



Obstetrics and Gynecology Miscarriage

**University Of Fallujah
College Of Medicine**

Lecture : 2

Stage : 5th Year

Lecturer : Assistant Professor/ Rasha shakir

Department: obstetrics and Gynecology

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Learning objectives

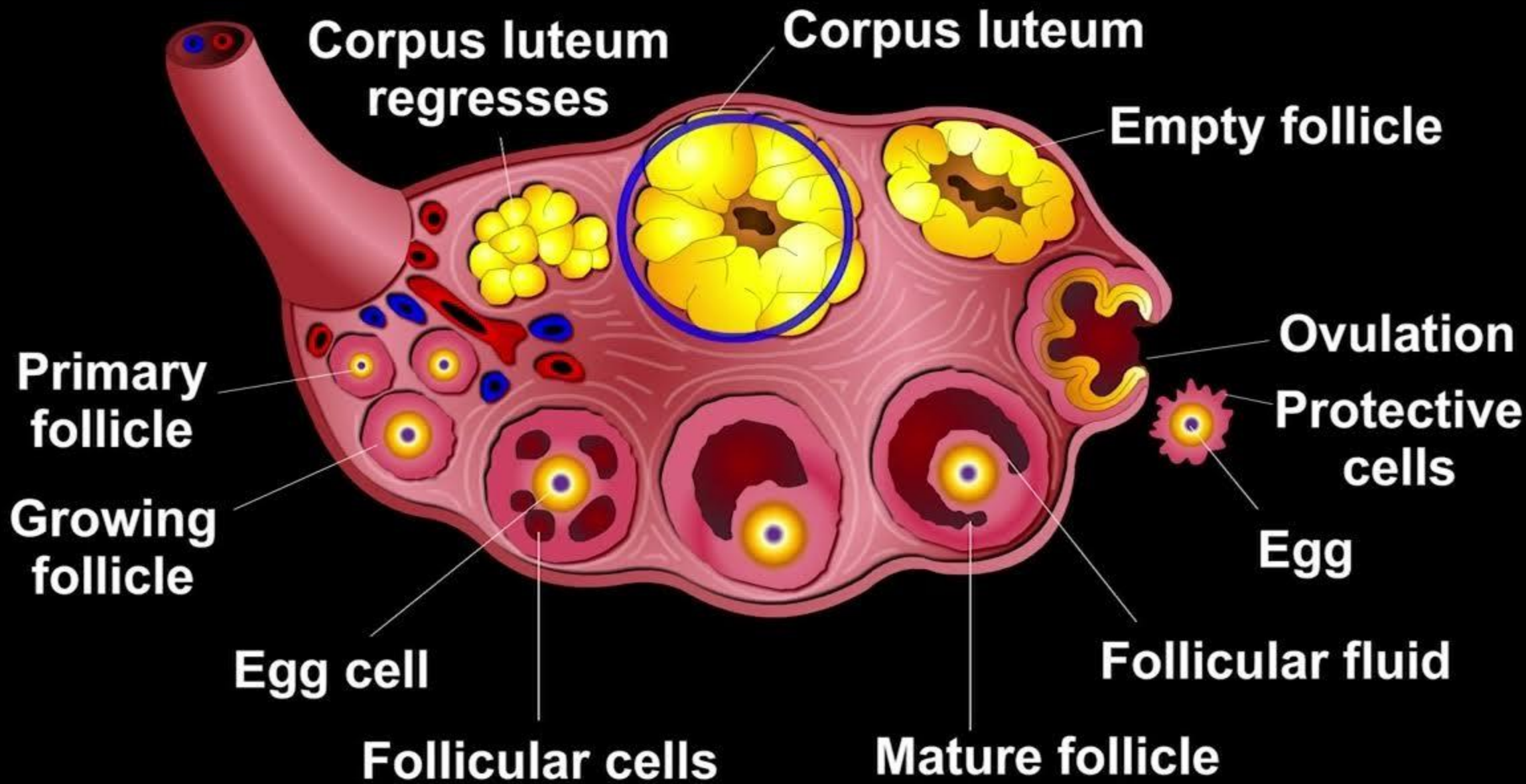
1. Know The physiology of implantation and early pregnancy.
2. Review types of miscarriage and their diagnosis and managements.
3. Know the causes and main etiological factors for recurrent miscarriages.

