بررسی علل ناباروری در زنان

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- diagnostic evaluation for infertility is indicated for women who fail to achieve a successful pregnancy after **12 months** or more of regular unprotected intercourse
- Since approximately 85% of couples may be expected to achieve pregnancy within that interval without medical assistance, evaluation may be indicated for as many as 15% of couples.

- Earlier evaluation is warranted after six months of unsuccessful efforts to conceive in women **over age 35 years** and also including , but not limited to, the following:
  - **History of oligo - or amenorrhea**
  - **Known or suspected uterine/tubal/peritoneal disease or stage III–IV endometriosis**
  - **Known or suspected male subfertility**
- Where applicable, evaluation of both partners should begin at the same time.

ETIOLOGY

- In a study of 8500 infertile couples done by the World Health Organization (WHO) The most common identifiable female factors which accounted for 81 percent of female infertility, included:
- Ovulatory disorders (25 percent)

  Endometriosis (15 percent)

  Pelvic adhesions (12 percent)

  Tubal blockage (11 percent)

  Other tubal abnormalities (11 percent)

  Hyperprolactinemia (7 percent

Evaluation

- Successful reproduction requires proper structure and function of the entire reproductive axis, including hypothalamus, pituitary gland, ovaries, fallopian tube, uterus, cervix, and vagina.

- To assess this axis, the infertility evaluation comprises eight major elements:
- (a) history and physical examination;
- (b) semen analysis;
- (c) sperm-cervical mucus interaction (postcoital testing);
- (d) assessment of ovarian reserve;
- (e) tests for occurrence of ovulation;
- (f) evaluation of tubal patency;
- (g) detection of uterine abnormalities; and
- (h) determination of peritoneal abnormalities.

Relevant history includes the following:

- Duration of infertility and results of any previous evaluation and treatment
- Menstrual history (age at menarche , cycle length and characteristics, presence of molimina , and onset/severity of dysmenorrhea)
- Pregnancy history (gravidity, parity , pregnancy outcome, and associated complications)
- Previous methods of contraception
- Coital frequency and sexual dysfunction

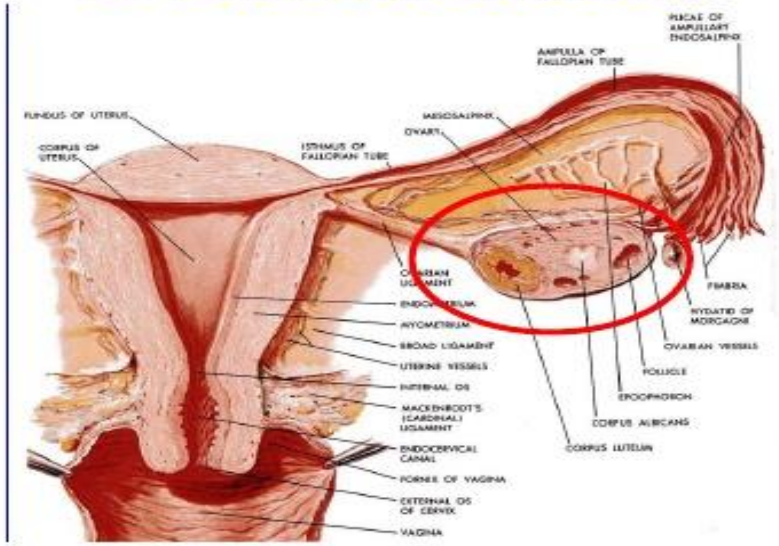
- Past surgery (procedures, indications and outcomes), previous hospitalizations , serious illnesses or injuries , pelvic inflammatory disease , or exposure to sexually transmitted infections
- Thyroid disease, galactorrhea , hirsutism , pelvic or abdominal pain, and dyspareunia
- Previous abnormal pap smears and any subsequent treatment

- Current medications and allergies
- Family history of birth defects, mental retardation, early menopause, or reproductive failure or compromise
- Occupation and exposure to known environmental hazards
- Use of tobacco, alcohol, and recreational or illicit drugs

Physical examination should document the following:

- Weight, body mass index (BMI),blood pressure, and pulse
- Thyroid enlargement and presence of any nodules or tenderness
- Breast secretions and their character
- Signs of androgen excess
- Vaginal or cervical abnormality, secretions, or discharge
- Pelvic or abdominal tenderness, organ enlargement, or masses
- Uterine size, shape, position, and mobility
- Adnexal masses or tenderness
- Cul-de-sac masses, tenderness, or nodularity

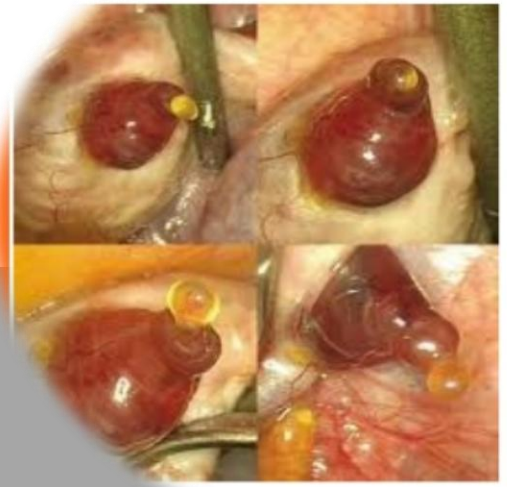
Ovarian factor



Ovulatory dysfunction:

- Oligo/Anovulation
- Luteal phase deficiency

Ovulation



1- Confirmation of Ovulation

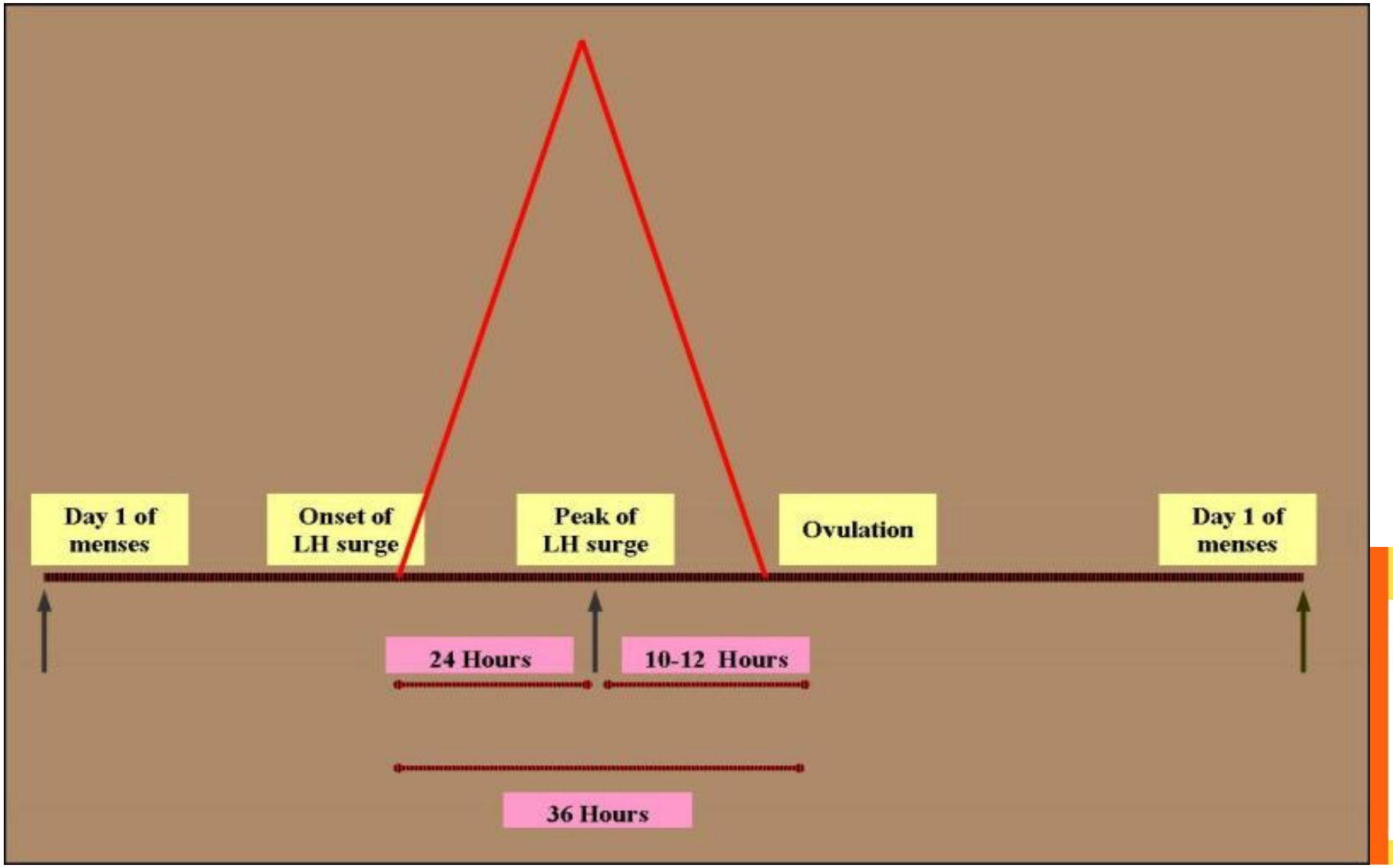
- **A- Menstrual history** may be all that is required.
- In most ovulatory women, menstrual cycles are regular and predictable, occurring at intervals of 25–35 days, exhibiting consistent flow characteristics, and accompanied by a consistent pattern of moliminal symptoms (breast tenderness, dysmenorrhea, bloating).
- Patients with abnormal uterine bleeding, oligomenorrhea, or amenorrhea generally do not require specific diagnostic tests to establish a diagnosis of anovulation.

