

History

TICS

- Toxins.
- Infections and inflammation.
- Children illness.
- Sexual history.

Toxins

- Hormonal: Androgens
- Recreational drugs and alcohol.
- Antibiotics
- Anti-hypertensive.
- Anti-psychotics.
- Opioids.

Infections and inflammation

- Mumps.
- Orchities.
- Sexual transmitted diseases.

Direct effect.

ROS

Stricture urethra

Childhood illness

- Torsion.
- Cryptorchidism or UDT.
- Childhood surgery
- Mumps

Sexual history

- Erectile dysfunction.
- An-ejaculation or low ejaculate volume.
- Frequency of intercourse.
- Use of lubricants and vaginal wash.

General examination

- Secondary sexual characters.
- Gyncomastia.
- Obesity.
- System failure.

Local examination

- Penis: Hypospedias, Epispedias or chordae.
- Testicular size.
- Epididymis.
- Vas: absent or beaded vas.
- Cord: Varicocele.
- DRE: Seminal vesicle

Lab investigations

- Semen analysis.
- Hormonal profile.
- Karyotype.

Semen analysis

| Parameter | Lower reference limit (range) |
|--|-------------------------------|
| Semen volume (mL) | 1.5 (1.4-1.7) |
| Total sperm number (10 ⁶ /ejaculate) | 39 (33-46) |
| Sperm concentration (10 ⁶ /mL) | 15 (12-16) |
| Total motility (PR + NP) | 40 (38-42) |
| Progressive motility (PR, %) | 32 (31-34) |
| Vitality (live spermatozoa, %) | 58 (55-63) |
| Sperm morphology (normal forms, %) | 4 (3.0-4.0) |
| Other consensus threshold values | |
| pH | > 7.2 |
| Peroxidase-positive leukocytes (10 ⁶ /mL) | < 1.0 |
| Optional investigations | |
| MAR test (motile spermatozoa with bound particles, %) | < 50 |
| Immunobead test (motile spermatozoa with bound beads, %) | < 50 |
| Seminal zinc (μmol/ejaculate) | ≥ 2.4 |
| Seminal fructose (μmol/ejaculate) | ≥ 13 |
| Seminal neutral glucosidase (mU/ejaculate) | ≤ 20 |

Frequency and volume of semen analysis



- Volume > 1.5 ml
- Concentration > 15 million/ml.
- Motility: progressive motility $> 32\%$
- Normal forms $> 4\%$



Abnormalities in semen analysis

Increased number of abnormal forms
(Teratospermia)

- Decreased motility (Asthenospermia)
- Lower mean sperm count
(Oligospermia).
- No sperms: (Azospermia)

Abnormal semen analysis

- Low ejaculate volume:
 - Improper collection.
 - Retrograde ejaculation which is diagnosed by post ejaculate semen analysis.
 - Ductal obstruction.



Azospermia or severe oligospermia

- Primary testicular failure
- Secondary testicular failure.
- Ductal obstruction

Hormonal

- Total and bioavailable testosterone.
- LH and FSH:
 - LH pulsatile manner.
 - FSH is closely related to germ function.
- Prolactin
- Other pituitary tumours.