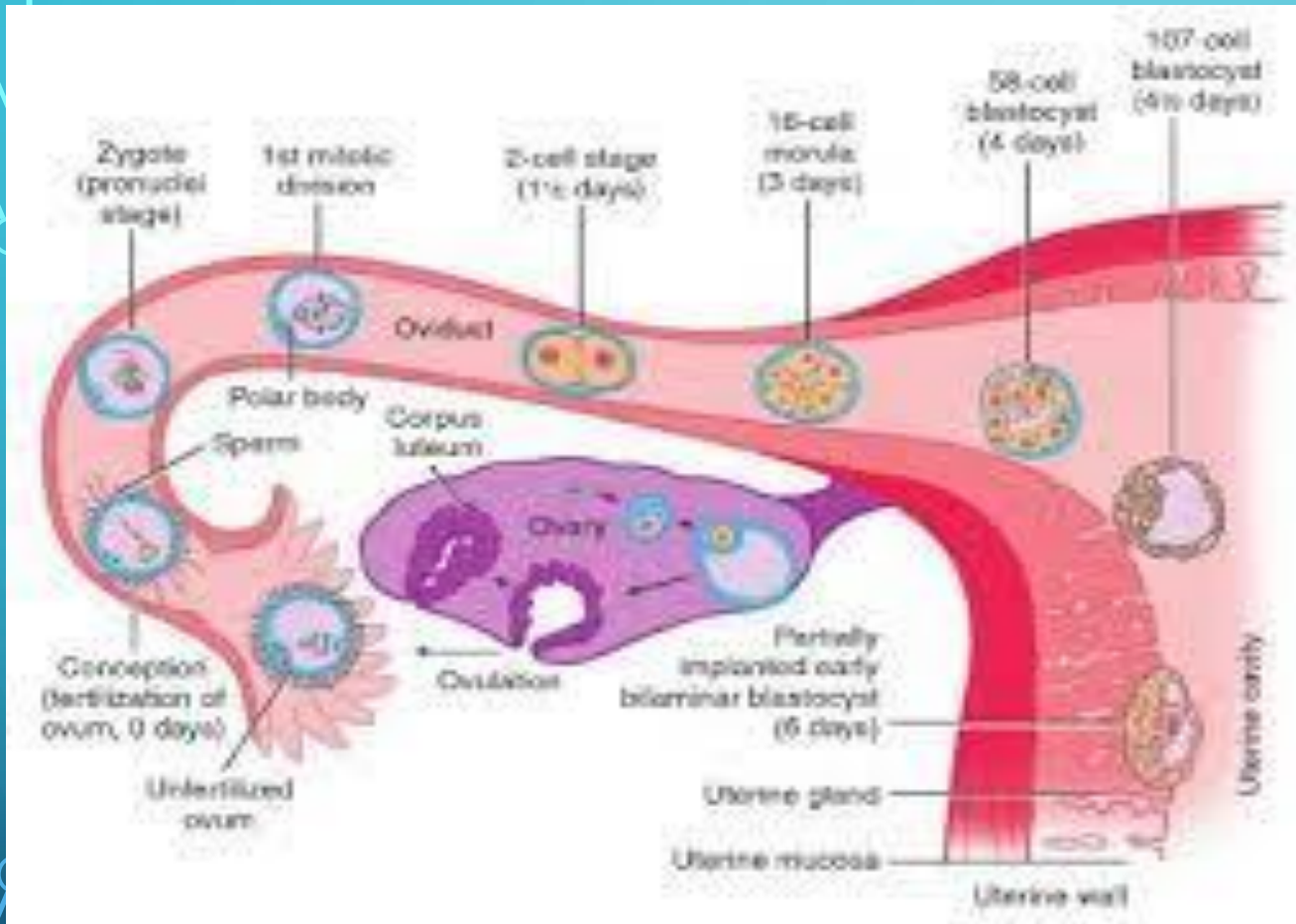
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Early pregnancy bleeding

Implantation and establishment of pregnancy

- ❖ After ovulation, the cells of the dominant follicle form the corpus luteum (CL) which produces large amounts of progesterone. Progesterone prepares the endometrium to support a pregnancy.
- ❖ Successful implantation occurs when the oocyte fertilized in the fallopian tube and implants in the endometrium, around 7 days after ovulation. The implanted blastocyst secretes human chorionic gonadotrophin (HCG).