Serum Progesterone

- Serum progesterone is ***reliable***, if obtained at ***appropriate time***, approximately *1 week before expected onset of next menstruation* rather than on any one specific day of menstrual cycle
- Progesterone concentration more than *3 ng/mL* is presumptive evidence of ovulation
- Although *higher threshold value* have been used commonly as a measure of ***quality of luteal phase***, it is not reliable

because corpus luteal progesterone secretion is pulsatile and

serum concentration may vary up to sevenfold within few hours



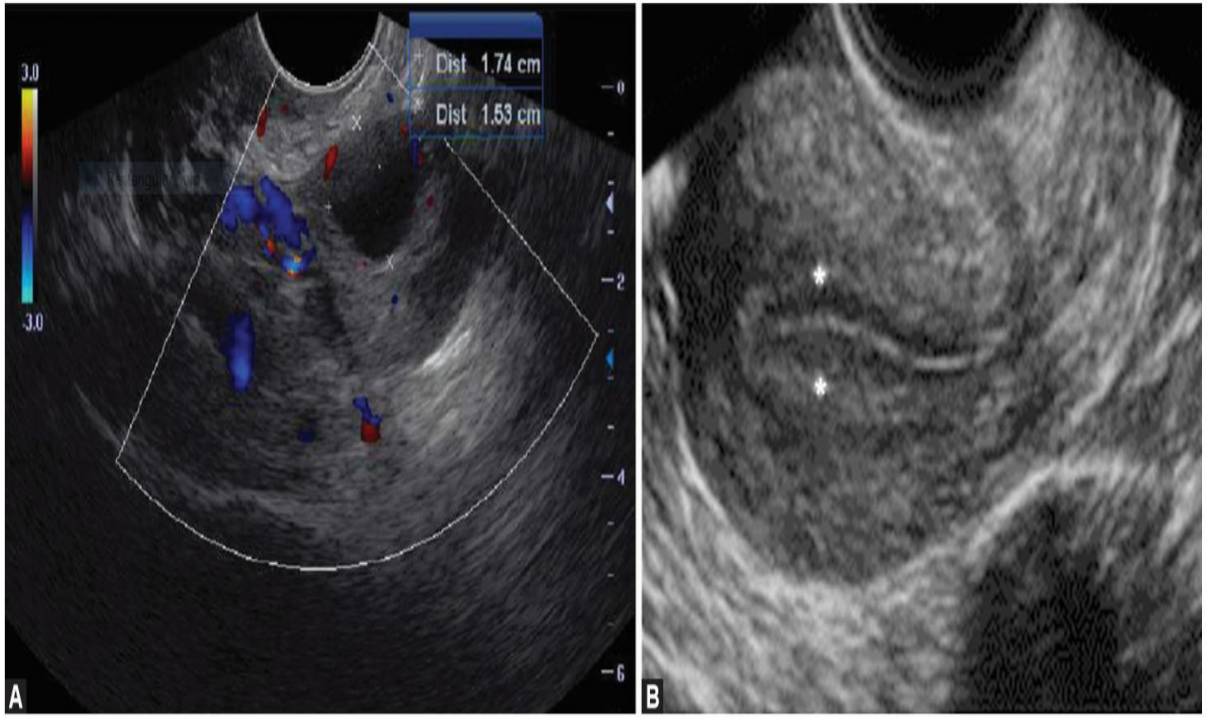
Ovulation Predictor Kits

B- Serial basal body temperature (BBT)

- The basal body temperature (BBT) chart is a simple means of determining whether ovulation has occurred.
- The woman's temperature is taken daily with a thermometer on awakening, before any activity, and is recorded on a graph.
- After ovulation, rising progesterone levels increase the basal temperature by approximately 0.4Â°F (0.22Â°C) through a hypothalamic thermogenic effect.
-

Transvaginal sonography is done to:

- Reveal size and number of developing follicle
- Progressive follicular growth
- Sudden collapse of follicle
- Loss of clear margins
- Appearance of internal echoes
- Increase in cul-de-sac fluid volume



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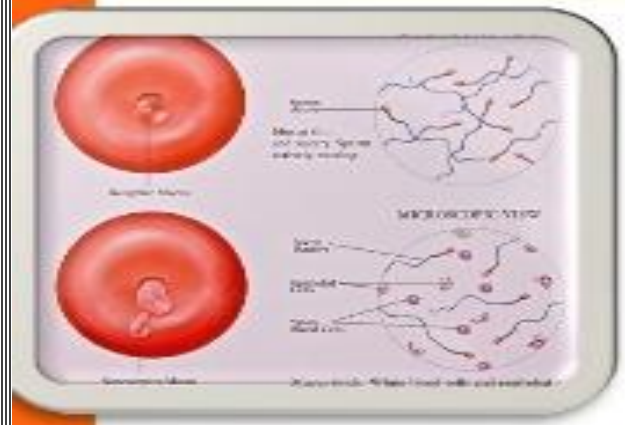
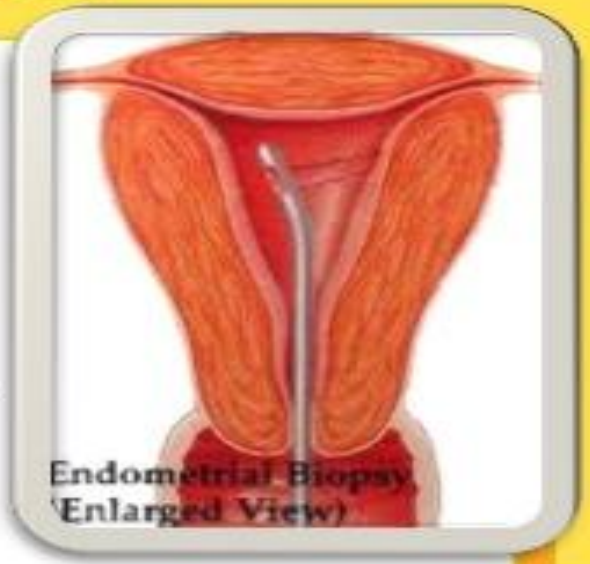


- Post coital test
- endometrial biopsy



- immune testing for antisperm antibodies
- routine cervical cultures

- Other evaluations aimed at defining the best choice of treatment may be indicated for anovulatory infertile women.
- **Serum thyroid-stimulating hormone** (TSH) and **prolactin** determinations can identify thyroid disorders and/or hyperprolactinemia, which may require specific treatment.

Hypothyroidism and Subfertility

- Aggressive case finding for women who are planning pregnancy should be considered
- Some patients with infertility and menstrual irregularities have underlying ***chronic thyroiditis along with subclinical or overt hypothyroidism***
- TPOAb positive patients even though euthyroid have an excess **miscarriage rate**
- TSH value of more than 2.5 mIU/L should be treated

- In anovulatory infertile women, failure to achieve pregnancy after three to six cycles of successful ovulation induction should be viewed as an indication to perform additional diagnostic evaluation or, if evaluation is complete, to consider alternative treatments.

Women with singe and symptoms of hyperandrogenism require further investigations:

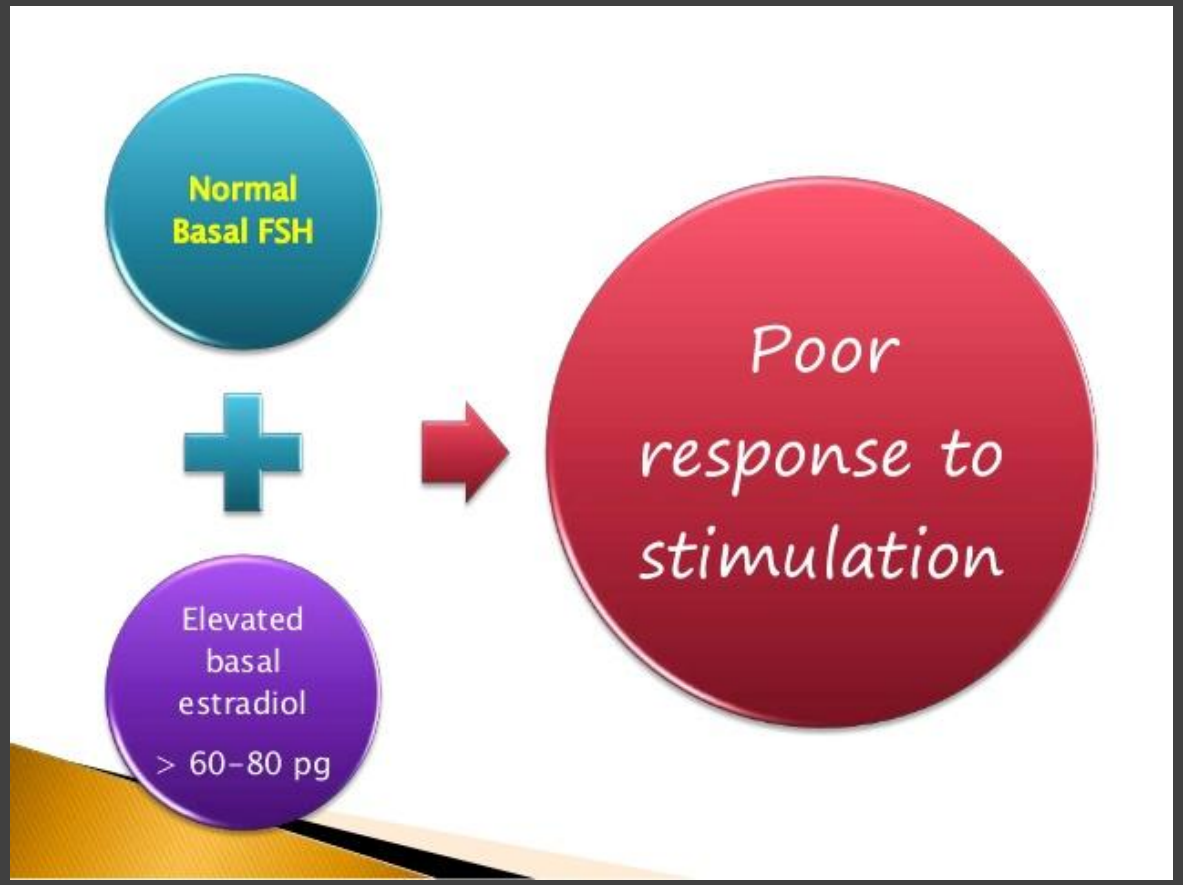
- Serum Te
- androstenedione
- DHEA-S
- 17Hydroxy progestrone

