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. 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, and the increasing availability of computed tomography (CT) will often provide confirmation of the diagnosis when 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 calyx, 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. Very few such cysts will contain a tumour.

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. Arterial puncture has small but definite risks, particularly in elderly atherosclerotic patients, and on rare occasions it may fail because of arterial disease—hence the experienced hands think selective renal angiography is now very safe. Even this technique sometimes leaves doubts 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. 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.

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. 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. 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, for example, reported no fewer than eight deaths (seven with extensive intra-abdominal haemor-
rhage) in 12 consecutive cases of combined severe injuries to the head and abdomen in Guildford.

Without doubt the introduction of seat belts into cars has saved lives and has reduced the incidence and severity of injuries to the occupants. Nevertheless, in rare cases injuries may be produced by wearing seat belts themselves, and the term “seat-belt syndrome” was introduced to describe this phenomenon by Garrett and Braunstein in 1962; in 3325 accidents that they studied, 30% of car occupants sustained some damage but only 26 of these (0.8%) had severe injuries (in contrast to the large numbers who would have been injured had they not been wearing belts). These belt injuries appeared to be secondary to the restraint provided by the seat belt as the accident victim was forced by inertia against the straps as the car rapidly decelerated. In such injuries the small intestine and its mesentery is by far the most frequently damaged intra-abdominal structure, but in one-third of cases of abdominal injuries there are associated fractures of the lumbar spine. Trauma has also been reported to the bladder, kidney, the common bile duct, stomach, duodenum, pancreas, spleen, the gravid uterus, the aorta, inferior vena cava, omentum, and the colon.

An isolated injury of the kidney, often associated with a haematoma in the loin and usually with haematuria, usually stops bleeding spontaneously, but continued haemorrhage is an indication for urgent surgery. Rupture of the spleen is undoubtedly the most frequent closed abdominal injury to require an urgent operation. Minor injuries of the liver again often stop bleeding spontaneously, but continued haemorrhage requires surgical intervention; and injury of both liver and spleen is far from uncommon.

Blunt injuries to the abdomen often present as urgent and difficult diagnostic problems, particularly when the patient is unconscious from a head injury or where an associated severe thoracic injury may obscure both symptoms and signs. In such circumstances diagnostic paracentesis of the abdominal cavity has been popular for many years in the United States. Many reports from the United States of taps of the peritoneal cavity in two or four quadrants have shown that when blood is obtained the patient is found to have an intra-abdominal injury at laparotomy in 80% of cases. Unfortunately false-negative results are common. A refinement of this technique, again popular in the United States over the past 15 years, has been peritoneal lavage.

Soderstrom and his colleagues have recently reviewed their experience of lavage at the Maryland Institute for Emergency Medical Services in Baltimore. After catheterization of the bladder, an infraumbilical incision is made under local anaesthesia, the peritoneum is opened under direct vision, a dialysis catheter is inserted with a purse-string suture, and irrigation of the abdominal cavity is carried out with one litre of isotonic saline. Patients are operated on when the lavage return is stained with blood, bile, or gastrointestinal contents. In a series of 1401 lavages only 32 (2.3%) gave false-positive results. No pathological condition was found at laparotomy in 25 of these patients, and poor technique with inadequate haemostasis was considered to be the cause of the false results. In the remaining seven patients bleeding from the incision was seen in three and omental injuries due to catheter placement occurred in the other four. Use of an open technique makes identification possible of an occult abdominal wall haematoma —such local collections of blood have given rise to false-positive results when a blind technique of catheter placement has been adopted. Besides the omental injuries reported by these authors, others have described complications including perforations of the small intestine, colon, mesentery, and even the iliac vessels. Diaphragmatic and extraperitoneal injuries are elusive to detection by peritoneal lavage, and a clear tap may give the surgeon a false sense of security under these circumstances.

Clearly laparotomy should not be delayed where visceral rupture or intra-abdominal bleeding is clinically obvious. In difficult cases, however, particularly in the unconscious, peritoneal lavage may be a useful adjunct to management.


Nappy rashes

The classification, causes, and treatment of nappy rashes cause widespread confusion. One commonly used classification lists four main types: the common “ammonia dermatitis” (an erythematous desquamating rash, missing the creases or folds); Candida albicans (“thrush”) dermatitis (commonly isolated spots if it is only a mild infection); the seborrhoeic “eczema-tous” type (with a diffuse red shiny rash in the nappy area, extending into the creases, often associated with other indications of a seborrhoeic skin, such as cradle cap and lesions in other flexures); and the psoriasisform rash (isolated, well-demarcated erythematous plaques covered by a silvery scale, resembling adult psoriasis, commonly also affecting other parts of the body, including the limbs, face, and scalp).

In fact, the term ammonia dermatitis is a misnomer, for experiments have shown that ammonia, liberated from the urea in the urine by urea-splitting organisms, is not a factor, though these organisms are responsible for the powerful smell of ammonia arising from a nappy that has been wet for a long time. The principal factors, as suggested in a review 20 years ago, are prolonged contact with a wet nappy; retention of moisture, including sweat, by the use of tightly fitting rubber or plastic pants; a seborrhoeic or sensitive skin; and secondary infection. Allergy probably plays only a minor part, though sensitivity to paper linens has been blamed. Erythema at the site of contact with the elastic or rubber of plastic pants may be due to sensitivity or friction. The role of alkalinity of urine or faeces, or alkalinity resulting from inadequate rinsing, is unproved.

Secondary infection, mainly by C albicans but also by Staphylococcus aureus, is frequent. A review of a series of studies indicated that C albicans may be cultured from over half of all nappy rashes: and Weston, Lane, and Weston wrote that after 72 hours of diaper dermatitis most infants may be assumed to be secondarily infected with candida. In British studies candida has been isolated almost equally from the seborrhoeic, psoriasiform, and more common wrongly termed ammonia dermatitis. When there is perineal thrush, there is commonly laboratory and clinical evidence of oral infection. Isolated “spots” in the nappy area always suggest a thrush infection.