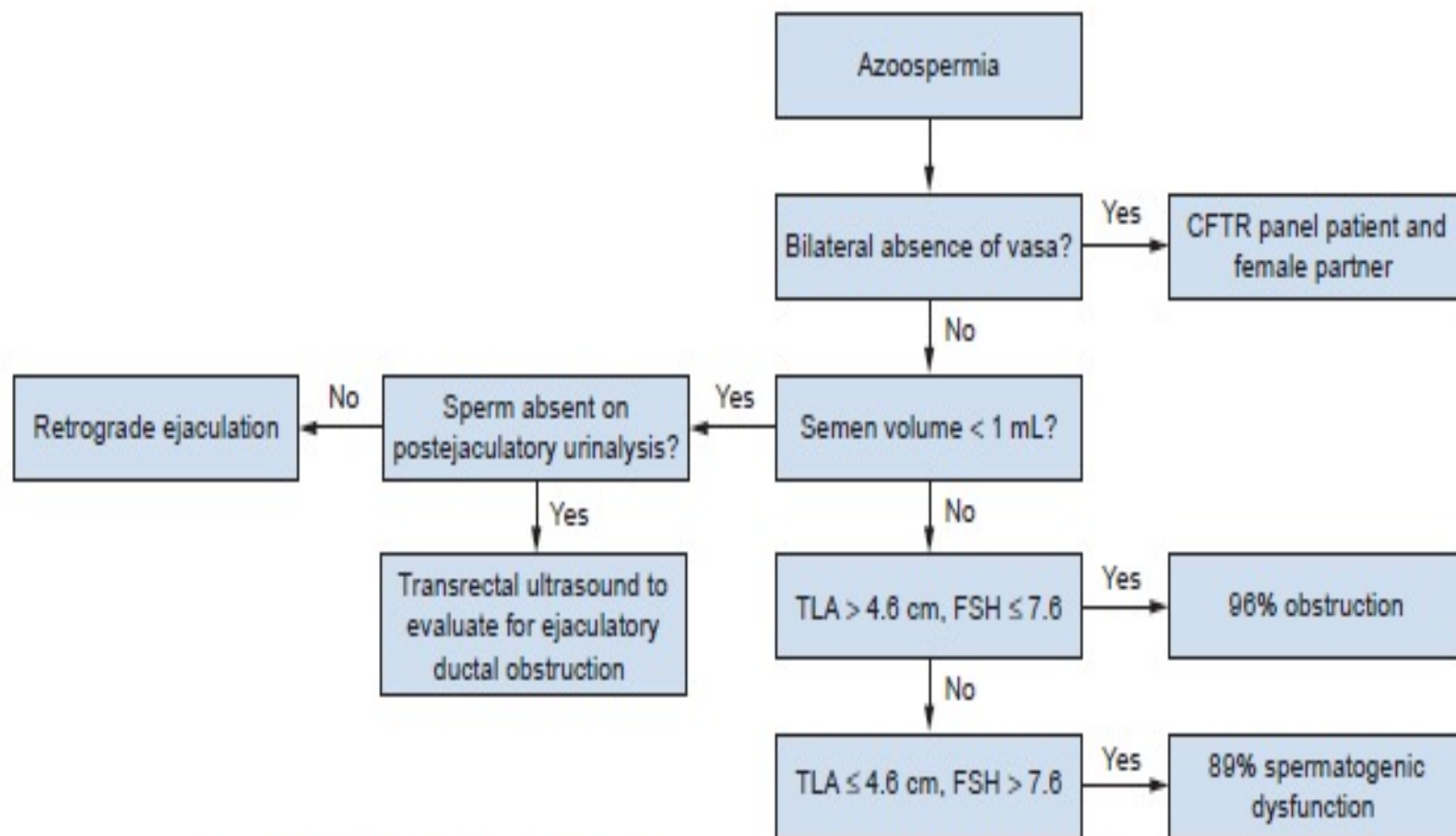


Figure 24-11. Algorithm for evaluation of azoospermia. CFTR, cystic fibrosis transmembrane conductance regulator; FSH, follicle-stimulating hormone; TLA, testis longitudinal axis measured by caliper orchidometer.

