key points

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Renal stone disease affects 5-15% of the population worldwide. Around 1-2 people per thousand present with an acute episode of pain caused by renal stones each year. Renal colic is classically sudden in onset, unilateral, and radiates from loin to groin. The site of pain may suggest the position of obstruction, with renal pelvic or upper ureteric stones usually causing more flank pain and tenderness while lower ureteric stones cause pain radiating towards the ipsilateral testicle or labia. Other common symptoms include nausea and vomiting, haematuria and irritative LUTS. Fever accompanying renal colic symptoms is suggestive of additional complications such as UTI or pyonephrosis. A febrile patient with renal colic requires immediate hospital admission.

Symptoms suggestive of renal colic along with a positive dipstick for haematuria have a reported sensitivity of 84% and specificity of 99% but it is important to consider other differential diagnoses.

An NSAID is preferred over an opiate drug as an initial analgesic choice as the NSAID can help reduce smooth muscle tone and thus ureteric spasm. Diclofenac has the best evidence base for this class of analgesic. It is most effective as an intramuscular injection (usual adult dose 75 mg) and the injection can be repeated once more at 30 minutes. It is important not to give repeated doses of NSAIDs in those with chronic kidney disease or a solitary kidney. NSAIDs should be used with caution in patients who are dehydrated or those prescribed drugs that block the renin-angiotensin axis. Opiates are as effective as NSAIDs but are more likely to be associated with nausea.

Patients with undiagnosed severe abdominal pain require urgent assessment. A careful history and clinical examination including: temperature, pulse, BP, abdominal findings and urine dipstick analysis (if possible) will help to exclude other emergencies such as peritonitis or septic shock. About 90% of stones will pass spontaneously and thus it is often appropriate to manage renal colic at home. Patients with signs of peritonitis, systemic infection, septic shock as well as those whose diagnosis is unclear should be referred urgently to hospital for assessment. Patients who are systemically unwell with renal stones are more likely to have an infected and obstructed urinary tract system that needs urgent imaging and possible drainage.

All patients who are managed at home should have renal tract imaging within a week by fast track referral to radiology or as an urgent urology outpatient referral as per local guidelines to rule out an obstructed urinary system. Radiological investigation usually includes a plain X-ray (KUB) followed by an IVU or non-contrast helical CT.

Patients with recurrent stones should be advised to maintain a copious fluid intake (>2 L/day) to reduce the concentration of the urine. A reduction in salt intake (ideally <2g/day) and animal protein in the diet can help to reduce stone formation.