

# Subfertility



- Infertility: failure to conceive within one year of unprotected regular sexual intercourse.
- Primary
- secondary
  
- Infertility affects about 15 % of couples.
- Male & female factors each account for 35% of cases
- Male & female factors combined cause 20%
- The remaining 10% of cases the cause is unknown

## Factors that reduce the chance of spontaneous conception:

- age of the female >35 years.
- Duration of infertility more than 3 years.
- Low coital frequency.
- No previous pregnancy.
- Smoking.
- Body mass index out side the range 20-30 kg/m<sup>2</sup> in women.
- Low number of motile healthy sperms.

# Causes of infertility

**Ovulatory disorders:** defect in the hypothalamus, pituitary or the ovary.

- Ovulation Dysfunction: polycystic ovary syndrome (PCOS).
- Hypogonadotrophic hypogonadism: conditions cause failure of pituitary gland to produce gonadotrophins & Factors that affect the pulsatile release of GnRH.
- Hypergonadotrophic hypogonadism: Premature ovarian failure when the ovaries fail before the age of 40 years.
- Endocrine disorders: hypo& hyperthyroidism & hyperprolactinemia

## **Tubal dysfunction:**

- Tubal damage: pelvic infection, endometriosis or pelvic surgery.

## **Disorders of implantation:**

- defects related to endometrial development or the production of growth & adhesion molecules.

## **Male factor:**

- Disorders of spermatogenesis.
- Impaired sperm transport.
- Ejaculatory dysfunction.
- Immunological & infective factors.

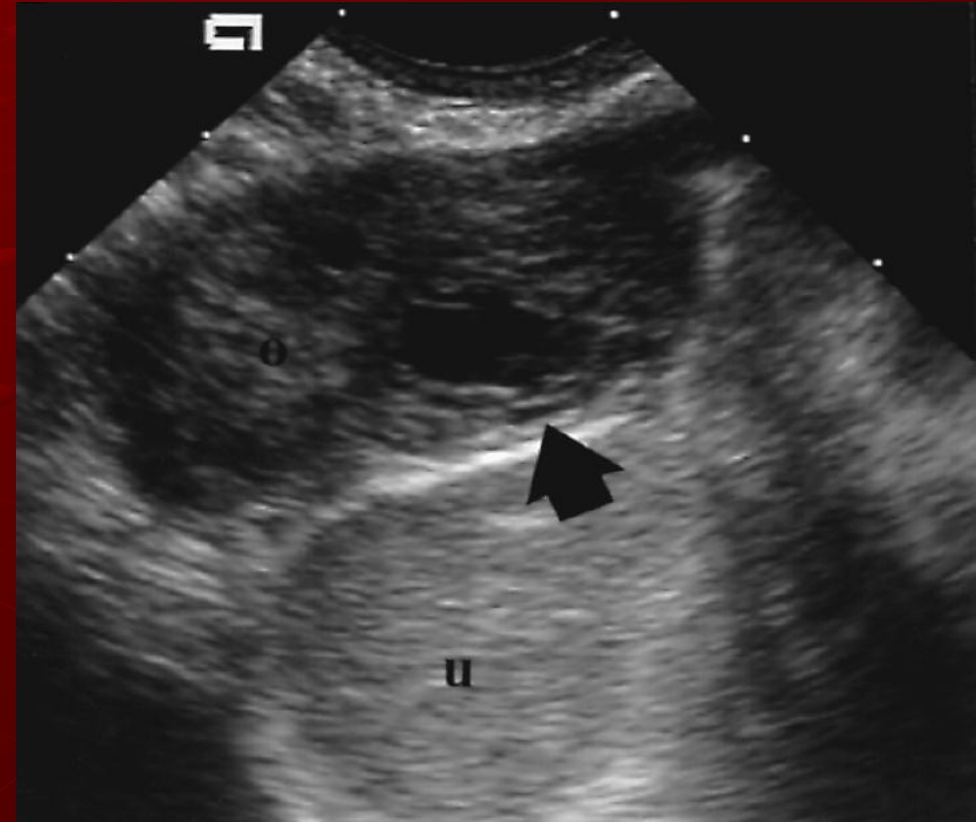
# Management:

- **History & examination:**
- medical & surgical history. Drug history, life style coital frequency & any difficulties of coitus.
- menstrual cycle
- cervical smear, body weight & blood pressure.
- Examination of both partners is essential to ensure normal reproductive organs.

