**Case:** A 33-year-old female office worker presents to the emergency department complaining of severe left-sided abdominal pain. The pain woke her in the early hours of the morning and has persisted throughout the day. She is unable to keep still and has vomited bilious material on five occasions. She reports no diarrhoea or rectal bleeding. Previous medical history includes appendicectomy and irritable bowel syndrome. She has had a recent colonoscopy, which was normal. She takes mebeverine for irritable bowel syndrome and multivitamin tablets. She smokes 15 cigarettes per day. On examination, she has a temperature of 37°C, a blood pressure of 125/88 mmHg and pulse rate of 96/min. There is marked left loin tenderness, but the rest of the abdomen is non tender. Heart sounds are normal and the chest is clear.

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| **INVESTIGATIONS** |
| **Results** | **Normal** |
| Haemoglobin 12.6 g/dLWhite cell count 12.8 × 109/LPlatelets 254 × 109/LSodium 141 mmol/LPotassium 4.2 mmol/LUrea 5.0 mmol/LCreatinine 62 µmol/LUrinalysis:Protein: negativeNitrites: negativeLeucocytes: +1Blood: +4Glucose: negativeHuman chorionic gonadotropin: negative | 11.5–16.0 g/dL4.0–11.0 × 109/L150–400 × 109/L135–145 mmol/L3.5–5.0 mmol/L2.5–6.7 mmol/L44–80 µmol/L |

**Questions:**

• What is the likely diagnosis?

• What investigation would you like to do to confirm your diagnosis?

• What are the indications for admitting this patient?

• What is the initial management?

The combination of left loin pain and microscopic haematuria, in the absence of abdominal peritonism, suggests a diagnosis of renal/ureteric colic. In 10–15 per cent of cases of renal colic, the dipstick will be negative for blood. The differential diagnosis includes pyelonephritis, diverticulitis, bowel obstruction, peptic ulcer disease and gynaecological conditions such as ectopic pregnancy, torted ovarian cyst or tubo-ovarian abscess. In addition to the above, on the right side, appendicitis and biliary colic should also be considered. In an older patient, it is important to exclude a ruptured abdominal aortic aneurysm. The pain of renal colic is caused by the distension of the ureter or collecting system from an obstructing calculus. The pain may radiate from loin to groin and to the tip of the penis in males and to the labia in females (the latter being typical in males and females, respectively, of a stone at the vesico-uretric junction). Calculi may also irritate the bladder, causing urgency, frequency and strangury. The gold standard investigation in the work-up of renal colic is a non-contrast computerized tomography (CT) KUB (kidneys, ureter, and bladder) scan. This has a sensitivity of 94–100 percent and specificity of 92–100 per cent. Advantages of CT KUB compared with more traditional tests such as intravenous urogram include the possibility to diagnose other conditions, accuracy of stone measurement, quick test and does not require administration of intravenous contrast and its potential pitfalls, e.g. allergy and chemotoxic reaction in patients with renal insufficiency. However, its use does involve a higher radiation dose.

Indications for admitting the patient include:

• Pain not controlled with simple analgesia

• Evidence of sepsis, e.g. pyrexia, raised white cell count or signs and symptoms of septic shock

• Obstructing calculi in a solitary kidney, or bilateral ureteric stones

• Deranged renal function

Renal drainage via percutaneous nephrostomy or retrograde ureteric stent insertion is required urgently in patients with sepsis and obstruction and is a urological emergency.



The analgesic of choice is rectal diclofenac, although in some cases opiates will be required. Fluids should be given and in cases of suspected infection, antibiotics with good Gram negative cover administered. The CT KUB in Figure 58.1 clearly demonstrated the offending urinary calculus, which is the opacification seen in line with the ureter.

**KEY POINTS**

• Haematuria is present in 90 per cent of cases of renal colic.

• Sepsis and obstruction of the urinary system is a urological emergency and requires urgent renal drainage.