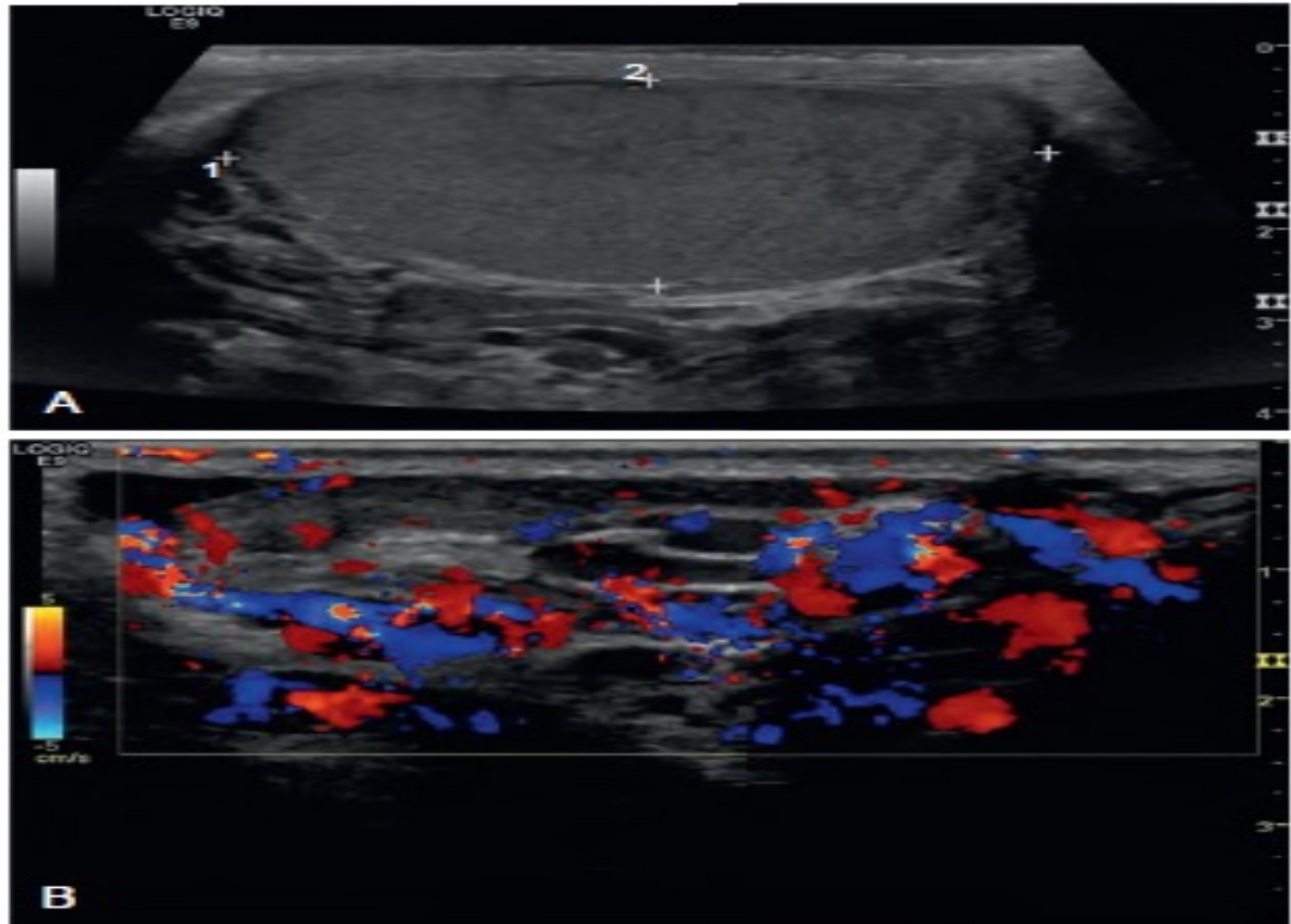
Hormonal

- Pre-testicular (2nd failure): Atrophic testes+ low FSH and testosterone.
- Testicular (Pry failure): Atrophic testes+ low testosterone and high FSH>3 times the normal.
- Obstruction: Normal testis size and normal hormones with low ejaculate volume

Radiological

- Scrotal US and doppler.
- TRUS.
- Vasography.

Scrotal US and Doppler



Testicular biopsy

- Indicated for azospermia for the detection of at least one viable sperms

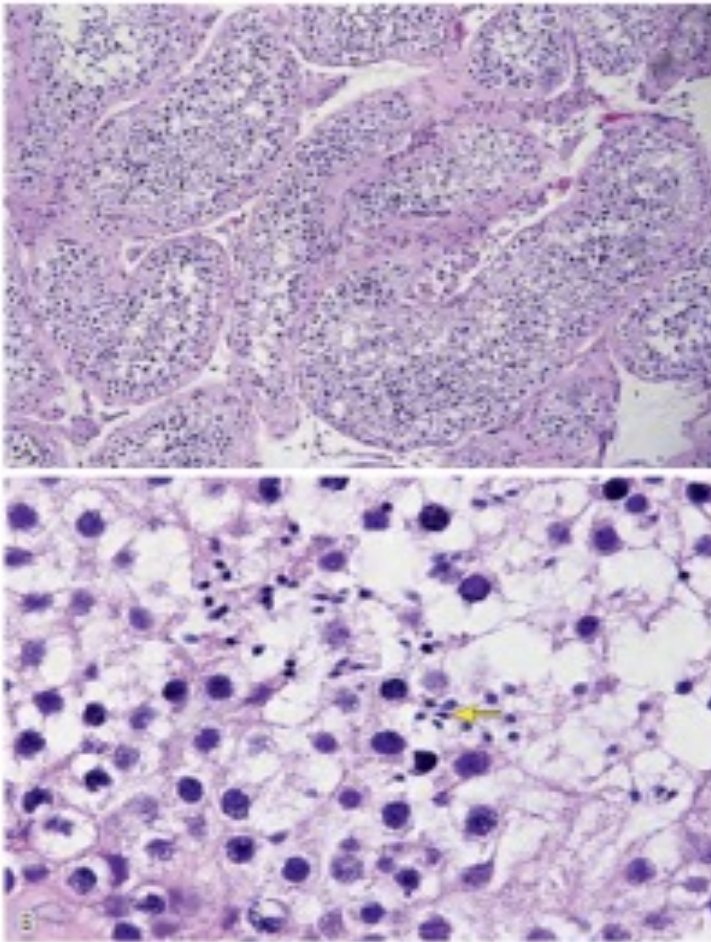


Figure 24-8. Light microscopy demonstrating normal spermatoge