

## Male infertility

- Infertility : is the inability of a non-contracepting couple to achieve spontaneous pregnancy despite regular unprotected sex for at least 1 year ..... 15% of couples
- Can be : PRIMARY Or SECONDARY.
- Prognostic Factors —> Duration of infertility / Primary or secondary aetiology/ Results of SA / Age and fertility status of the female partner.

### ➔ Etiology of infertility :

#### 1) Non-obstructive 60%

##### **Hormonal abnormalities.**

- Idiopathic hypogonadotrophic hypogonadism: FSH& LH
- Thyroid disorders, high prolactin
- Low testosterone
- Brain tumor, injury, radiotherapy

##### **Genetic.**

- do Y chromosome micro deletion
- karyotyping

##### **Varicocele**

- spermatic vein obst.
- in pampiniform plexus.
- impairs spermatogenesis.

##### **Autoimmune infertility**

##### **Iatrogenic**

- Anti-androgen Therapy -lutamide
- Corticosteroids
- Exog. testosterone

##### **Cryptorchidism (UDT)**

- Most common congenital abn.
- early surgery Tx .. ✓✓.

##### **Orchitis**

- increase pressure
- damage & fibrosis

##### **Testicular torsion, Trauma**

- damage the affected one
- Abs against the other one

##### **Testicular tumors**

- destroy & compress. the testicular tissue.

##### **Gonadotoxins**

- tobacco, alcohol
- Insecticide „metals

➔ Antisperm antibodies (ASA): due to breakdown of the blood- testis barrier.

#### 2) Obstructive causes:

- Congenital absence of the vas deferens
- Vasectomy
- Vasal obstruction
- Epididymal obstruction
- Ejaculatory duct obstruction

#### 3) Coital causes:

- Erectile dysfunction or Anejaculation
- Premature/retrograde ejaculation
- Penile deformities

##### **Key features** Of semen

Colour	Grey-yellow
Volume	2.5 mL
Sperm density	20-200 million/mL
Motility	>50% at 4 hours
Abnormal forms	<50%
Fructose	Present

### ➔ Infertility Approach :

Medical Hx (trauma, cancer , torsion) —> ROS —> PE —> Labs (rapid , cost effective, noninvasive )

Hx for infertility : ask about Intercourse, Use of lubricants, Pediatric Hx , endocrine disorder , drugs, occupation

### ➔ Targeted Physical Exam:

- General examination
- Urogenital examination (focused) for:- Penis, Scrotum, Epididymis, Spermatic cord, Digital Rectal Exam

### ➔ Investigations

## 1) Semen Analysis (SFA)

- ✓ Abstinence .. a single day of abstinence is optimal for assessing bulk seminal parameters
- ✓ Method of collection (masturbation)
- ✓ Lubricants ( should be avoided), Should be placed in room temp. for **30 min** and should be examined within

### Macroscopic assessment

- **Ph**
- **Coagulation/liquefaction**
- **Color**
- **Viscosity**
- **Volume**

PARAMETERS	NORMAL VALUES	ABNORMALITIES	CLINICAL SIGNIFICANCE
Ph	7.8	Acidic <6.5-7	With low volume and noncoagulation: congenital bilateral absence of vas deferens Ejaculatory duct obstruction Partial retrograde ejaculation
Coagulation / liquefaction	Within 20 min at room temp	No coagulation Prolonged liquefaction	Congenital absence of the seminal vesicles Poor prostatic secretions
Color	Whitish gray	Yellowish color Reddish brown	Jaundice, drugs, Haemato-spermia secondary to urethral bleeding or inflammation of the seminal vesicles, exclude genitourinary tumors
Viscosity	4mm	>6 mm No threading	Important when associated with low motility
Volume	2-4 ml	0 (azoospermia) <2 mL (hypospermia) >4 mL	Retrograde ejaculation Incomplete collection Partial retrograde ejaculation Short duration of sexual abstinence

### Microscopic assessment

- **Motility < 40%**—> (important) / **Asthenospermia** .....? Genital t.infx, Varicocele, Antibodies, partial obst.
- **Morphology** —> **Teratozoospermia** , < 4 % normal morphology, caused by : Fever, Varicocele, Stress
- **Viability** —> do it when motility < 5-10% ... **Necrospermia** or immotile(due to cilia dyskinesia) ?
- Nonsperm cells , Antibodies ?
- **Count < 40 M & concentration < 15M**

#### Oligospermia

- Sperm density less 15 M
- Rarely to be isolated
- If number > 10 M , Endocrinopathies rarely observed.
- do testosterone & FSH if < 10 M.
- Biopsy if < 1 M

#### Azoospermia

- Absence of sperm in ejaculated
- Should be confirmed by two SFA before further diagnostic test
- Pre-Testicular, Testicular or Post-Testicular causes

2) **Hormonal Analysis.** —> when ? Low concentration, small testis, gynecomastia —> FSH LH Prolactin TSH ,testosterone

3) **Special testing / Genetic testing** —> **Karyotype & Y-link microdeletion assessment**.... When ? evaluation of non-obstructive azoospermia , sever Oligospermia , CFTR which assesses in men with obstructive azoospermia

4) **Imaging studies** **Transrectal Ultrasonography** , when ? low volume azoospermia with acidic pH & do **Scrotal Ultrasonography** or **Vasography** (incision in the scrotum-> inject contrast -> x ray )

5) **Testicular Biopsy** —> when clinical picture suggest obstruction , evidence of primary testicular failure.

➔ **Varicocele** : do varicocelectomy... may improve outcomes in oligozoospermic men.

➔ **Germ cell malignancy and male infertility** : Semen cryopreservation before orchidectomy,c

- If low androgen levels, long-term follow- if highest risk with > three cycles of chemotherapy or irradiation

➔ **Idiopathic hypogonadotropic hypogonadism** : associated with anosmia/hyposmia (Kallmann syndrome)

- Stimulate it by hCG combined with FSH or HMGs , or by pulsatile GnRH pump, 1-2 years to achieve sperm production