2- Assessment of Ovarian Reserve

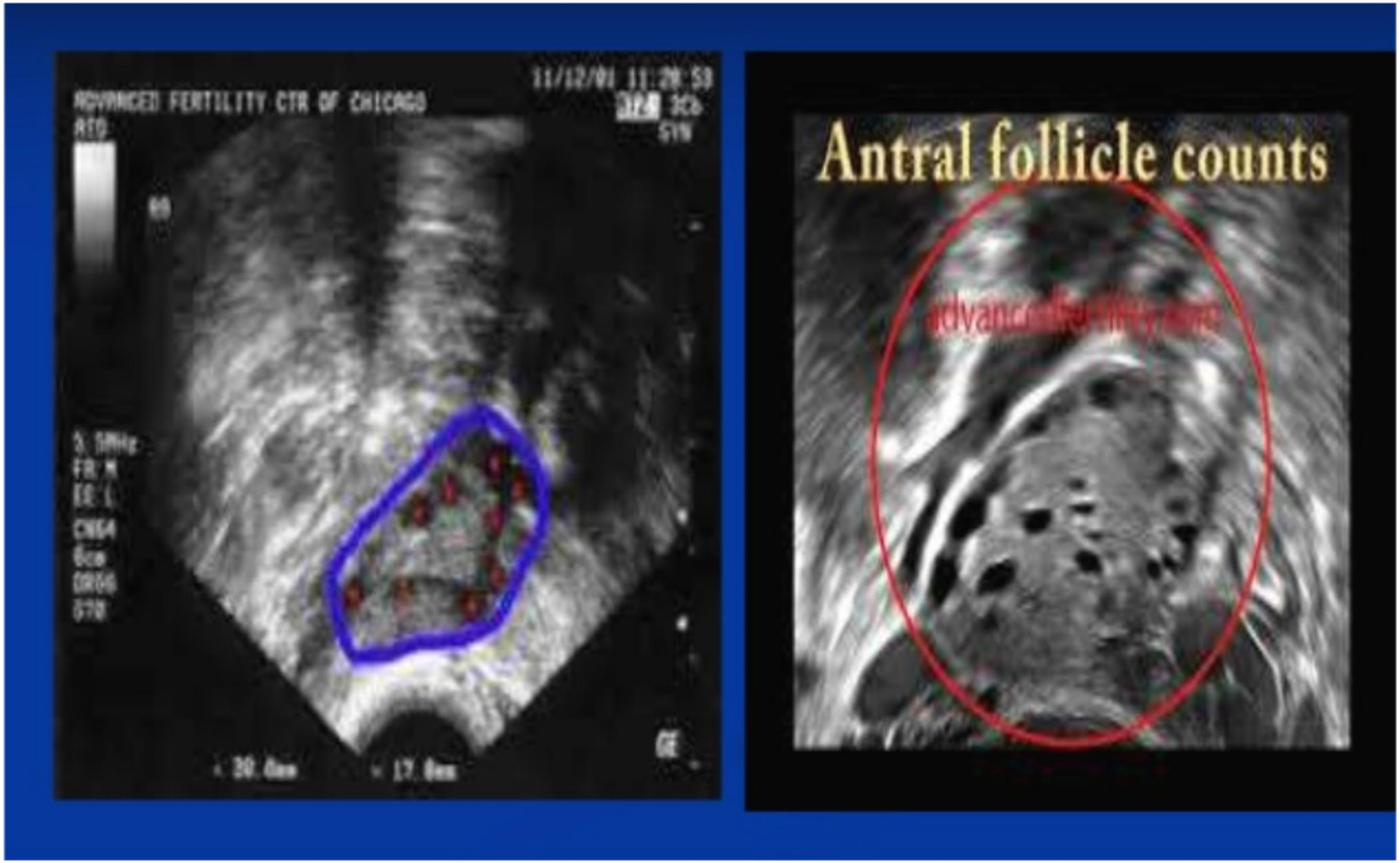
- The concept of‘‘ ovarian reserve’’ views reproductive potentialas a function of the number and quality of remaining oocytes.
- Decreased or diminished ovarian reserve (DOR) describes women of reproductive age having regular menses whose response to ovarian stimulation is reduced compared to those women of comparable age.

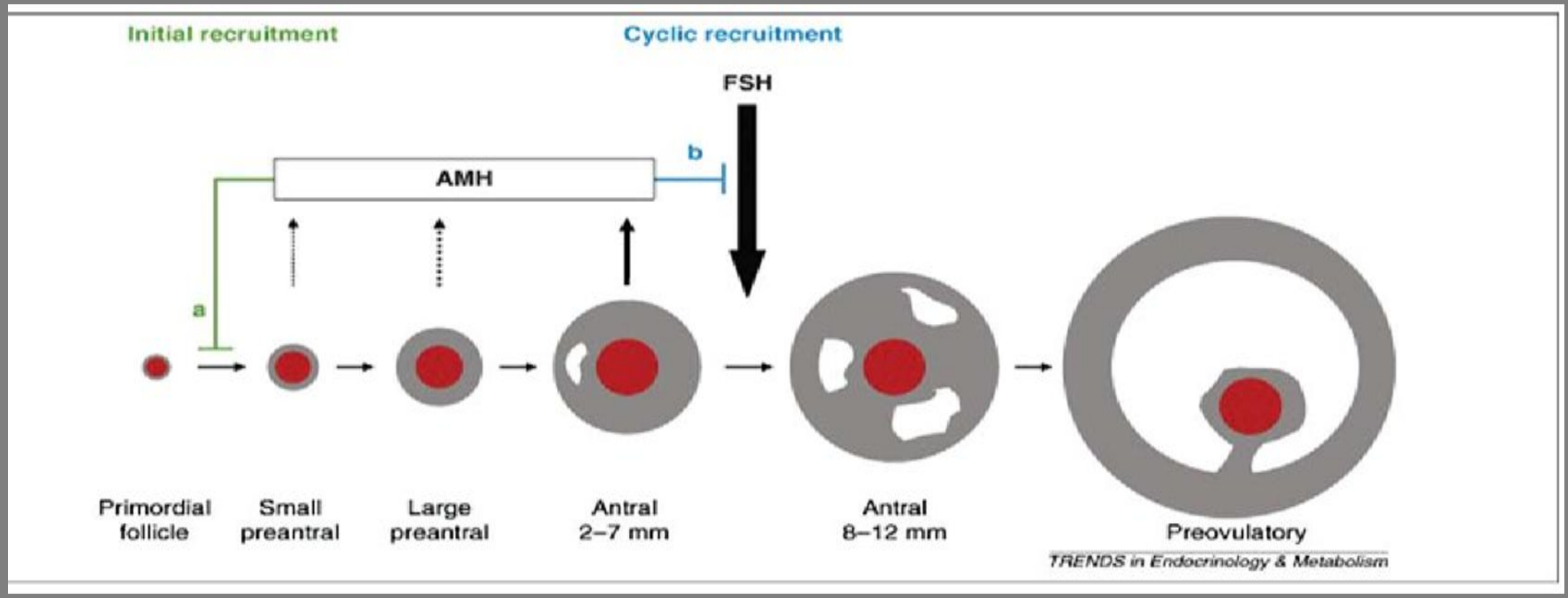
- Tests utilized to assess ‘‘ ovarian reserve ’’ Include :
  - **cycle day 3 FSH and estradiol measurements,**
  - **a clomiphene citrate challenge test**
  - **an early follicular phase antral follicle count (via transvaginal ultrasonography), or**
  - **a serum antimuullerian hormone (AMH) level**

- These tests may provide prognostic information in women at increased risk of diminished ovarian reserve, such as women who:
- 1) are over age 35 years;
- 2) have a family history of early menopause;
- 3) have a single ovary or history of previous ovarian surgery, chemotherapy, or pelvic radiation therapy;
- 4) have unexplained infertility
- 5) have demonstrated poor response to gonadotropin stimulation; or
- 6) are planning treatment with assisted reproductive technology(ART)


Normal
Basal FSH
Elevated
basal
estradiol
> 60-80 pg
Poor
response to
stimulation

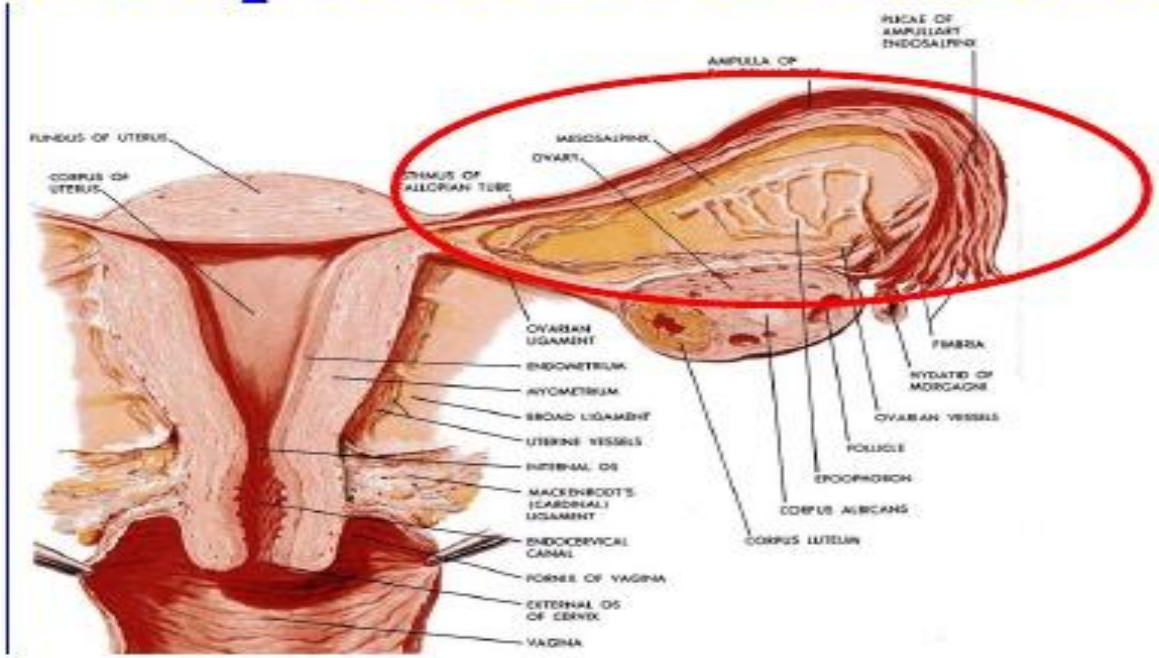

Elevated
Basal FSH
Elevated
basal
estradiol
> 60-80 pg
Very Poor
response to
stimulation


ADVANCED FERTILITY CTR OF CHICAGO
Antral follicle counts



- Therefore an AMH level can be obtained on any day of the menstrual cycle.
- Overall, lowerAMH levels (<1 ng/mL) have been associated with poor responses to ovarian stimulation, poor embryo quality, and poor pregnancy outcomes in IVF

