PIPADOR REVISION

MRCOG Part 1 Revision Notes

Urodynamics Results

DATA INTERPRETATION • LECTURE 451

VISUAL EXAMINATION REVISION NOTES

2026 Edition

451

MRCOG PART 1 REVISION NOTES | DATA INTERPRETATION

Urodynamics Results

Definitions, measurements, reading a cystometry trace and worked cases

Pdet = Pves − Pabd	USI	DO	Qmax ≥ 15
Key equation	Leak on cough, no Pdet rise	Involuntary Pdet rise on filling	mL/s normal

■ KEY FACTS: Learning objectives

- Define uroflowmetry, post-void residual, cystometry, Pves, Pabd, Pdet, compliance, urodynamic stress incontinence and detrusor overactivity.
- Read a cystometry trace.
- Interpret urodynamic results and know when urodynamics are indicated (NICE NG123).

451.1 Key definitions

Term	Definition / normal value
Uroflowmetry	Measures urine flow rate during voiding — normal Qmax ≥ 15 mL/s (voided volume ≥ 150 mL)
Post-void residual (PVR)	Urine left after voiding (bladder scan) — < 100 mL normal
Cystometry	Measuring bladder pressure during filling and voiding
Pves	Vesical (bladder) pressure — catheter in bladder
Pabd	Abdominal pressure — catheter in rectum/vagina
Pdet (detrusor pressure)	Pves − Pabd — pressure generated by the bladder muscle itself
Bladder capacity	Volume at strong desire to void — ≈ 400–600 mL
Compliance	Change in volume ÷ change in Pdet — normal bladder fills with little pressure rise
Urodynamic stress incontinence (USI)	Leakage with ↑ abdominal pressure in the ABSENCE of a detrusor contraction
Detrusor overactivity (DO)	Involuntary detrusor contractions during filling (± leakage)

■ IN PLAIN ENGLISH: Urodynamics

Two pressure lines are measured — one inside the bladder, one in the abdomen. Subtracting them shows what the **bladder muscle itself** is doing. If urine leaks when she coughs and the bladder muscle is quiet → stress incontinence; if the bladder muscle squeezes on its own while filling → overactive bladder.

