PIPADOR REVISION

MRCOG Part 1 Revision Notes

Semen-analysis Result

DATA INTERPRETATION • LECTURE 449

VISUAL EXAMINATION REVISION NOTES

2026 Edition

449

MRCOG PART 1 REVISION NOTES | DATA INTERPRETATION

Semen-analysis Result

Semen parameters, WHO 2021 limits, terminology and worked cases including azoospermia

16 million/mL	42%	4%	3 months
Concentration limit	Total motility	Normal forms	Repeat if abnormal

■ KEY FACTS: Learning objectives

- Define the semen parameters and the terms oligozoospermia, asthenozoospermia, teratozoospermia, azoospermia and aspermia.
- Interpret a semen analysis using WHO 2021 reference limits.
- Describe next steps for abnormal results, including azoospermia.

449.1 Key definitions

Term	Definition
Semen analysis	Laboratory assessment of a sample after 2–7 days' abstinence, analysed within 1 hour
Oligozoospermia	Sperm concentration < 16 million/mL (or total < 39 million)
Asthenozoospermia	Reduced motility (progressive < 30% or total < 42%)
Teratozoospermia	Normal forms < 4%
Oligo-astheno-teratozoospermia (OAT)	All three abnormal
Azoospermia	No sperm in the ejaculate (confirmed on centrifuged sample)
Aspermia	No ejaculate (or retrograde ejaculation — check post-ejaculatory urine)
Leucocytospermia	> 1 million white cells/mL — possible infection
Necrozoospermia	Low vitality (< 54% live)

■ IN PLAIN ENGLISH: Semen analysis

The 'normal' values are the **5th centile of fertile men** — results just below them reduce, but do not exclude, the chance of conception. One abnormal result is not enough: sperm take about 3 months to develop, so **repeat after 3 months**.

