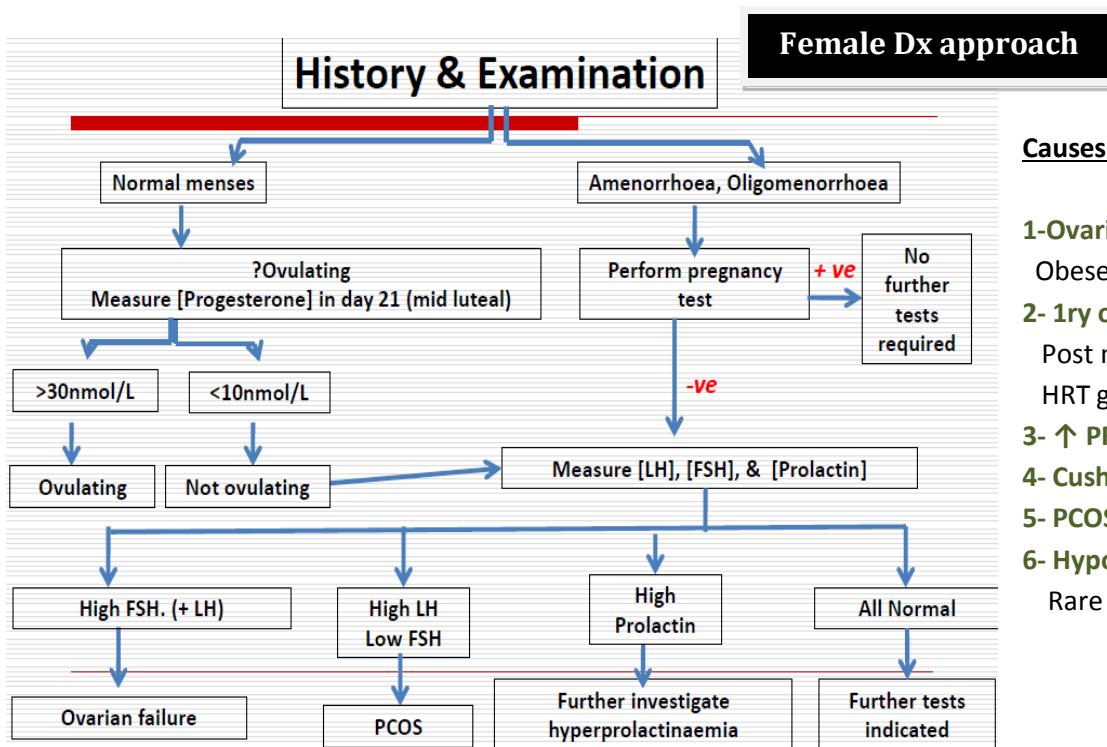


Infertility

- **Definition:** Failure of a couple to conceive after 1 year of regular, unprotected intercourse
- **Infertility may be caused by endocrine problems:** [**common in the female, But rare in the male**]
- **Elevated** serum [**progesterone**] at day **21** of the menstrual cycle indicates that ovulation has occurred
- In both men & women infertility, a serum [**FSH**] > **25U/L** indicates **primary gonadal failure**
- **Hx Taken:**
 - Should be **full** clinical history
 - **Before** physical examinations
 - **Information about:** Previous pregnancies - Contraceptive practice - Serious illnesses - Past chemotherapy or radiotherapy - Congenital abnormalities - Smoking habits - Drug usage – STD - Frequency of intercourse
- **Physical examination:** Should look for indications of:
 - **Hypothalamic-pituitary or thyroid disorders**
 - **Cushing's syndrome**
 - **Galactorrhoea** (inappropriate breast milk production; i.e. in the absence of pregnancy **most commonly caused by hyperprolactinaemia**)
 - **Hirsutism** (an increase in body hair with male pattern distribution)