451.2 Measurements

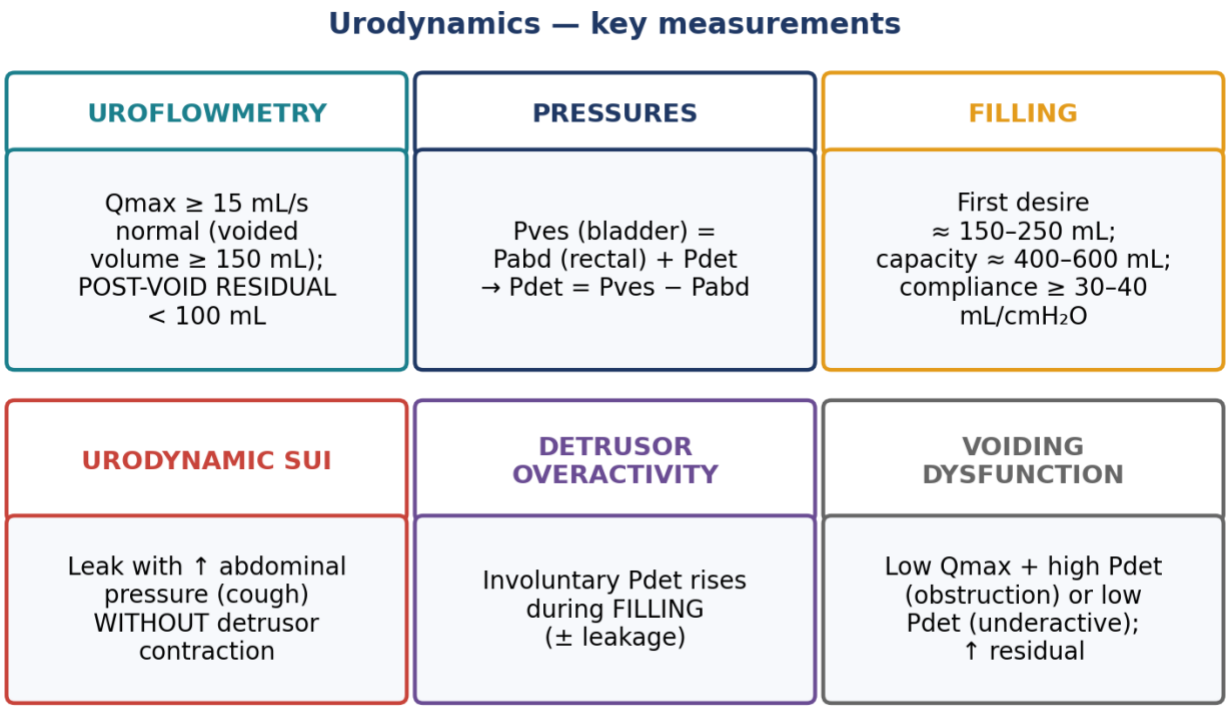


Figure 451.1 — Urodynamic measurements

451.3 Reading a cystometry trace

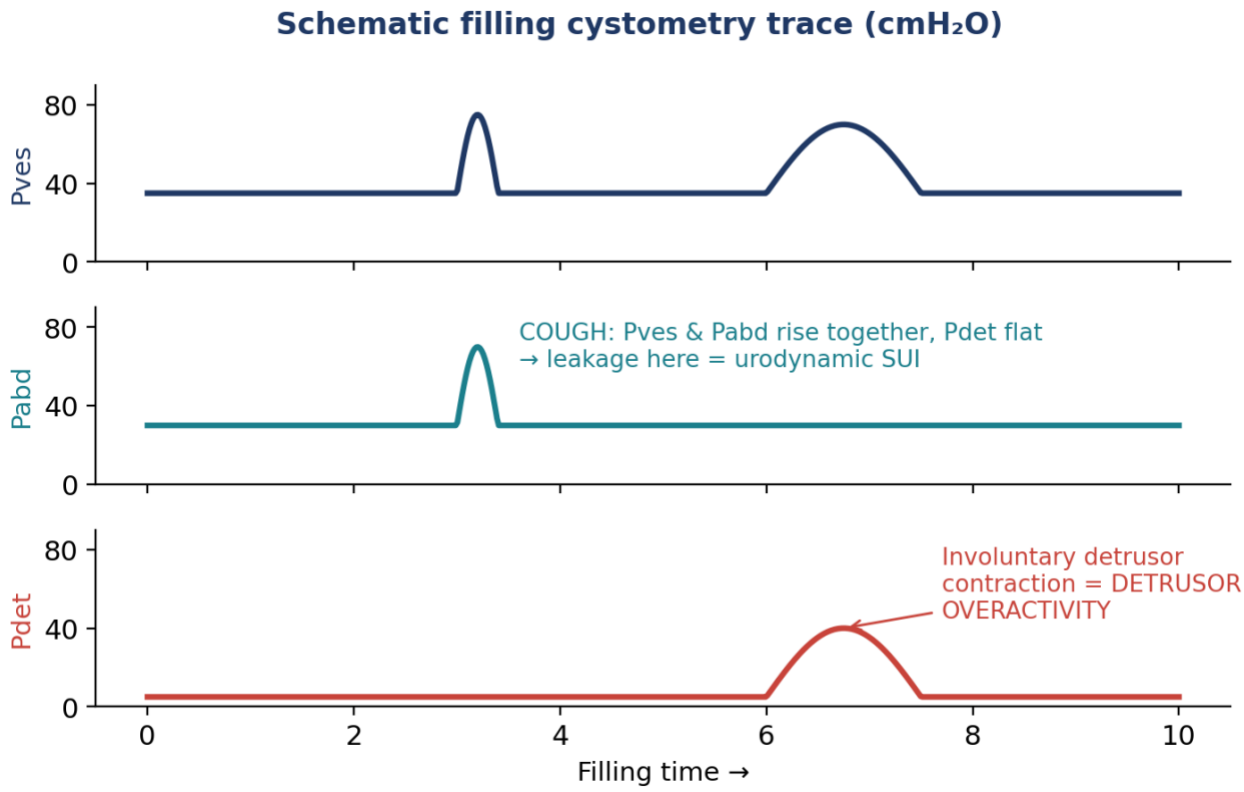


Figure 451.2 — Schematic filling cystometry trace

451.4 Worked cases

■ WORKED EXAMPLE

Case 1 — leakage on coughing at 300 mL; Pves and Pabd rise equally, Pdet flat → **urodynamic stress incontinence** → PFMT, then surgery (colposuspension, autologous sling, bulking).

Case 2 — involuntary Pdet rises of 30 cmH_2O at 150 mL with urgency and leakage → **detrusor overactivity** → bladder training, antimuscarinic/mirabegron, botulinum toxin.

Case 3 — both findings → **mixed incontinence (USI + DO)** → treat predominant symptom first.

Case 4 — Qmax 8 mL/s, PVR 300 mL, low Pdet on voiding → **detrusor underactivity / voiding dysfunction** → caution with continence surgery (retention risk); ISC.

■ COMMON PITFALLS

Doing urodynamics before conservative treatment in pure, clearly stress-predominant incontinence (NICE: not required before primary SUI surgery if pure SUI, no voiding dysfunction or prolapse).

Misreading a cough artefact (Pves and Pabd rise together) as DO.

Ignoring voiding function before anti-incontinence surgery.

451.5 Must-know summary

■ EXAM TIP

- Pdet = Pves − Pabd.
- USI = leak with ↑ abdominal pressure, no detrusor contraction; DO = involuntary Pdet rise during filling.
- Normal: Qmax ≥ 15 mL/s, PVR < 100 mL, capacity 400–600 mL, good compliance.
- Indications: before surgery if mixed/urge symptoms, voiding dysfunction, prolapse, previous surgery, unclear diagnosis.

■ MNEMONIC / MEMORY AID

'Pdet = Pves minus Pabd' — 'Detrusor = Difference'.