key points

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Kidney cancer accounts for 4% of total malignancies in men and 3% in women. More than 80% of kidney cancers are renal cell carcinomas (RCC). Early stage and localised disease is potentially curable in around 90% of patients. However, metastatic disease has historically been associated with poor prognosis; 10% survival at five years post diagnosis. More than 50% of RCC cases are detected incidentally on imaging, often at a late stage. Patients may present with mass-related localised symptoms, constitutional symptoms and symptoms of metastatic disease. Abnormal laboratory investigation results can include anaemia, raised CRP or elevated ESR in the absence of infection.

There is a male predominance for RCC in a ratio of 3:2. Incidence increases with advancing age with more than 50% of cases diagnosed in people aged over 70. Risk factors include smoking, obesity and hypertension. High caffeine intake, moderate alcohol consumption and increased cruciferous vegetable intake may be protective. Patients with acquired cystic kidney disease, those with end-stage renal disease, patients receiving haemodialysis or who have had a renal transplant are all at an increased risk of RCC.

Ultrasound is the optimal initial investigation to screen individuals with suspected RCC. Other investigations including full blood count, electrolyte profile, bone profile and CRP/ESR are all useful. Urinalysis combined with a urinary albumin: creatinine ratio can be helpful in investigating and differentiating different causes of haematuria. NICE recommends that patients aged 45 and over with isolated haematuria, in the absence (or following treatment) of a urinary tract infection, are referred for investigation of a potential renal malignancy.

Treatment is guided by disease stage, tumour size, pathological subtype, patient performance status and comorbidities. In older patients, or patients with significant comorbidities who have an incidentally detected small RCC, a surveillance approach may be adopted.

For most patients with RCC limited to the kidney the ultimate goal is surgical intervention to achieve cure. Partial nephrectomy is usually offered as first line in T1 (tumours limited to the kidney < 7 cm) and T2 (tumours limited to the kidney > 7 cm) lesions where a patient has a single kidney or chronic kidney disease. In other patients with tumours > 7 cm or those that extend into local structures attempt at curative therapy is with radical nephrectomy. For metastatic disease targeted systemic therapies designed to act on aberrant molecular pathways which promote tumour growth are used. Robotic surgical techniques hold the promise of more refined operative options for patients with larger or anatomically complex tumours.