Urinary control

MAIN UROLOGICAL PRESENTING SYMPTOMS

- HAEMATURIA (BLEEDING IN URINE)
- VOIDING PROBLEMS
- PAIN
- LUMP
- INFERTILITY
- IMPOTENCE
- GENERALLY UNWELL
  - CANCER
  - RENAL FAILURE
  - INFECTION

CONTINENCE FACTORS

- Sphincter
  - Around urethra
  - Around bladder neck
- Intrinsic urethral mechanism
- Pelvic floor muscles
- Compliance
- Elastic tension in urethra
- Watertight seal of soft tissues
- Intra-abdominal pressure on urethra
1. Longitudinal detrusor muscle
2. Circular muscle (bladder neck)
3. Intrinsic urethral mechanism
4. External voluntary sphincter

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NORMAL BLADDER FUNCTION

“The bladder is a smooth muscle organ that must collect and store urine at low pressures, then periodically expel urine via a highly co-ordinated and sustained contraction”
Bladder needs visco-elasticity which is the ability to relax on filling. This gives good compliance which is limited by filling too full or too fast, or if the bladder wall is hypertrophied or if the nerves are abnormal.

NORMAL VOIDING

Needs a long, co-ordinated, sustained and large enough contraction of the bladder.

Also needs a reduction in resistance of bladder neck and sphincters (an unobstructed urethra).
VOIDING

**Sequence of events:**
1. Voluntary relaxation of pelvis floor muscles or an overfull bladder can both lead to a lowering of pressure in urethra.

2. Bladder pressure increases and the neck opens.

3. Voiding begins and completes.

4. Stream can be cut off “mid-stream” by contracting the voluntary sphincters.
NERVE CONTROL OF MICTURITION

CORTICAL MICTURITION CENTRE
Decides WHEN we void
(eg at low volumes)
Facilitatory & inhibitory

PONTINE MICTURITION CENTRE
Decides HOW we void
Essential for complete voiding

SPINAL MICTURITION CENTRE
Normally controlled from above
Can work alone but ineffectively.
Marginally better than nothing

BLADDER
URETHRA & SPHINCTERS
ABNORMAL STORAGE OF URINE

Unstable (overactive) bladder
• Very common
• Bladder simply contracts when it shouldn’t
• Ill-understood
• Possibly “psychological” or a nerve problem

Small bladder (rare)
• After infection, cancer, surgery, radiotherapy

Surgical damage to sphincters
Can occur after prostatectomy

Stress incontinence
Where the urethra has fallen through the pelvic floor
TOO DIFFICULT - POOR STREAM

Mechanical obstruction
- Prostate (very common)
- Sphincter not relaxing (nerve problems)
- Narrowing of urethra (now rare)

“Weak” bladder
- No pushing power (fairly rare)
- Over stretched muscle
- Poor nerves (eg “slipped disc”)
- Probable need for: “Intermittent catheterisation”

ENLARGING PROSTATE

Small
No Obstruction

Bigger
Progressive obstruction

Vast
Serious obstruction
TOO OFTEN - FREQUENCY, URGENCY

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- Very common
- Bladder simply contracts when it shouldn’t
- Ill-understood
- Possibly “psychological” or a nerve problem

Small bladder (rare)

- After infection, cancer, surgery, radiotherapy

<350ml
LOSS OF CONTROL - WETTING

Unstable (overactive/non compliant) bladder
- Very common in women
- Massive contractions
- Normal sphincters
- Causes: laughing, nerve problems, unknown

Weak sphincters
- Surgical or nerve damage
- Stress incontinence

Stress Incontinence
- Very common after childbirth
- Wetting on:
  - Coughing
  - Laughing
  - Straining, bending

Pelvic floor