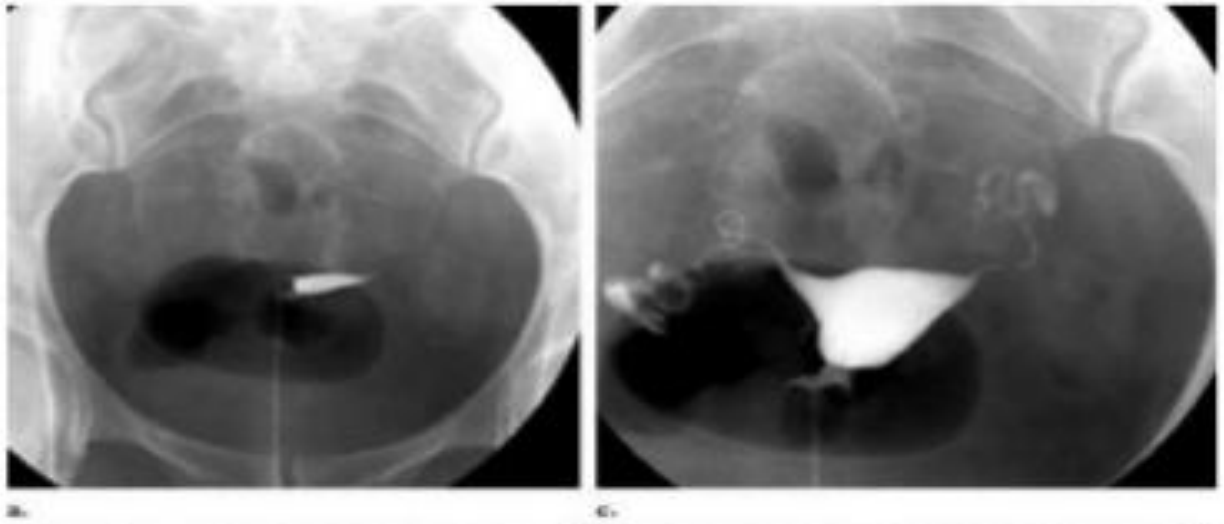
Tubal/peritoneal factor



- Anatomical changes (congenital malformations, BTL, adhesions, endometriosis)