- ❖ Exponentially increasing HCG acts on the CL to rescue it from luteolysis to maintain progesterone secretion, prevent menstruation and support the early conceptus.
- ❖ The CL supports the pregnancy for approximately 8 weeks, after which the early placental tissue becomes the main source of progesterone support.
- ❖ HCG detected in the urine in sensitive pregnancy tests 1 or 2 days before the expected date of menstruation. Most women delay taking a pregnancy test until after a missed period.

- ❖ A transvaginal ultrasound scan (TVUSS) can detect an early intrauterine gestational sac, the first sign of a normal pregnancy, at around 5 weeks' gestation.
- ❖ A few days later, a circular yolk sac seen within the gestational sac and the embryonic fetus can usually identified after 5.5 weeks' gestation.
- ❖ The fetal heartbeat may be visible as early as 6 weeks' gestation.



The background is a dark blue gradient. In the four corners, there are white, stylized circuit board traces with small circles at the end of the lines, resembling electronic components or data paths.

Miscarriage

Miscarriage: is a pregnancy that ends spontaneously before 24 weeks' gestation.

Clinical presentation

The most common sign of miscarriage is vaginal bleeding.

Incidence

Miscarriage is common, occurring in 10–20% of clinical pregnancies, with the risk increasing with maternal age. Clinically, miscarriages classified into different types based on the clinical presentation and investigation findings.

Types of miscarriage

Type of miscarriage	US finding	Clinical presentation	Managements
Threatened	Intrauterine pregnancy with positive fetal heart	Vaginal bleeding and abdominal pain Speculum: closed cervical os	Supportive
Inevitable	Intrauterine pregnancy with negative fetal heart	Vaginal bleeding and abdominal pain Speculum: opened cervical os	Expectant, medical or surgical
Incomplete	Retained product of conception	Vaginal bleeding and abdominal pain Speculum: opened cervical os Product of conception located in cervical os	Remove pregnancy tissue at time of speculum if possible Expectant, medical or surgical
complete	Empty uterus	Pain and bleeding has resolve Speculum: closed cervical os	Supportive
Missed	Intrauterine pregnancy with negative fetal heart	Asymptomatic often diagnosis at booking US	Expectant, medical or surgical

Etiological factors

- ❑ Chromosomal abnormalities: approximately half of first trimester miscarriages are aneuploidy.
- ❑ Medical/endocrine disorders. Diabetes mellitus, thyroid disorders, antiphospholipid syndrome.
- ❑ Uterine abnormalities: Congenital uterine anomaly, cervical incompetence and submucous fibroid usually cause second trimester miscarriage.

- ❑ Infections: Only a few organisms proven to cause abortion include Varicella, Rubella and other viral illness. Bacterial vaginosis (second but not first-trimester miscarriage).

- ❑ Drugs like methotrexate, radiotherapy and chemotherapy.

In utero exposure to radiation may be abortifacient, teratogenic, or carcinogenic depending on the level of exposure and stage of fetal development.

Investigations

- ❖ Transabdominal/TVUSS: a single ultrasound scan can diagnose a miscarriage if there is a pregnancy within the uterine cavity and certain criteria met.
- ❖ Haemoglobin.
- ❖ Blood group and cross-match if patient severely compromised.

Management

Expectant management

Allows for the avoidance of surgery. After a spontaneous miscarriage where the pain and bleeding resolve, a repeat ultrasound scan is not required to confirm completion.

Women undergoing expectant management may require unplanned surgery if they start to bleed heavily.

Medical management

- ❖ Medical treatment increasingly used in an outpatient setting to allow women to miscarry at home.
- ❖ It involves the administration of a single, or repeated, vaginal or sublingual dose of the prostaglandin E analogue misoprostol.
- ❖ Some centers use pretreatment with the progesterone antagonist mifepristone (if over 9 weeks' gestation). The side effects include pain, vomiting and diarrhoea, and women routinely provided with pain relief and antiemetics.
- ❖ Women undergoing medical management of miscarriage need to understand that they may need surgical treatment if medical treatment fails (10% failure rate) or if they bleed heavily.

