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Asymptomatic space-occupying lesions of the kidney

Finding an asymptomatic space-occupying lesion within the kidney during a routine urological investigation is still a diagnostic challenge.¹ Such a lesion is often discovered when investigating patients, many of them elderly, with prostatism or hypertension. The clinician has then to decide whether non-invasive techniques are sufficiently accurate to differentiate a benign cyst from a renal tumour or whether the patient should be subjected to invasive investigations, with their definite but low morbidity, or even have exploratory surgery.

Modern ultrasound equipment has made sonar an attractive diagnostic method,² and the increasing availability of computed tomography (CT) will often provide confirmation of the diagnosis where ultrasound raises doubt about the nature of the lesion. What, therefore, are the limitations of the various diagnostic techniques? Intravenous urography itself can go further than simply showing the existence of a space-occupying lesion. The nephrogram phase may show the presence of a lucent defect in the suspicious area; its absence raises the chances of the presence of a renal tumour to a high level. Ultrasound can now offer the experienced clinician an 80-90% diagnostic rate, and in the elderly patient this technique may show smaller cystic lesions not producing displacement of the calix, thus helping to confirm the diagnosis. Puncture of a cyst is a valuable adjunct, which may be combined with ultrasound or conventional radiology, but its main limitation is the hazard of damaging blood vessels, especially with centrally placed cysts. A dry tap may be obtained even in experienced hands, and there is a theoretical risk of disseminating tumour cells into the needle track when the lesion is found to be a solid tumour. A successful puncture may, however, be combined with cytological and biochemical analysis of the aspirated cyst fluid, while the character of the internal surface of the cyst may be shown by injection of a contrast medium: a uniformly smooth interior is confirmation of a benign lesion.³ Very few such cysts will contain a tumour.⁴

Ultrasound will give a definite answer in the tumour that produces definite echoes and in the classic cyst, with a complete absence of echoes and distal enhancement. The problems arise when a few low-level echoes are present, which may be due either to technical artefacts or to a homogeneous tumour. In this minority of cases CT will usually determine

whether the lesion is solid, but the limits of resolution of this technique are around 1-1.5 cm and it can give little help with small lesions.

Where doubt remains selective renal angiography will nearly always show a pathological circulation if the lesion is a renal tumour, even if small.⁵ Arterial puncture has small but definite risks, particularly in elderly atherosclerotic patients, and on rare occasions it may fail because of arterial disease—but in experienced hands selective renal angiography is now very safe. Even this technique sometimes leaves doubt about the diagnosis, especially with cystic renal neoplasms, when exploration becomes the final Court of Appeal. Operative exploration is, however, undoubtedly hazardous: in a series of 126 patients who underwent exploration Kropp *et al*⁶ reported a morbidity of 30% and two deaths.

What, then, should be the sensible policy? The nature of most asymptomatic space-occupying renal lesions may be determined by intravenous urography and ultrasound. When available, CT will help in doubtful cases when a few low-level echoes are present, and puncture of a cyst is also useful in the peripheral lesion, allowing assessment of the internal cyst wall. Angiography may then be reserved for the small or echogenic lesion and where cyst puncture fails or shows abnormalities of the cyst wall. Only in the rare instance where, despite investigation, doubt remains is exploration justifiable. Nevertheless, the combination of a space-occupying lesion with haematuria (particularly when the lower urinary tract is found to be normal) should alert the clinician to turn more readily to angiography. This pattern shifts the burden of proof so that the task is disproving the presence of a renal neoplasm rather than confirming the presence of a benign renal cyst.

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² Barnett E, Morley P. Ultrasound in the investigation of space-occupying lesions of the urinary tract. *Br J Radiol* 1971;**44**:733-42.

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⁴ Johnson KE, Plain CL, Farcon E, Morales P. Management of intrarenal peripelvic cysts. *Urology* 1974;**4**:514-8.

⁵ Thomas ML, Mayo ME. Radiology in the management of asymptomatic renal space-occupying lesions. *Br Med J* 1970;iii:689-91.

⁶ Kropp KA, Grayhack JT, Wendel RM, Dahl DS. Morbidity and mortality of renal exploration for cyst. *Surg Gynecol Obstet* 1967;**125**:803-6.

Blunt abdominal trauma

Severe blunt abdominal trauma may occur on the sports field, in heavy industries such as coal mining, and in civilian violence, but in most cases it is due to a road-traffic accident. The increasing importance of the motorcar as the cause of such injuries was emphasised in the recent BMA symposium on road accidents held in Birmingham.¹ With increasing congestion on the motorways the incidence and severity of the trauma show no signs of coming under control. Closed abdominal injuries are likely to affect, in decreasing order of frequency, the kidney, spleen, and liver; less often the pancreas, bladder, or intestine may be damaged.² Often multiple organs are injured, and when there are associated injuries of chest, head, and the arms and legs mortality is likely to be high. Nicholson and Golden,³ for example, reported no fewer than eight deaths (seven with extensive intra-abdominal haemor-