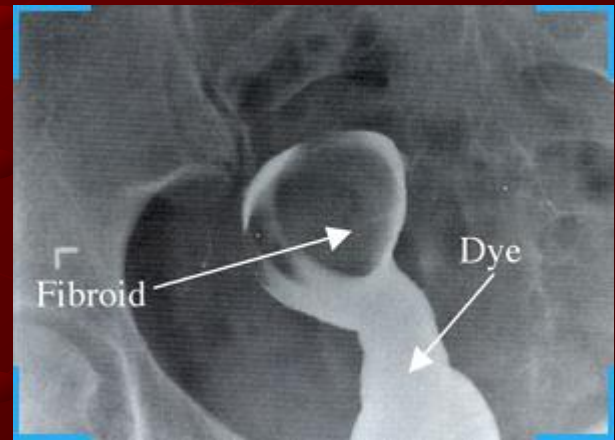
## Investigations:

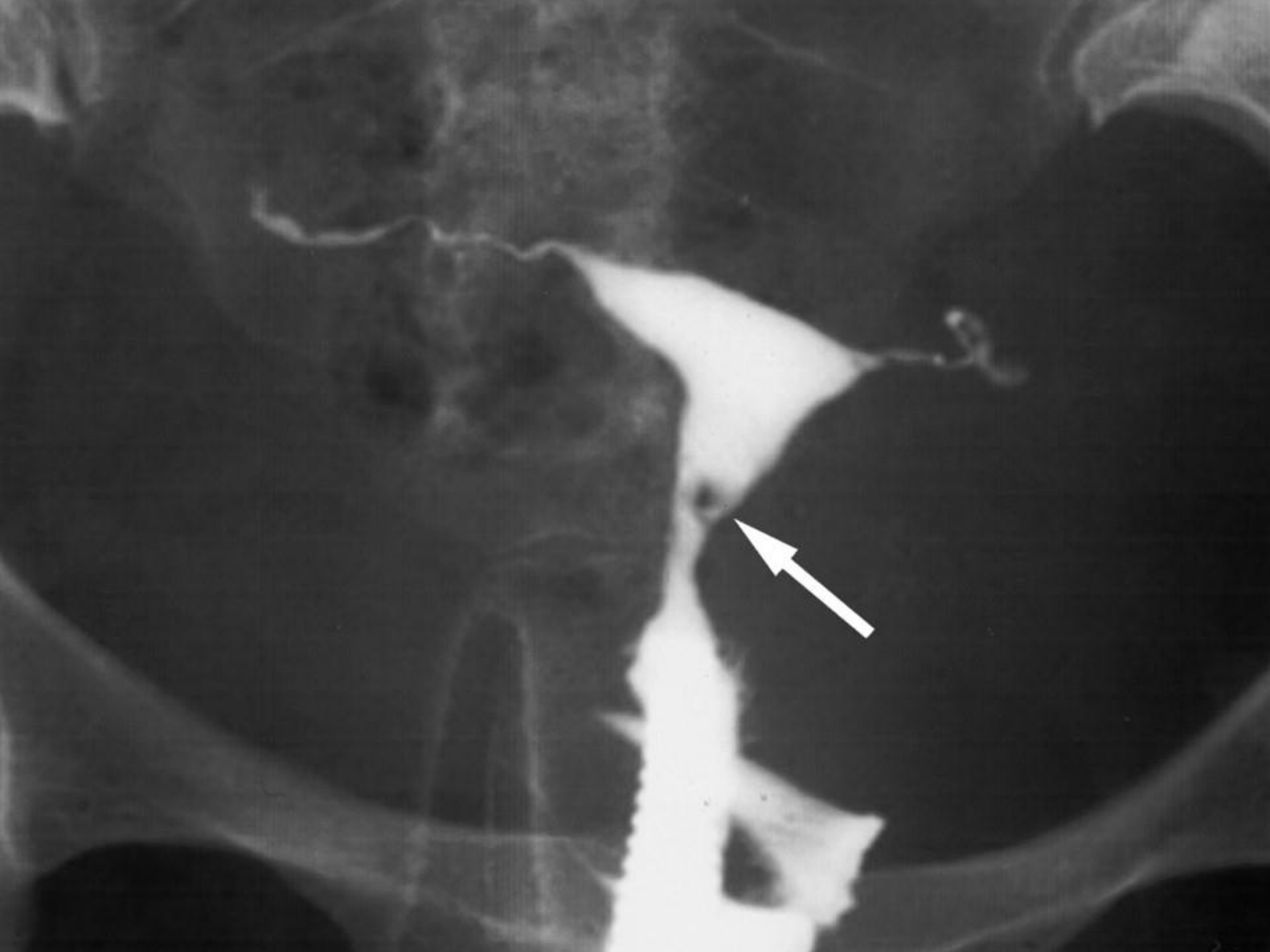
- assessment of ovulation, Fallopian tube patency & seminal fluid analysis.
- Early follicular phase (day 2-5 of menstrual cycle) measurement of FSH & LH to assess ovarian function.
- Mid-luteal progesterone level to confirm ovulation.