Surgical management

- ❖ Surgical management of miscarriage is preferred if there is persistent excessive bleeding or hemodynamic instability, or if women favor this option.
- ❖ It can be done by manual vacuum aspiration under local anaesthetic in an outpatient clinic setting if the woman is not compromised.
- ❖ More commonly, it done as a day case in theatre under general anaesthesia.
- ❖ Vaginal or sublingual misoprostol frequently used to ripen the cervix to facilitate cervical dilatation for suction curette insertion and reduce the risk of trauma and haemorrhage.

Complication of surgical method

1. Uterine perforation.
2. Postoperative pelvic infection.
3. Cervical trauma and subsequent cervical incompetence.

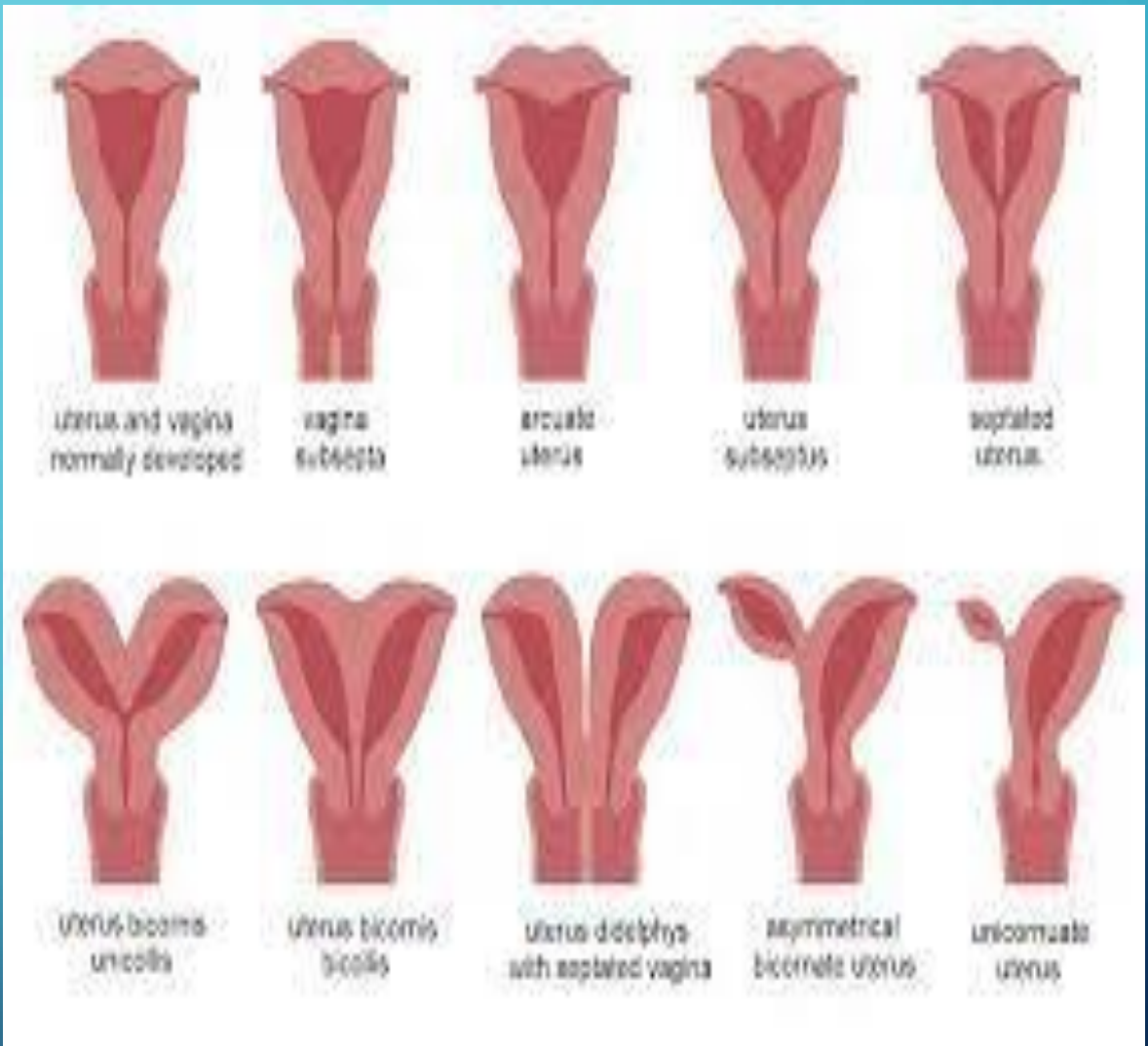
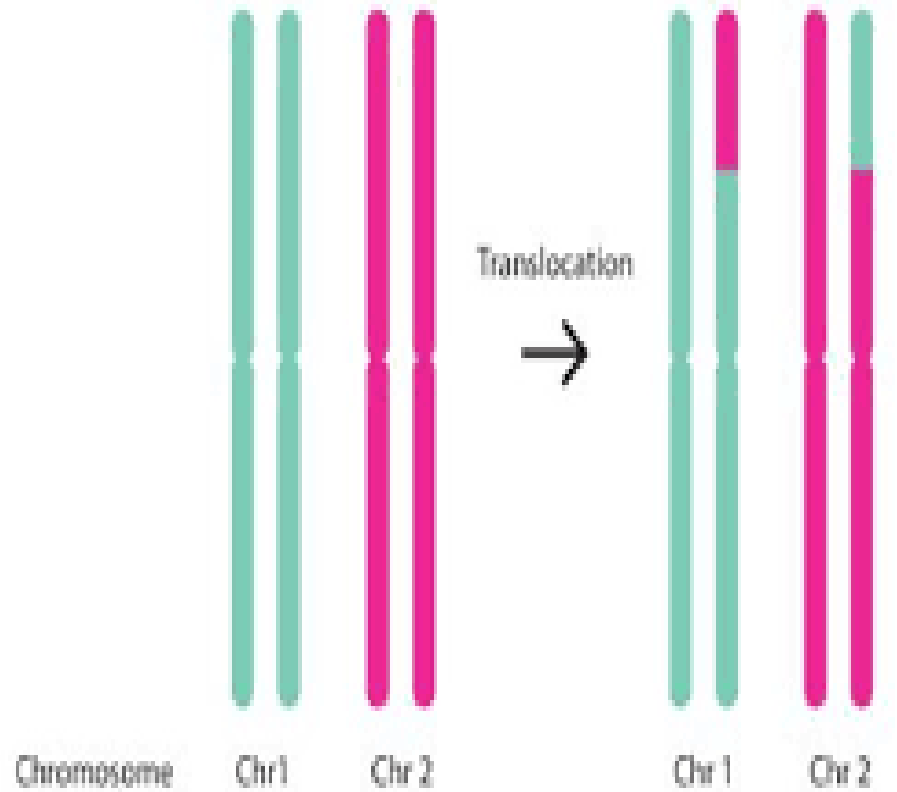
Recurrent miscarriage