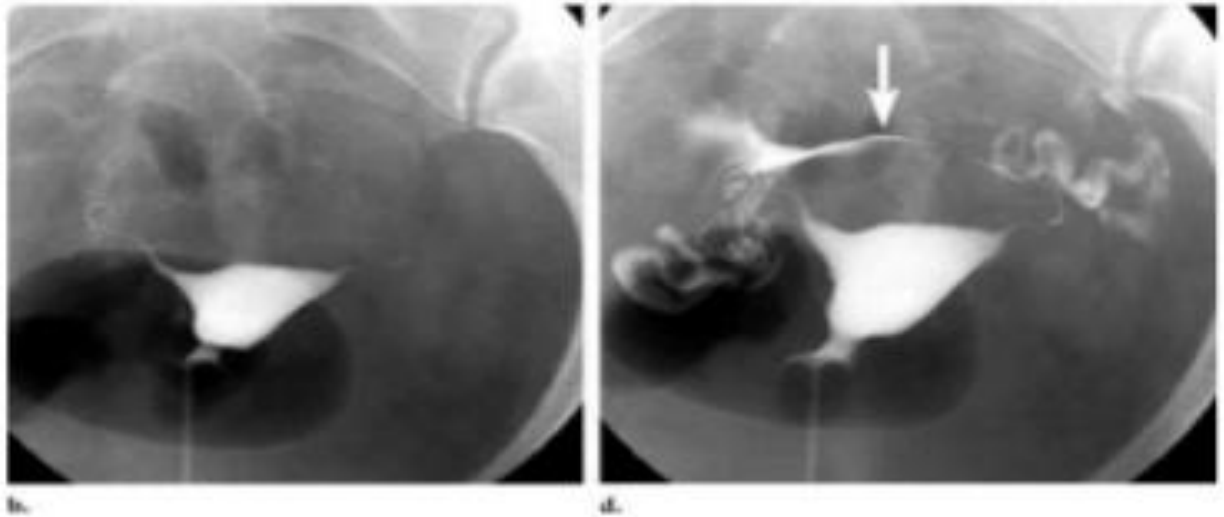
At least 4 spot films taken

1.Early filling phase

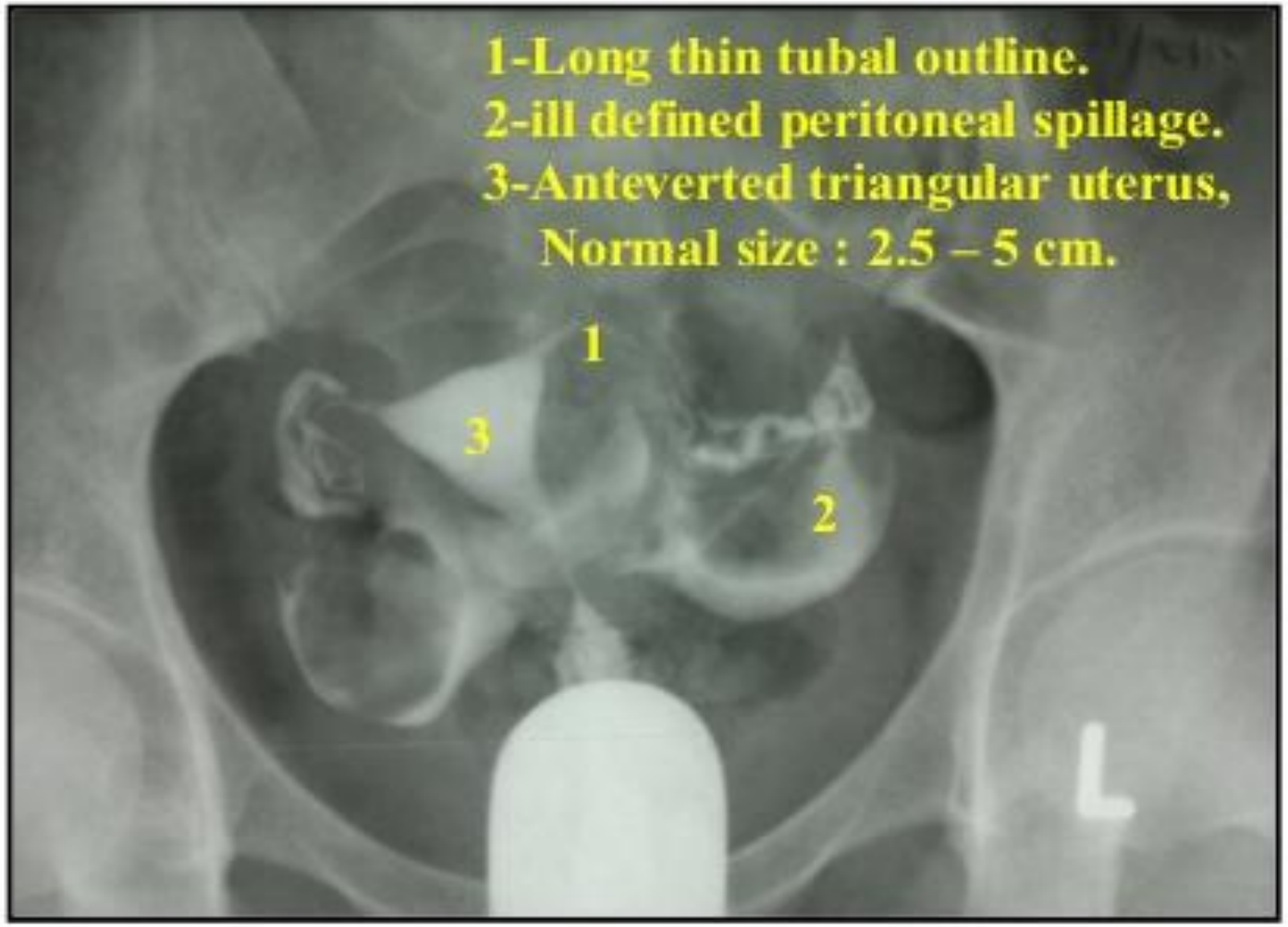


2. Uterus fully distended

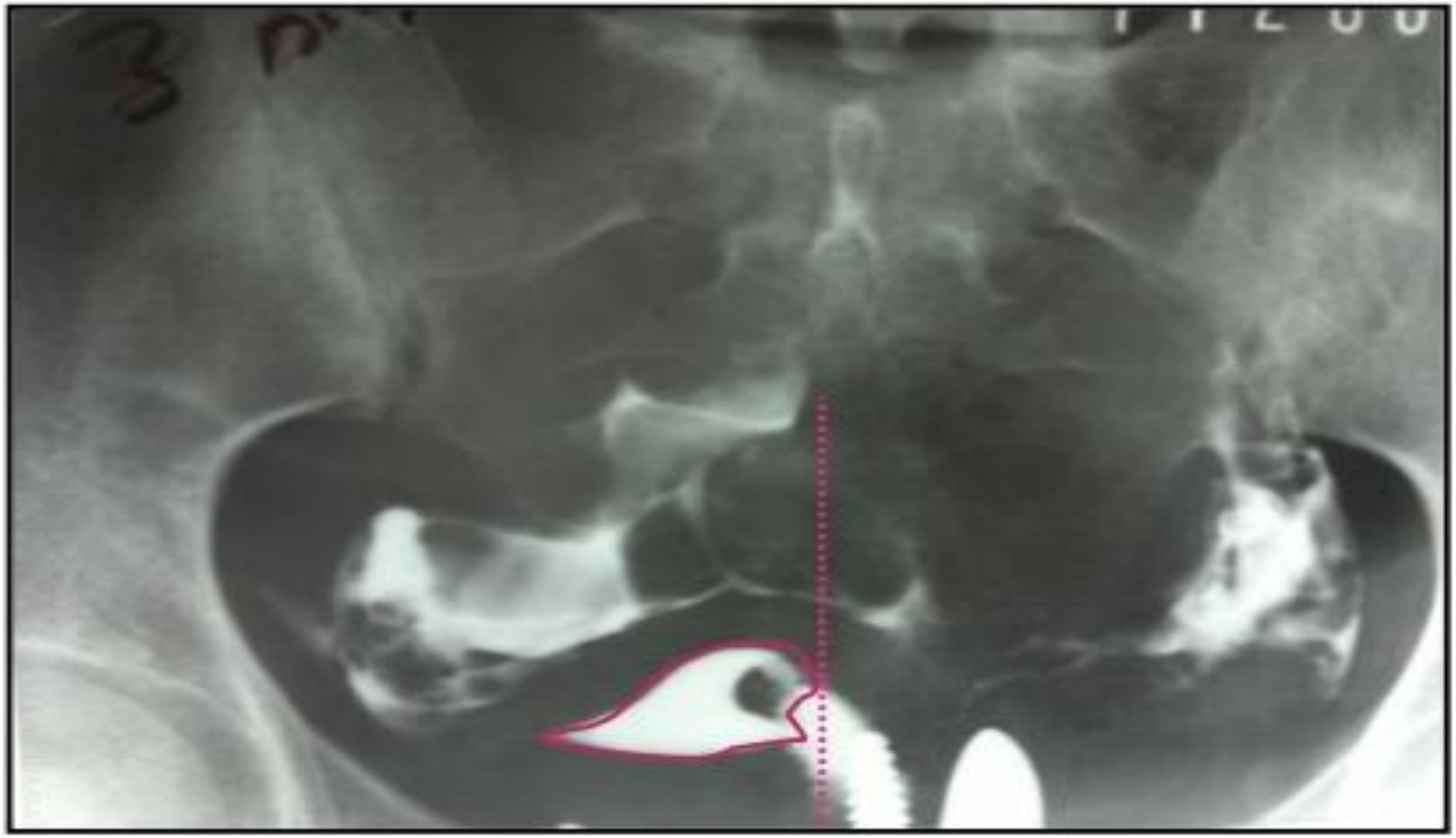
3.Tubal filling phase



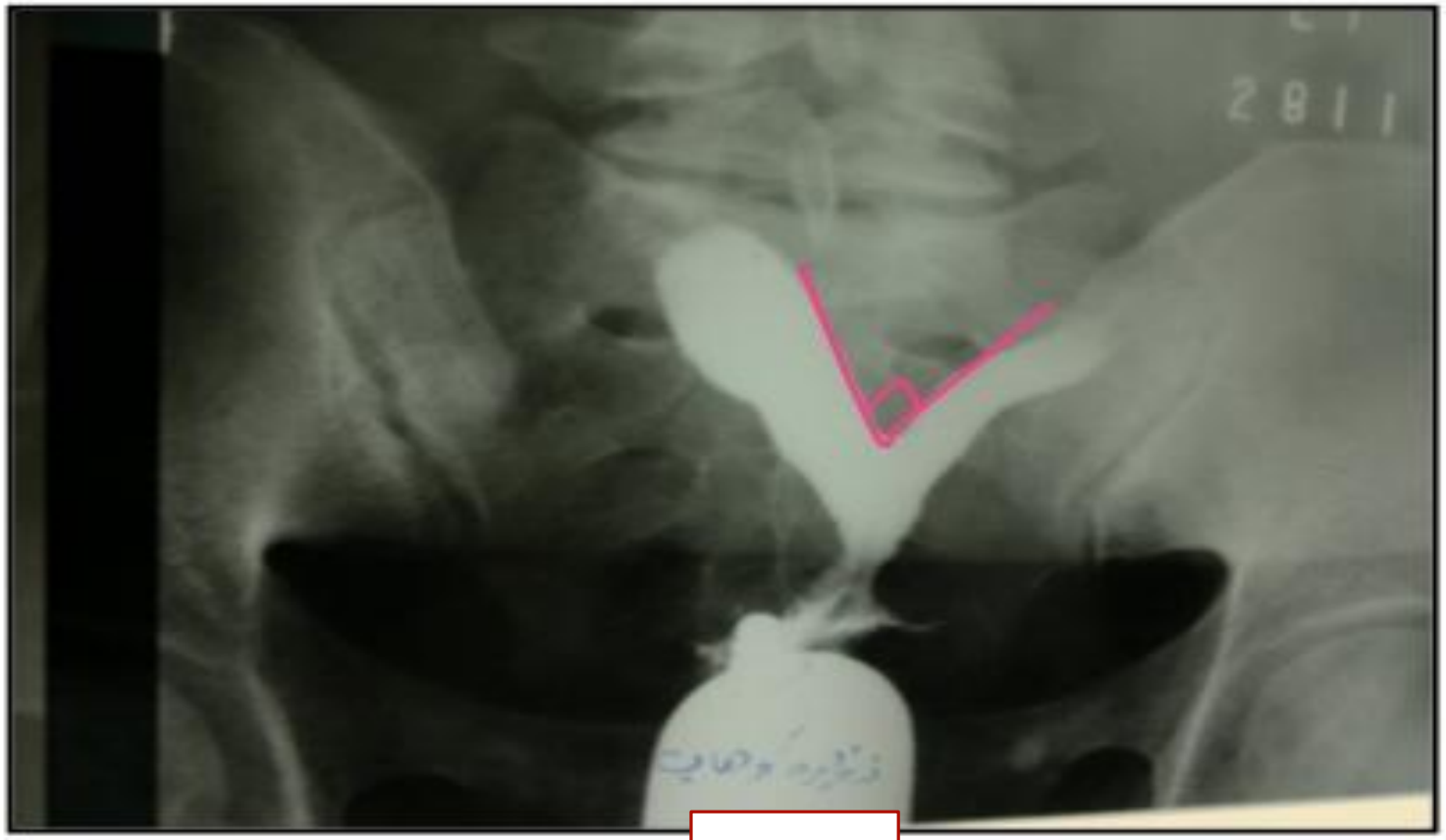
4.Peritoneal spillage



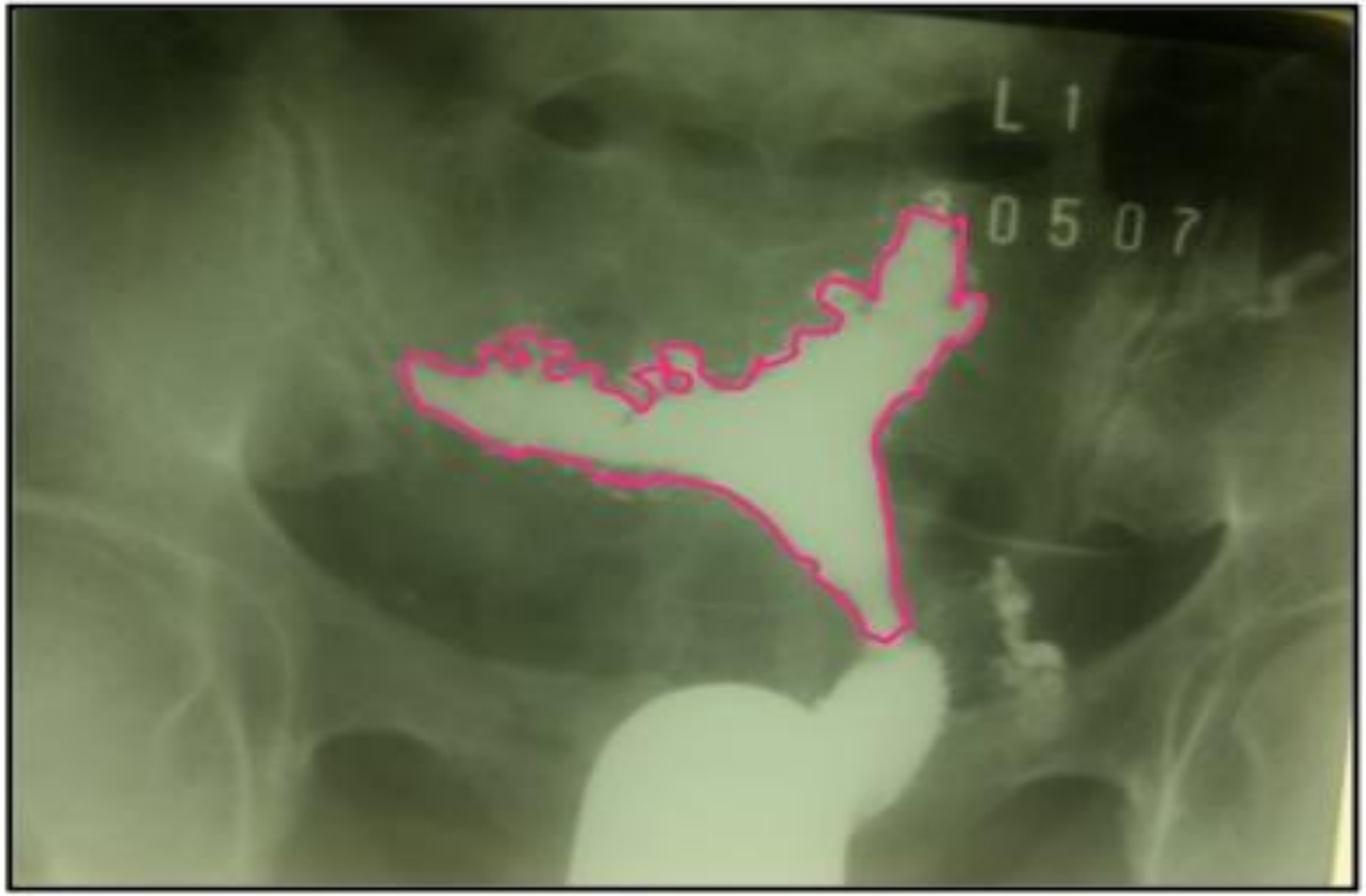
- Diagnosis: normal film.
- Description: small uterus (nulliparous)



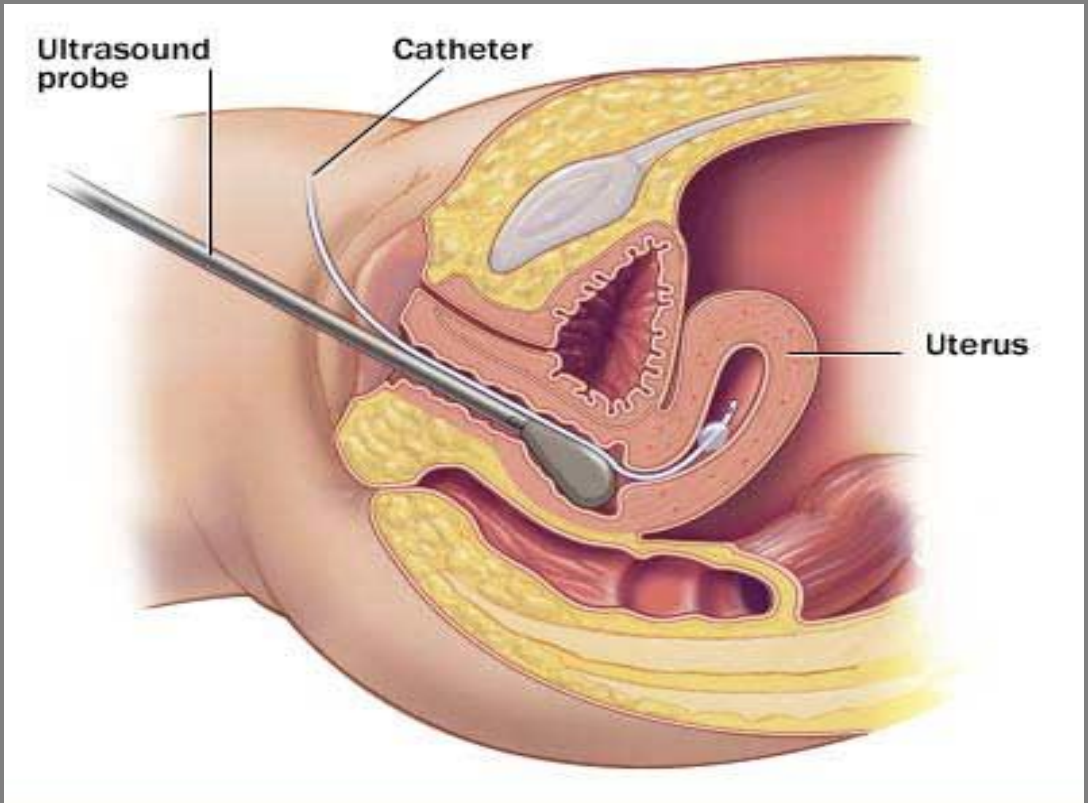
- **Diagnosis:** retroverted uterus.
- **Description:** deviation from medline.