449.2 Reference limits

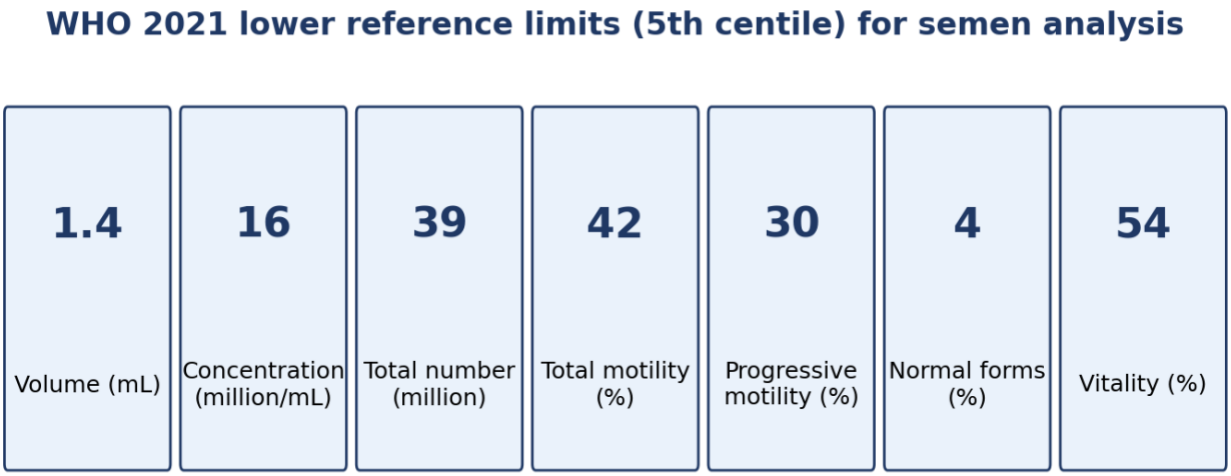


Figure 449.1 — WHO 2021 lower reference limits

449.3 Azoospermia

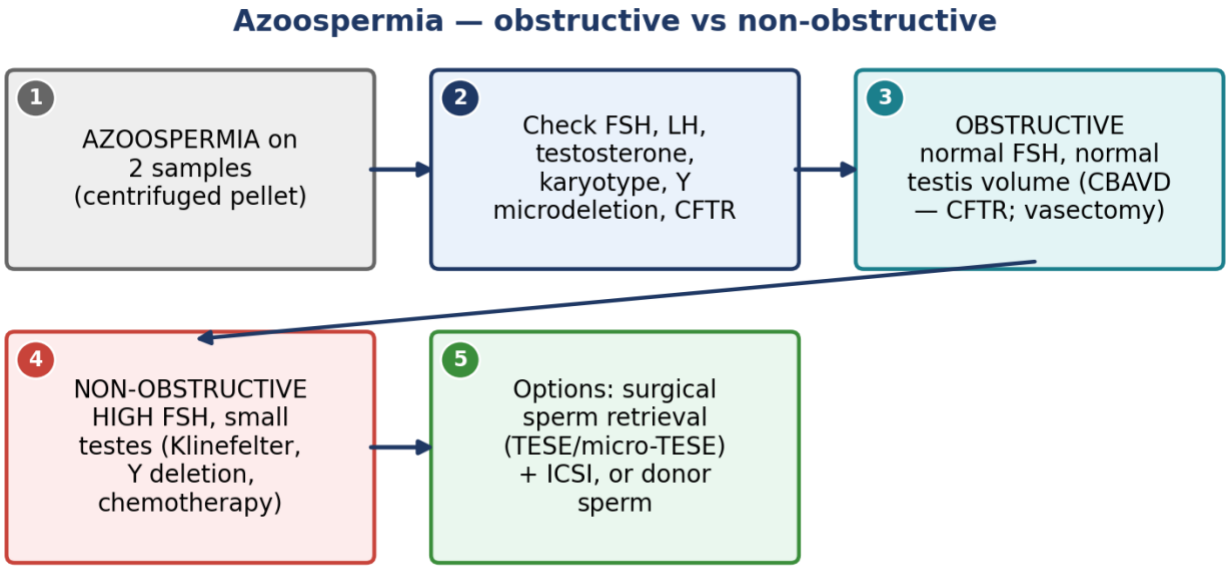


Figure 449.2 — Obstructive vs non-obstructive azoospermia

449.4 Worked cases

■ WORKED EXAMPLE

Case 1 — volume 2.5 mL, concentration 8 million/mL, progressive motility 35%, normal forms 5% → **oligozoospermia** → repeat in 3 months (NICE), lifestyle advice (smoking, alcohol, BMI, heat), check FSH/testosterone if severe.

Case 2 — volume 0.8 mL, pH acidic, no sperm, fructose absent → **obstructive azoospermia** (likely congenital absence of the vas deferens) → CFTR testing of both partners; surgical sperm retrieval + ICSI.

Case 3 — no sperm, FSH 25 IU/L, small testes, karyotype 47,XXY → **non-obstructive azoospermia (Klinefelter)** → micro-TESE + ICSI or donor sperm.

Case 4 — normal count but progressive motility 18% → **asthenozoospermia** → repeat; IUI/IVF/ICSI depending on severity.

■ COMMON PITFALLS

Acting on a single abnormal sample.

Forgetting anabolic steroid/testosterone use (suppresses spermatogenesis).

Not checking post-ejaculatory urine for retrograde ejaculation in aspermia.

449.5 Must-know summary

■ EXAM TIP

- WHO 2021 limits: volume 1.4 mL, 16 million/mL, total 39 million, motility 42% (progressive 30%), normal forms 4%, vitality 54%.
- Oligo (count), astheno (motility), terato (morphology), azoo (none).
- Repeat abnormal results after 3 months.
- Azoospermia: high FSH → non-obstructive; normal FSH → obstructive (CBAVD/CFTR).

■ MNEMONIC / MEMORY AID

'16-42-4' — concentration 16, motility 42%, morphology 4%.