UROLOGICAL EMERGENCIES IN GENERAL PRACTICE

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Conditions that may need urgent treatment

- Renal colic
- Acute retention of urine
- Priapism
- Testicular torsion
- Paraphimosis

Some urological conditions that are seen in general practice should be considered to be emergencies.

Renal colic

Narrow points in upper urinary tract

- Caliceal neck
- Pelviureteric junction
- Pelvic brim
- Vesicoureteric junction

Physical signs of renal colic

- Severe pain
- Inability to obtain rest, irrespective of position (unlike patients with peritonitis, who typically lie still and resist moving)
- Paleness and sweatiness
- Mild tenderness on deep abdominal palpation

Differential diagnosis of renal colic

- Acute appendicitis
- Diverticulitis
- Salpingitis
- Ruptured aortic aneurysm
- Pyelonephritis

Although some stones remain asymptomatic, most will give rise to pain at some time. However, despite their size, staghorn calculi are often painless because of their inability to move within the renal collecting system.

The symptoms resulting from renal and ureteric stones can be predicted from a knowledge of the likely site of obstruction. Renal colic usually starts abruptly with flank pain, which then radiates around the abdomen as the stone progresses down the ureter. Typically pain is felt in the testes in male patients and the labia majora in female patients.

In male patients the external genitalia and testes must be examined so that testicular torsion can be excluded, and a rectal examination may be necessary to rule out other diagnoses.

The investigation of a patient with suspected renal colic should begin with routine urine analysis. Some patients have frank haematuria, but the rest have microscopic haematuria. If the results of urine analysis are normal then an alternative diagnosis should be considered.

Patients suspected of having a stone should have intravenous urography unless they have a history of allergy to contrast media or are pregnant (renal ultrasonography is useful in these circumstances to show caliceal dilatation on the affected side).

Initial management is directed towards controlling the patient's pain. A non-steroidal anti-inflammatory drug such as diclofenac given intramuscularly is an effective analgesic, although opiates may be needed. Antiemetic drugs will counter nausea and vomiting, but if vomiting is persistent then intravenous fluids should be given.

Patients without signs of ureteric obstruction in the urogram may be allowed home with analgesia after an adequate explanation of their symptoms has been given, but they should be warned that pain may recur and told to seek advice if this happens.

If ureteric obstruction due to a stone is diagnosed from the urogram the patient should be admitted so that the progress of the stone can be monitored. Fever is an uncommon finding but if present should not be ignored as it may be an early sign of sepsis. Infection in the presence of obstruction of the upper urinary tract is an emergency—the kidney should be drained immediately, usually by placing a percutaneous nephrostomy tube into the renal pelvis, either with ultrasound or fluoroscopic screening to guide the placement.

Percutaneous nephrostomy draining obstructed and infective left kidney.

Conservative management of ureteric stones

Size of stone	Management
<4 mm	Conservative, as 90% will pass spontaneously
4-6 mm	Intervention only for stones that do not pass after conservative management—about 50% pass spontaneously
> 6 mm	Intervention likely, as only 10% will pass spontaneously

Stones that fail to pass spontaneously need treatment. Most stones are amenable to extracorporeal shock wave lithotripsy or removal with the help of ureteroscopy, and open surgery is rarely needed.

Acute urinary retention

Features of acute urinary retention

- Patients have a sudden inability to pass urine
- It is a condition seen predominantly in men and rarely in women
- Often patients have a history of symptoms of outflow obstruction, although occasionally the onset is more sudden.

Patients with acute urinary retention present with severe discomfort, and the history and clinical findings quickly point to the diagnosis. If doubt exists then ultrasonography of the bladder will resolve the issue. Patients should be managed initially by urethral catheterisation except when they have a history of urethral stricture or traumatic catheter insertion; under these circumstances a suprapubic catheter should be inserted.

Catheterisation

- Urethral catheterisation can be done by general practitioners, casualty officers, or appropriately trained nurses
- Once the urethral catheter is in place, the patient should be referred to a urologist for further assessment and treatment
- Patients needing a suprapubic catheterisation, however, should probably be referred to a urologist

Causes of acute urinary retention

- Benign prostatic hyperplasia
- Prostate carcinoma
- Urethral stricture
- Urinary tract infection
- Constipation
- Neurological disorders
- Postoperative pain or immobility

Chronic urinary retention develops insidiously and may present as nocturnal enuresis owing to overflow incontinence. Patients present with a palpable or percussible, but usually non-tender, bladder. If the bladder is overstretched for any length of time then the detrusor muscle may not recover function immediately. Thus a suprapubic catheter is more appropriate in patients with chronic retention so that "trials without catheter" can be performed simply by clamping the catheter, which avoids repeated urethral catheterisation if the patient fails to void successfully. Catheterisation may be followed by post-obstructive diuresis, and careful monitoring of urea and electrolytes concentrations and intravenous fluids may be needed. A chronically distended bladder does not need to be drained in stages as complications rarely ensue.