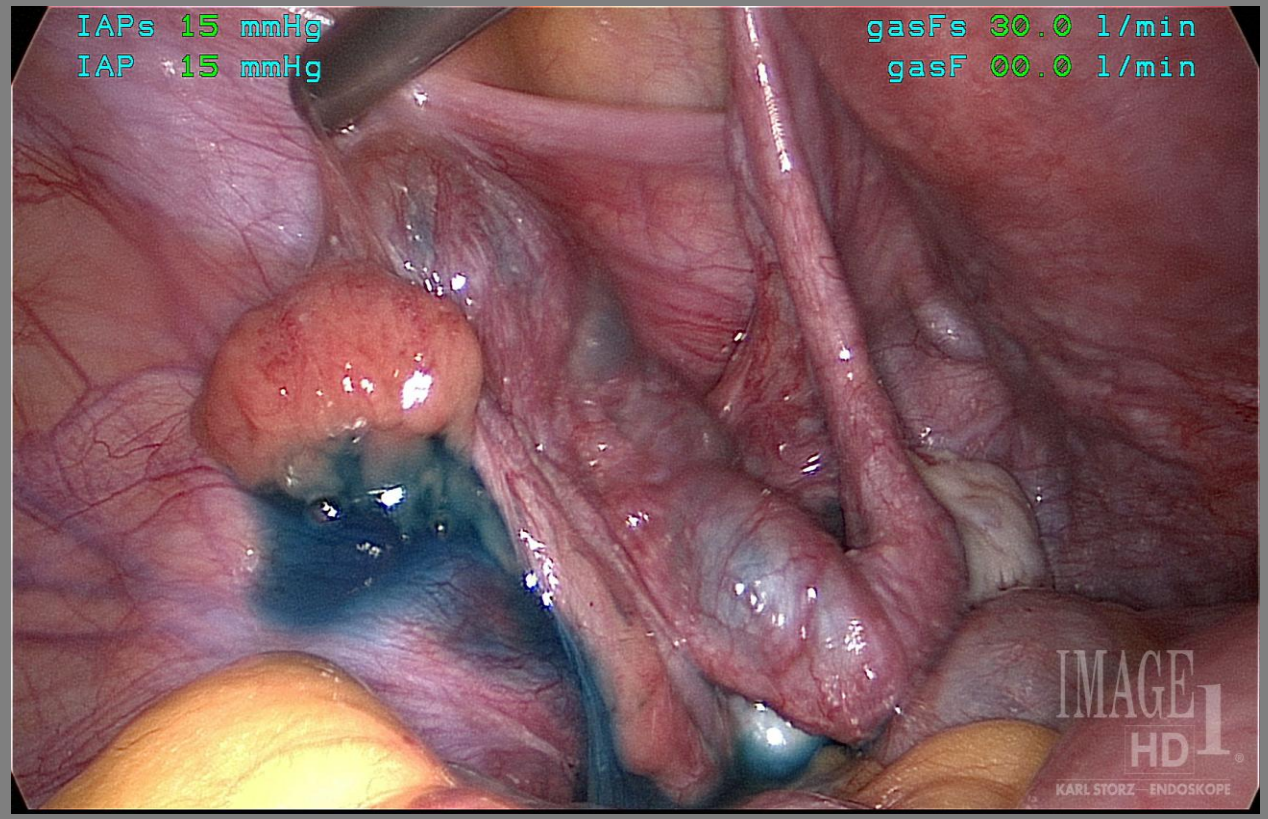


- **Diagnosis:** septate uterus.
- **Description:** slight separation (forming acute angle).



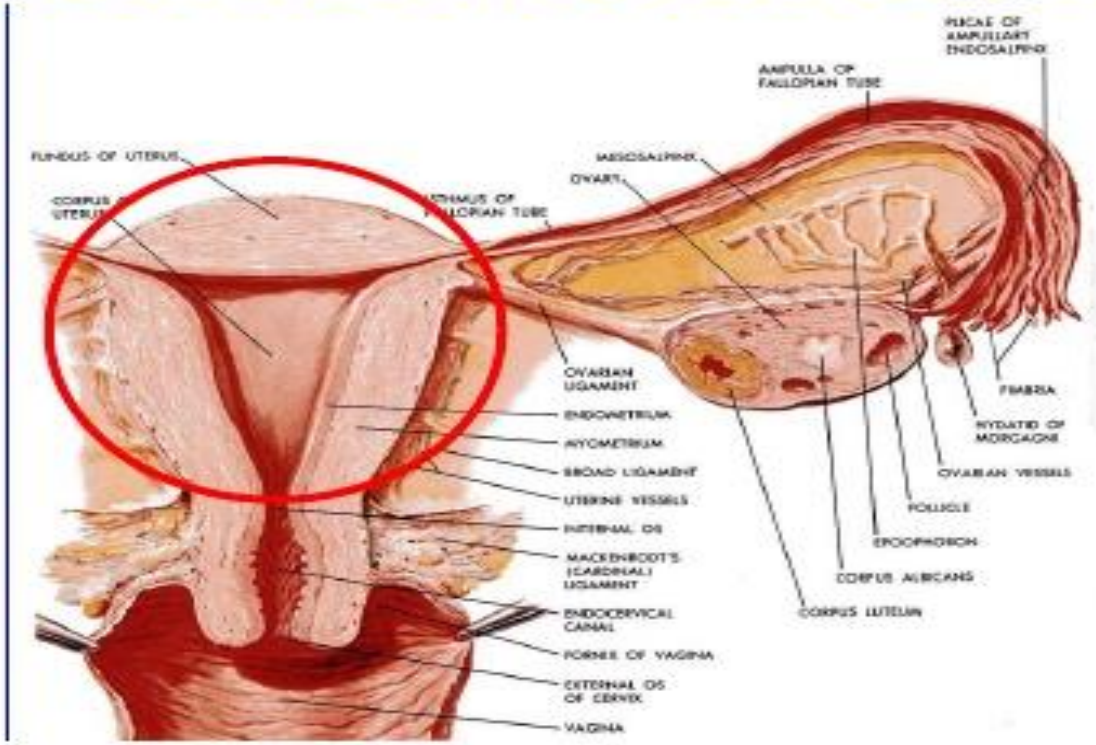
- **Diagnosis:** adenomyosis.
- **Description:** irregular outline, multiple diverticulum..