Alternatively, serial follicle tracking by US in the midcycle can be used to confirm ovulation.



- Assessment of tubal patency:
- Hysterosalpingogram.
- When the dye flows freely into the abdominal cavity it confirms patency.
- If the dye spill appear to be loculated or no spillage, peritubal adhesion or obstruction are likely.





- Hysterocontrast sonography (HyCoSy) involves the use of US to image the uterus & fallopian tube & avoid exposure to X-ray.



- Laparoscopy & dye intubation necessitate general anaesthesia. Tubal patency is tested by installing methylene blue through the cervix & observing spillage of dye from fimbrial end.

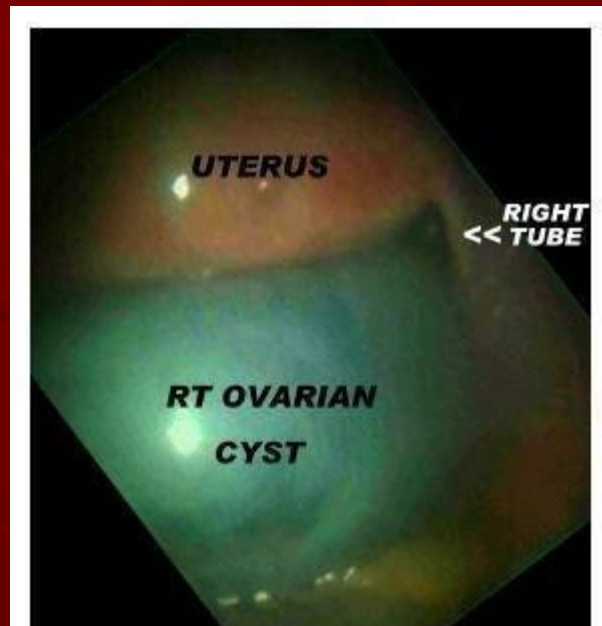


Figure 2:  
Right Ovarian Cyst



- Semen analysis: after 3 days of sexual abstinence.
- The potential of sperm to fertilize is indicated by its progressive motility, morphology & agglutination.



- In men with very low sperm counts, an endocrine profile (LH, FSH, testosterone & prolactin) is indicated.
- Postcoital Test: has limited prognostic value. It involves an assessment of peri-ovulatory cervical mucus & sperm in a sample obtained from the female 6-10 hours after coitus.

## Treatment:

- Ovulatory disorders:
- Hypothalamic disorder: optimize their weight & avoid stressful lifestyle.

If hyperprolactinaemia: dopaminergic agonists (e.g bromocriptin, cabergolin).

If PCOS: ...

- Clomiphene citrate acts by increasing gonadotrophin release from the pituitary.
- Treatment should be monitored by ultrasound.
- Adverse anti-oestrogenic effects of clomiphene citrate include thickening of cervical mucus & hot flushes, others include abdominal distension & pain, nausea, vomiting, breast tenderness & reversible hair loss.

- Gonadotrophins are given by daily injection from the beginning of the cycle. monitored by US assessment of the number & size of follicles.
- Human menopausal gonadotrophin, urinary follicle-stimulating hormone and recombinant follicle-stimulating hormone are equally effective in achieving pregnancy

● Ovulation is triggered by injection of human chorionic gonadotrophin (hCG which binds to LH receptors) when 1-3 follicles are 18 mm in diameter.

● If more than three follicles are present, the couples are asked to avoid sexual intercourse & hCG is withheld.

## Tubal disease:

- Treatment aims to restore normal anatomy.
- The success depends on severity, location of damage & skills of the surgeon.
- In-vitro fertilization is an alternative to surgery.

Peri-tubal & periovarian adhesions can be removed by laparoscopic adhesiolysis. If fimbria are involved, fimbrioplasty to remove fimbrial adhesions can be successful.



- Reversal of sterilization produce good conception rate as the mucosal damage is limited & the woman has proven fertility.
- In case of hydrosalpinges, better to remove the affected Fallopian tube prior to IVF as they affect implantation adversely.