Case 111 Haematuria of sinister origin

Figure 111.1

An electrician aged 60 years reported to his family practitioner with a 3-week history of passing blood in his urine, together with some clots. The practice nurse confirmed this by a dipstick test on a specimen of his urine and the patient was referred urgently to the urological clinic.

A detailed history and examination at the clinic gave little more information. The blood was noticed in every specimen of urine and some clots were seen in the outpatient specimen. He denied any abdominal or loin pain or, indeed, any other symptom. His appetite was good and, if anything, he had gained a few pounds in weight. Examination revealed a muscular, obese man.

Abdominal examination was normal, apart from an old appendicectomy scar. There was a moderate, smooth, rubbery enlargement of the prostate on rectal examination. Microscopy of the urine showed numerous red blood corpuscles. A full blood count and biochemistry profile were within normal limits and an outpatient flexible cystoscopy showed no abnormality in the urethra or bladder.

An urgent chest X-ray and abdominal CT were ordered. The chest film was clear. A typical film from the CT is shown in Fig. 111.1.

What does the CT demonstrate and what diagnosis does this suggest?

There is a solid mass in the right kidney (arrowed) and a normal left kidney. This is suggestive of a renal tumour as the cause of the patient's haematuria. As a result of this investigation a transabdominal right nephrectomy was performed.

Figure 111.2 is of a coronal section through the right kidney. What is the name given to this tumour, and what is its microscopic appearance?

This is an adenocarcinoma of the kidney. To the naked eye it has a golden yellow colour, together with haemorrhagic areas. 'Hypernephroma' is now an archaic term still occasionally used, dating back to the theory of its origin from suprarenal 'rests' postulated by Grawitz,* whose name is also eponymously applied to this tumour. Microscopically, the tumour cells are typically large with abundant foamy cytoplasm and with a small, central, densely staining nucleus – the so-called 'clear cell tumour'. The histology shows a typical example (Fig. 111.3), with a high power inset demonstrating the typical clear cells (arrowed).

What are the local symptoms that may draw attention to this tumour?

About 40% present with haematuria, as in the present case. This may be accompanied by the passage of clots. The clots may cause severe ureteric colic as they pass, or they may impact at the bladder outlet, with clot retention

*Paul Albert Grawitz (1850–1932), pathologist who worked with Virchow in Berlin.

Figure 111.2 Coronal section through a right renal tumour.

of urine – either of these may bring the patient to hospital as an acute emergency. Another 40% present with an aching pain and/or a mass in the loin.

In what other ways may this tumour present?

The remaining 20% of patients manifest either with the effects of secondary deposits – typically to the lungs or bones (perhaps presenting with a pathological fracture, for example) – or with the general features of malignant disease, such as anaemia or loss of weight. Occasionally, the tumour presents with a pyrexia of unknown origin.

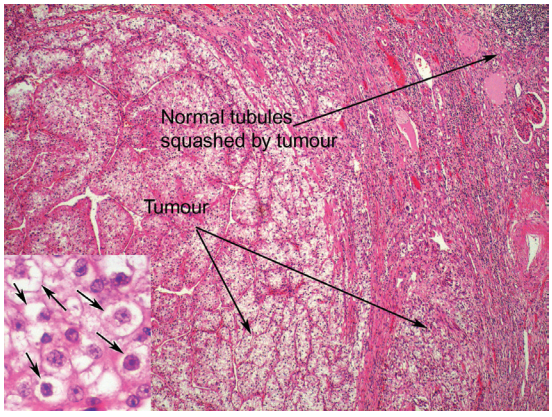

Figure 111.3 Histology picture of a renal carcinoma demonstrating the typical clear cells (arrowed) (magnification × 4 (inset × 20)).

Describe how the tumour may metastasize

- By lymphatic spread to the para-aortic lymph nodes and thence by the thoracic duct to the supraclavicular nodes.
- By haematogenous spread via the renal vein into the inferior vena cava and thence to the lungs, skeleton, brain and elsewhere.