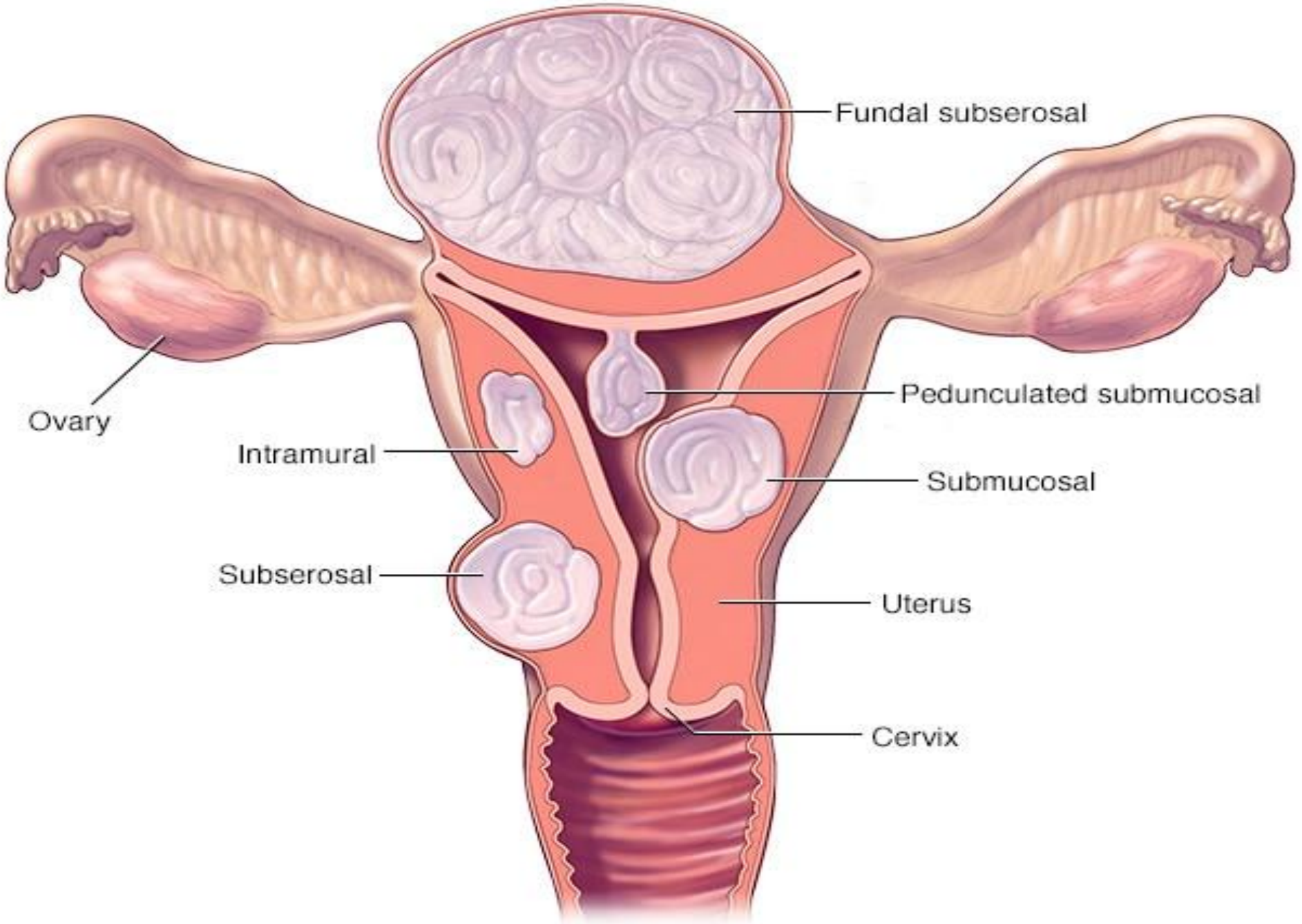


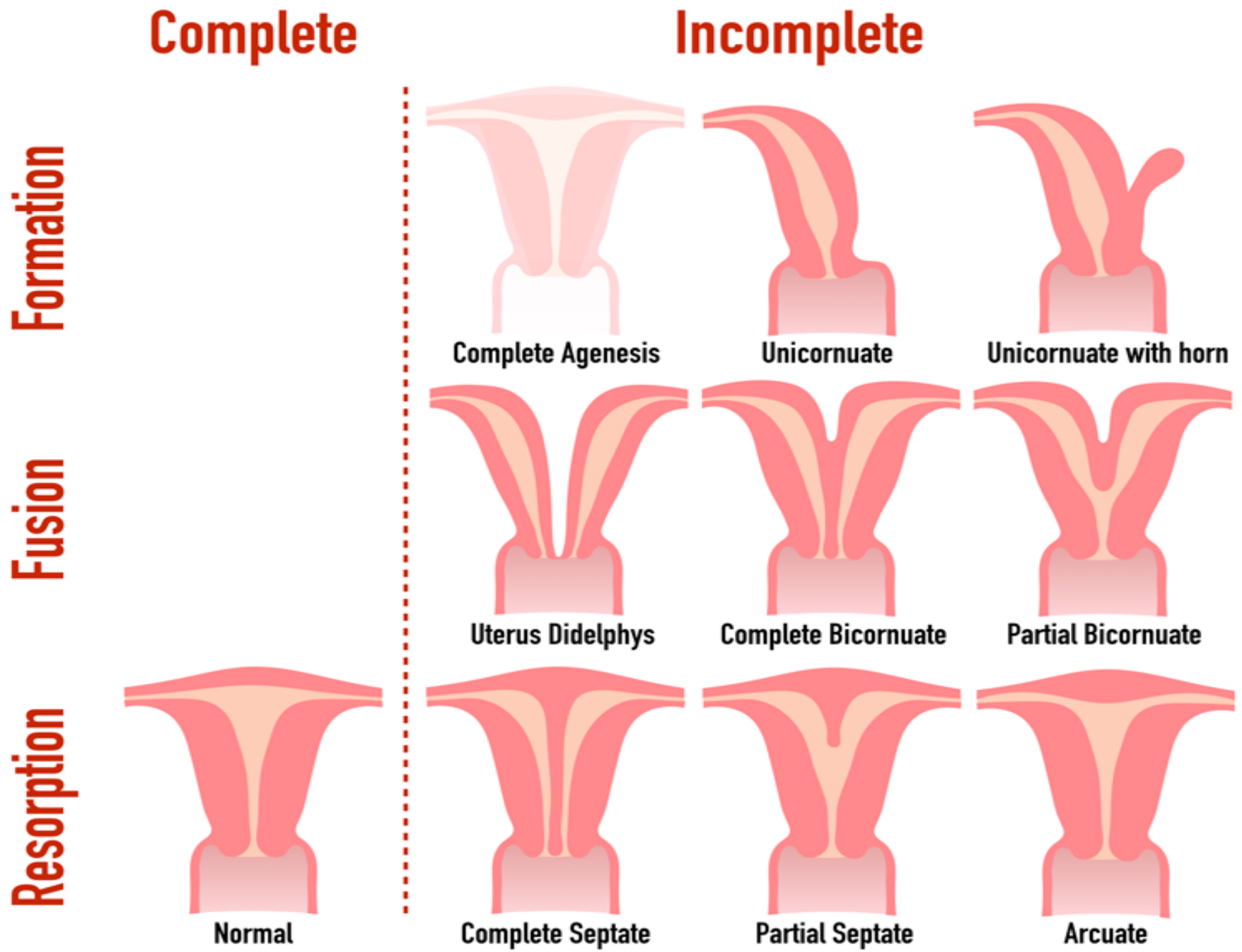
- **Saline infusion sonography (SIS)** is a test to determine tubal patency using fluid and ultrasound.
- **Laparoscopy** and chromotubation with a dilute solution of methylene blue or indigo carmine (preferred) introduced via the cervix can demonstrate tubal patency or document proximal or distal tubal obstruction.

Uterine/endometrial factor

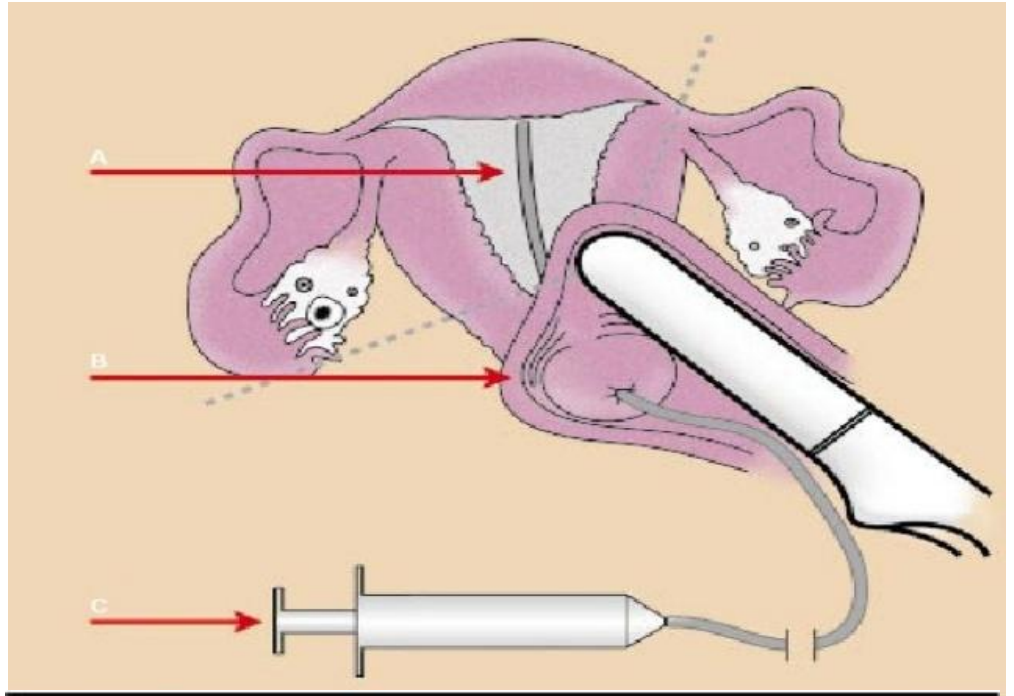


- Anatomical changes (congenital malformations, fibroids, adhesions)
- Functional abnormalities (endometritis, ↓ receptivity)

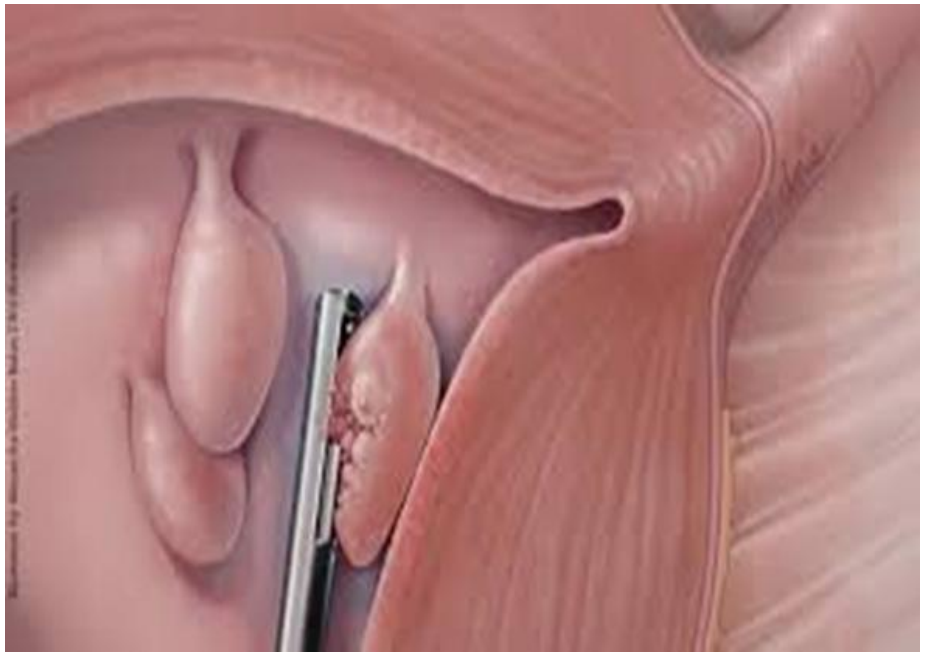


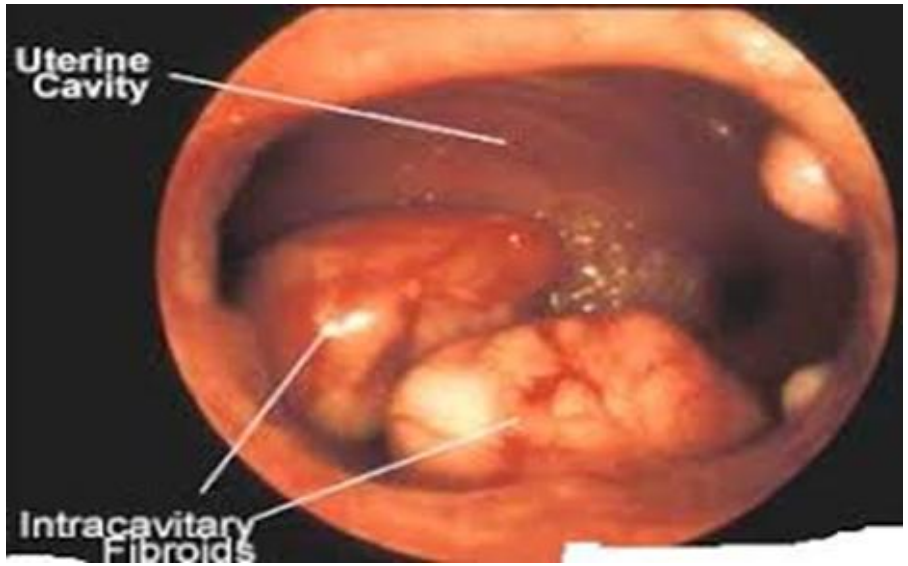

Complete
Incomplete
Formation
Fusion
Resorption
Complete Agenesis
Unicornuate
Unicornuate with horn
Uterus Didelphys
Complete Bicornuate
Partial Bicornuate
Normal
Complete Septate
Partial Septate
Arcuate