Recurrent miscarriage defined as the loss of three or more consecutive pregnancies and it affects 1% of couples.

Risk factors for recurrent miscarriage:

- ❖ Advancing maternal and paternal age.
- ❖ Obesity.
- ❖ Balanced chromosomal translocations.
- ❖ Uterine structural anomalies
- ❖ Antiphospholipid syndrome (APS).
- ❖ Thyroid disease, Diabetes and hyperprolactinemia

Balanced Translocation



Investigation of recurrent miscarriage:

- ❖ Testing for antiphospholipid antibodies.
- ❖ Testing for HbA1c, TSH and prolactin.
- ❖ Anatomical evaluation of uterus by hysterosalpingography and hysteroscopy.
- ❖ Products of conception in subsequent miscarriages should be sent for cytogenetic analysis and, where testing reports an unbalanced structural chromosomal abnormality parental peripheral blood karyotyping of both partners should be performed.

Managements for recurrent miscarriage

- ❖ Aspirin and low-dose heparin can reduce the miscarriage rate in women with APS by 50%.
- ❖ Balanced translocations may overcome by preimplantation genetic diagnosis or gamete donation.
- ❖ Congenital uterine abnormalities, including uterine septum and cervical incompetence, may be amenable to surgery.
- ❖ Although treatment with progesterone, corticosteroids or metformin has advocated, there is insufficient evidence to recommend their use at present.



THANK YOU!