continuation of pregnancy may threaten the life of women or seriously impair her health
 - Persistent heart disease after cardiac decompensation
 - Advanced hypertensive vascular disease
 - Invasive carcinoma of the cervix
 - Continuation of pregnancy is likely to result in the birth of child with severe physical deformities or mental retardation

TABLE 9-2 Abortion Techniques

Surgical Techniques

Cervical dilatation followed by uterine evacuation

Curettage

Vacuum aspiration (suction curettage)

Dilatation and evacuation (D & E)

Dilatation and extraction (D & X)

Menstrual aspiration

Laparotomy

Hysterotomy

Hysterectomy

Medical Techniques

Intravenous oxytocin

Intra-amnionic hyperosmotic fluid

20% saline

30% urea

Prostaglandins E_2 , $F_{2\alpha}$, E_1 , and analogues

Intra-amnionic injection

Extraovular injection

Vaginal insertion

Parenteral injection

Oral ingestion

Antiprogesterones—RU 486 (mifepristone) and epostane

Methotrexate—intramuscular and oral

Various combinations of the above

TABLE 9–4 Regimens for Medical Termination of Early Pregnancy

Mifepristone plus Misoprostol

Mifepristone, 100–600 mg orally, followed by:

Misoprostol, 400 μg orally or 800 μg vaginally in 6–72 hr

Methotrexate plus Misoprostol

Methotrexate, 50 mg/m^2 intramuscularly or orally, followed by:

Misoprostol, 800 μg vaginally in 3–7 days; repeated if needed
1 wk after methotrexate initially given

Data from the American College of Obstetricians and Gynecologists, 2001b; Borgatta, 2001; Creinin, 2001, 2004; Pymar, 2001; Schaff, 2000; von Hertzen, 2003; Wiebe, 1999, 2002, and their many colleagues.