Priapism

Causes of priapism

- Intracavernosal pharmacotherapy for impotence (papaverine with or without phentolamine; prostaglandin E₁)
- Idiopathic origin
- In association with leukaemia, sickle cell disease, or pelvic tumour
- Penile or spinal cord trauma

Priapism is a condition characterised by a persistent painful erection that is not related to sexual desire.

Most cases of priapism, if seen early enough in their evolution, will respond to conservative measures. Asking the patient to climb stairs (arterial "steal" phenomenon), or the application of ice packs, may often bring about detumescence. Should these measures fail then the corpora should be aspirated with a butterfly needle and syringe. The needle should be introduced into the lateral aspect to avoid both the urethra (ventrally) and the neurovascular bundle (dorsally). The amount of blood that needs to be aspirated to bring about detumescence is variable.

Winter's procedure, showing communications created between corpora cavernosa and glans penis with biopsy needle.

In the most common type of priapism—"low flow" (anoxic) priapism—the aspirated blood will be dark and deoxygenated. Should corporal aspiration fail in this type of priapism then slow infusion of an α agonist such as phenylephrine may be tried. Aspiration of bright red blood is diagnostic of "high flow" priapism. Infusion of phenylephrine is contraindicated in this type because the drug will rapidly leak into the circulation, causing severe systemic hypertension. Should conservative measures fail, surgery may be needed. Winter's procedure creates a communication between the engorged corpora cavernosa and the glans penis, allowing blood to be shunted away from the penis by the corpus spongiosum.

Testicular torsion

Testicular torsion—right testis has become gangrenous.

Torsion of the testicle can occur at any age, although it is most common during adolescence, with a few cases occurring in neonates. Typically patients present with a swollen and painful testicle, although in infants the signs are less precise. The condition is an emergency because unless prompt action is taken the testis will be lost through ischaemia.

The diagnosis is usually made solely on the basis of the clinical history and examination. The testis is usually swollen and exquisitely tender, although torsion may occur with surprisingly little pain or swelling. The testis lies horizontally and retracted compared with the unaffected side. The differential diagnosis includes epididymo-orchitis (when the patient may have a raised temperature, urethral discharge, and fever), strangulated hernia, and testicular tumour. Recent studies have shown that, of boys presenting with acute scrotal swelling, only 25% will prove to have a testicular torsion. Despite this, if there is any doubt, the diagnosis should be presumed to be testicular torsion and urgent exploration of the scrotum performed. Doppler ultrasound examination has recently been shown to be effective for establishing the integrity of arterial inflow in cases of suspected torsion, but surgical exploration should not be delayed in favour of performing this investigation.

Paraphimosis

Key references

- Pryor JP. Management of priapism. *Current Opinion in Urology* 1994;4:343-5
 Dawson C, Whitfield HN. The management of urinary stone disease—part 1. *Surgery* 1994;12:73-6

Paraphimosis occurs when a tight foreskin is trapped behind the corona of the glans, and the glans swells as a consequence. This may be preceded by a mild phimosis. Paraphimosis occurs commonly in men who have a urethral catheter in situ, and in such patients part of nursing care should be to check periodically that the foreskin is pulled fully forwards over the glans penis.

With time the glans swells, and the foreskin is then replaced only with difficulty. The glans and distal penis should be compressed slowly and steadily with a gloved hand to reduce the swelling. Pain may be reduced either by the use of lignocaine gel or by a dorsal penile nerve block using 1% plain lignocaine. Once the swelling has reduced, the retracted foreskin may be pulled forward over the glans. Occasionally the tight band located behind the coronal sulcus has to be divided after infiltration with local anaesthetic, although in children and adolescents a general anaesthetic will be needed.

As the condition tends to recur a circumcision is usually needed, but this is best performed after the swelling has resolved.

The box on conservative management of ureteric stones is adapted from Dawson and Whitfield, *Surgery* 1994;12:73-6, and the source of the illustration of Winter's procedure is *Rob and Smith's operative surgery—genitourinary surgery*, 5th ed, vol 2. The picture showing testicular torsion was provided by Mr H N Blackford, Edith Cavell Hospital, Peterborough.

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