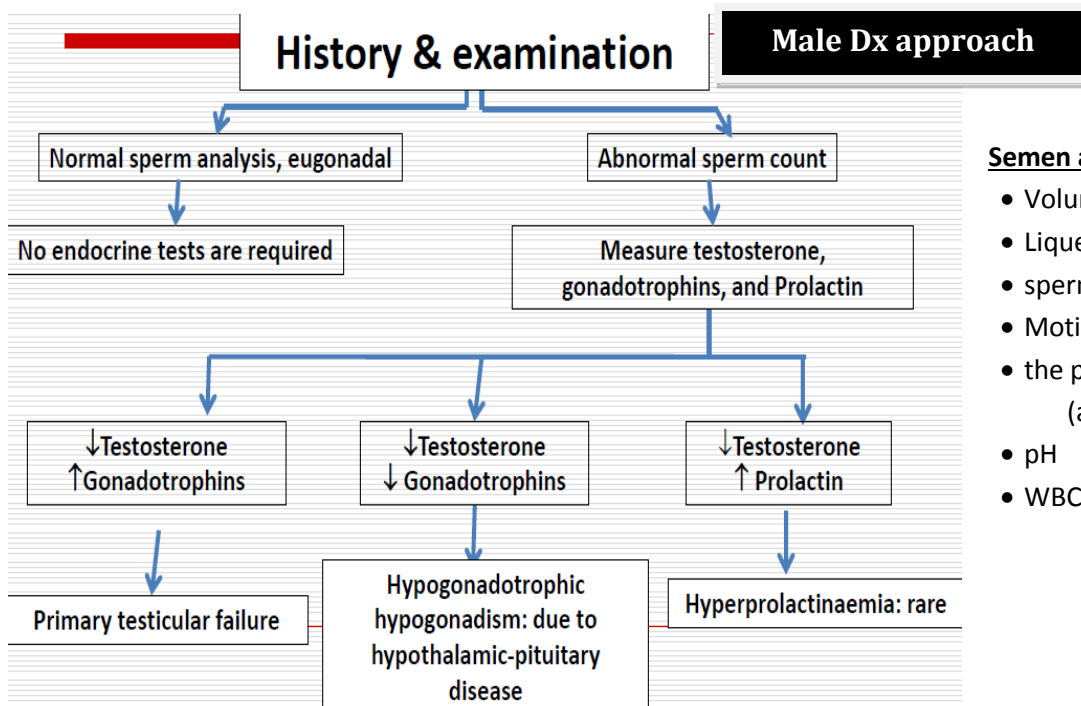


Causes:

- 1- **Ovarian androgen secretion:**
Obese → insulin resistance → ↑ androgen
- 2- **1ry ovarian failure:**
Post meno pattern [↑Gns - ↓ estrdiol]
HRT given but will not treat infertility
- 3- **↑ PRL**
- 4- **Cushing's**
- 5- **PCOS:** ↑ LH - ↓ or Normal FSH
- 6- **HypoGN – HypoGonad:**
Rare – H.th or pituitary lesion

at least 2 of the following 3 features are required for PCOS to be diagnosed:

1. **Oligo-ovulation or anovulation** manifested as oligomenorrhea or amenorrhea
2. **Hyperandrogenism** (clinical evidence of androgen excess) or hyperandrogenemia (biochemical evidence of androgen excess)
3. **Polycystic ovaries** (as defined on ultrasonography)



Semen analysis: Comment on:

- Volume
- Liquefaction time
- sperm density (count)
- Motility
- the presence of abnormal spermatozoa (abnormal shape, or motility)
- pH
- WBCs?

1ry testicular failure:

- Damage to both the interstitial cells and tubules → ↓ Testosterone & ↑ Gonadotrophins (LH & FSH)
- Only tubular impairment → selective ↑ in FSH, while androgen may be normal

Hyperprolactinemia:

- Prolactin is an anterior pituitary hormone
- Its secretion is tightly regulated:
 - **Stimulated by TRH** from the hypothalamus
 - **Inhibited by dopamine** from hypothalamus
- It acts directly on the mammary glands to control lactation
- Hyperprolactinaemia is elevated circulating [Prolactin] - A common condition
- It **causes infertility** in both sexes due **to gonadal function impairment.**
- What is the early indication of hyperprolactinaemia?
 - **In women:** amenorrhoea & galactorrhoea
 - **In men:** none
- **Causes:**
 - Stress
 - Drugs e.g. **oestrogens, phenothiazines, metoclopramide, α-methyl dopa**
 - Seizures
 - 1ary hypothyroidism (prolactin is stimulated by the raised TRH)
 - Other pituitary disease
 - Prolactinoma (commonly **microadenoma**)
 - Idiopathic hypersecretion (e.g. due to impaired secretion of dopamine that usually inhibits prolactin release)

If stress – drugs and other disease are excluded → differential are prolactinoma or idiopathic hyper secretion

How to differentiate between the two ?

- Detailed pituitary imaging
- Dynamic tests of Prolactin secretion: **administration of TRH, then measure serum [prolactin]:**
 - if ↑ → idiopathic hyperprolactinaemia
 - If no rise: → pituitary tumor

AntiMullerian hormone [AMH]: also called Mullerian-inhibiting substance

- AntMullerianhormone blood levels are often used by fertility specialists as part of the evaluation of ovarian reserve
[ovarian reserve : number and quality of oocytes in the ovaries]
- A **polypeptide** hormone , Secreted by growing ovarian follicles
- Secretion is proportional **to follicular development**
- Helps **assess ovarian reserve** and female fertility
- **In the ovary it inhibits the:**
 - **Initial recruitment of primary follicles from primordial follicles**
 - **Sensitivity of antrafollicles to FSH during cyclical recruitment**
- AMH **prevents** premature depletion of follicles
- The No. of remaining primordial follicles correlate with the No. of growing follicles
- Since only growing follicles produce AMH, its plasma levels reflect the number of remaining primordial follicles
- Highest levels or AMH are secreted by preantral and small antrafollicles

Hanan Mohamed Abdulmonem .. Good Luck <3