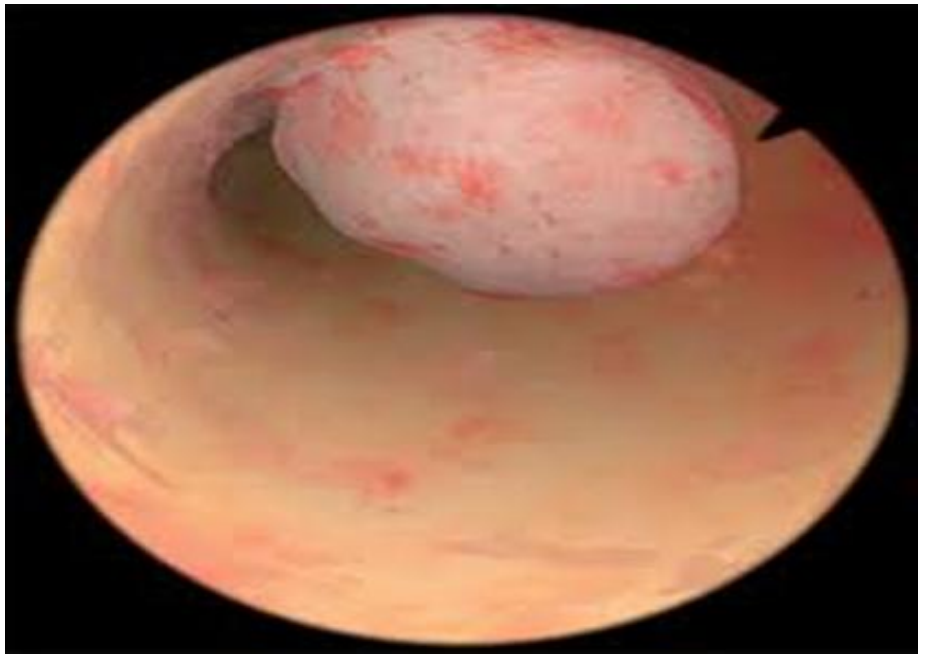
- **Ultrasonography (US)** can be used to diagnose uterine pathology, including myomas
- **Sonohysterography**, involving transvaginal ultrasonography after introduction of saline into the uterine cavity better defines the size and shape of the uterine cavity and for detection of intrauterine pathology (endometrial polyps, submucous myomas, synechiae)



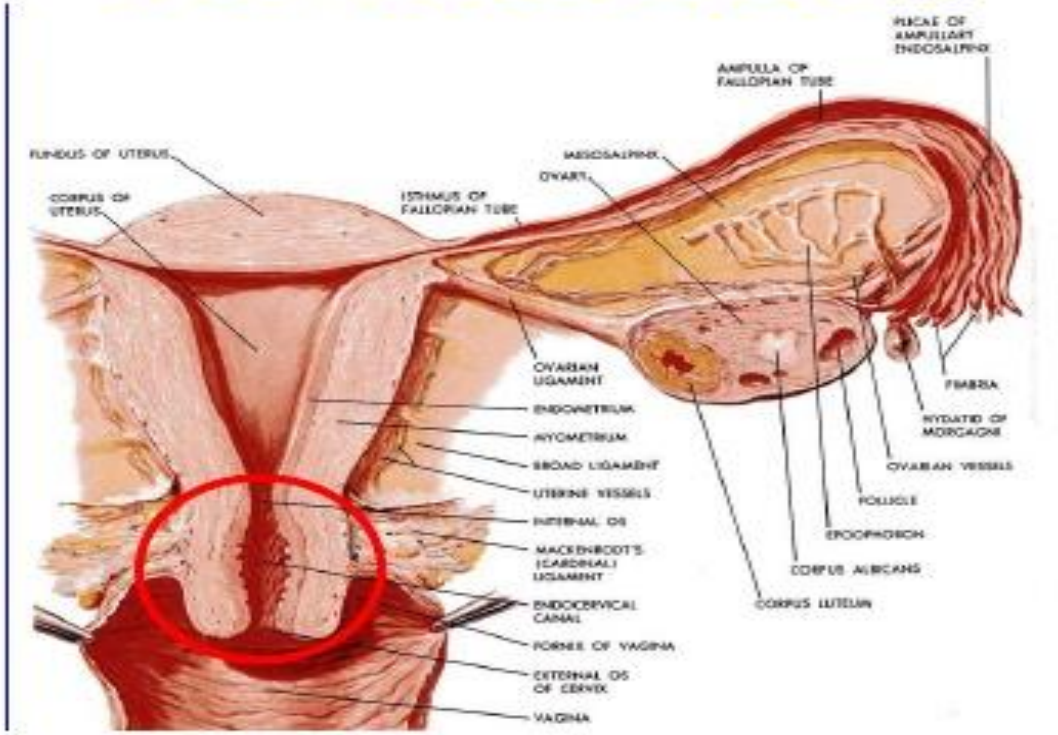
- **Hysteroscopy** is the definitive method for the diagnosis and treatment of intrauterine pathology.
- As it is also the most costly and invasive method for evaluating the uterus, it generally can be reserved for further evaluation and treatment of abnormalities defined by less invasive methods such as HSG and sonohysterography







Cervical factor



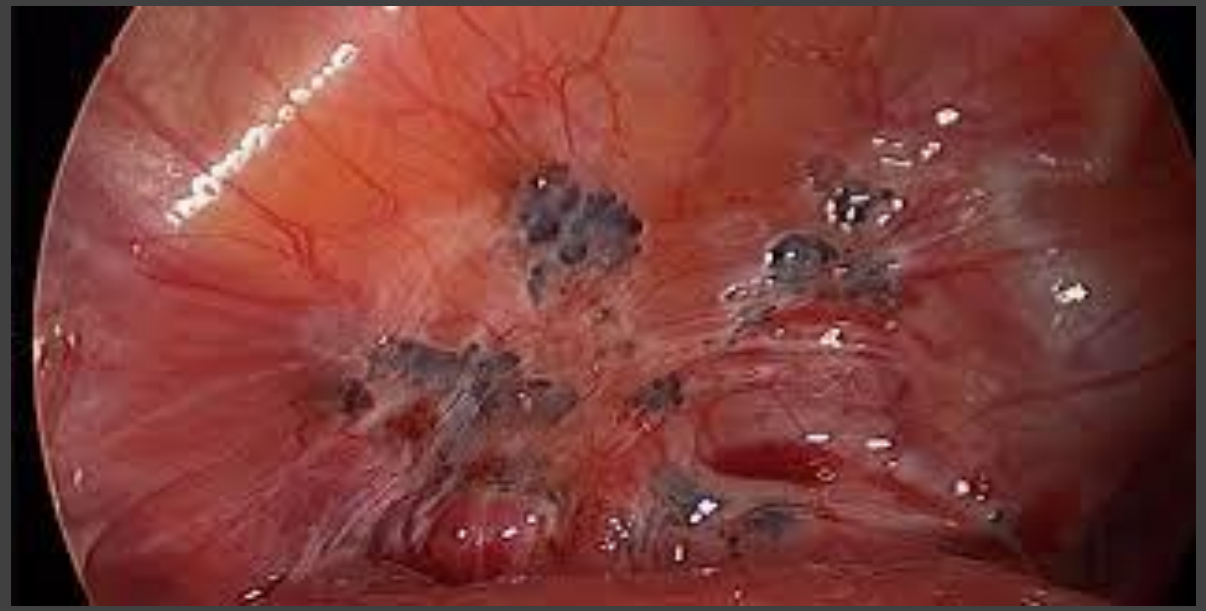
- Anatomical changes (DES exposure)
- Infections (TB)
- Changes in mucus characteristics

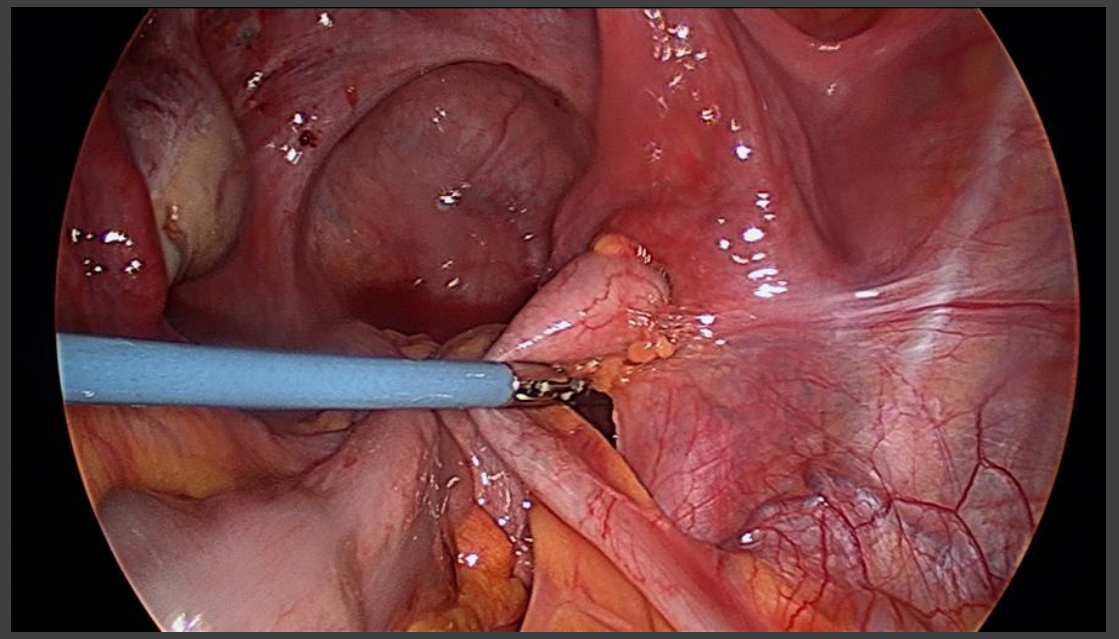
ENDOMETRIOSIS

Mechanisms which decrease fertility in women with endometriosis include

- anatomic distortion from pelvic adhesions
- damage to ovarian tissue by endometrioma formation and surgical resection
- the production of substances such as cytokines and growth factors

which impair the normal processes of ovulation, fertilization, and implantation



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