Renal amoebic abscess detected on grey-scale ultrasonography

A case report

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Summary

Ultrasound scanning performed on a patient to exclude a liver abscess was negative, but demonstrated a fluid-filled lesion situated at the lower pole of the right kidney. This was confirmed on excretory urography and angiography, and aspiration produced typical amoebic pus. The evidence for this diagnosis and the probable route of infection are discussed. The literature on renal amoebiasis is reviewed.

Involve ment of the kidney substance by amoebic disease is rare. A search of the literature has brought to light 4 previously reported cases and 2 cases of perinephric abscess (Table 1). No record could be found of the use of ultrasound in the diagnosis of renal amoebiasis.

Case report

A male mine-worker aged 30 years presented at a peripheral hospital with a history of pain in the right chest. He was found to have a pleural effusion which cleared partially on antituberculosis treatment, to reveal an abscess in the lower lobe of the right lung. Since treatment with a combination of ampicillin and cloxacillin did not produce resolution of the abscess, he was referred to a specialist hospital for surgical investigation.

Bronchoscopy, mediastinoscopy and pleural biopsy did not contribute significantly to the diagnosis. The patient developed a swinging pyrexia which failed to respond to gentamicin, co-trimoxazole and erythromycin and he was referred to the physician. Multiple investigations were performed: two significant findings were a symptomless sterile pyuria (white cell count 3 000/ml) and a positive amoebic latex slide test. Chest radiographs showed posterolateral pleural thickening on the right and elevation of the right dome of the diaphragm. An abscess cavity was present in the posterior segment of the lower lobe of the right lung.

Ultrasound scanning of the liver was performed to search for an amoebic liver abscess. Despite a diligent search no intrahepatic or subphrenic collection of pus could be found, but longitudinal scans showed that the lower pole of the right kidney was expanded by an ovoid, anechoic mass with a diameter of 8 cm. Good through transmission was present and the calyces were compressed upwards. Scans in the prone position confirmed these findings (Fig. 1). Some of the scans showed a septum within the anechoic area (Fig. 2). The ultrasound diagnosis was that of a lower pole abscess or cyst.

An excretory urogram with nephrotomography demonstrated a deficit (corresponding to the anechoic area) in the lower pole with compression of calyces and pelvis (Fig. 3). The cyst was punctured under ultrasound guidance with a 20-gauge needle,
but no fluid could be withdrawn. In view of this failure, flush aortography and selective right renal angiography were performed. The latter showed that the mass at the lower pole was totally avascular (Fig. 4) with an enlarged capsular artery stretched around it. Renal outline was poor in the affected area, with loss of the corticomedullary junction. As the angiographic features were in favour of an abscess, a second cyst puncture was performed with a larger-bore (18-gauge) needle and 250 ml of typical amoebic pus ('anchovy sauce') was aspirated. An injection of aqueous contrast medium (Conray 420) and air demonstrated the abscess cavity with its septum (Fig. 5). The pus was sent for microscopy and culture. No amoebae were found, and no growth of organisms occurred on aerobic or anaerobic culture.

In view of the unrelenting pyrexia, and on the evidence of the positive amoebic latex slide test and the typical appearance of the pus, a course of metronidazole was commenced. Within 24 hours the patient became afebrile and remained so. There was a dramatic improvement in symptoms, so much so that when an operation to drain the abscess was suggested he refused it. In consequence, a second aspiration was carried out 2 weeks later under ultrasound guidance and a further 250 ml of pus was withdrawn through an 18-gauge needle.

Two weeks later, repeat excretory urography and ultrasound examination of the right kidney showed resolution of the abscess, although residual distortion of the lower pole calyces remained. The lung abscess had also cleared, and the patient was discharged symptom-free.

Discussion

The rarity of amoebic abscess of the kidney and perinephric region is demonstrated by the paucity of reported cases. These are recorded in Table I, with the probable route of infection where such information is available. In none of the previous cases was ultrasound or angiography used.

Failure to detect parasites in microscopic specimens of pus from amoebic abscesses is not uncommon. Adams and McLeod
in their discussion on amoebic liver abscesses point out that in only two-thirds of cases are amoebae identified in the pus aspirated. In the other third of patients the diagnosis is made on four criteria: (i) definite clinical features; (ii) typical radiographic or isotope scan findings; (iii) positive serological findings; (iv) satisfactory clinical response to tissue amoebicides. Our patient fulfilled these criteria. The swinging pyrexia did not respond to full antituberculosis therapy or to an array of broad-spectrum antibiotics. Aspiration of the kidney pus and treatment with metronidazole caused remission of the pyrexia and symptoms within 24 hours. Although some anaerobic organisms respond to metronidazole, none was found on pus culture.

In addition to the above features, 'anchovy sauce' pus, typical of amoebic disease, was aspirated from the kidney on two occasions. Adams and McLeod describe this as opaque, reddish, dirty-brown or pink fluid which is almost always sterile.

The position of the abscess in our patient was most interesting. The fact that it was situated on the lower pole and intracapsularly (as shown on arteriography) rules out direct spread from the liver. Furthermore, high-resolution grey-scale ultrasound equipment (Kretz Combison 200) failed to demonstrate any evidence of liver abscess. Kirsh and Diaz-Riviera found no evidence of amoebae on direct examination of the pus in their patient, but amoebae were found in block paraffin sections. (We read of this method too late to apply it.)

The essentially echo-free nature of the lesion, the fairly sharp margin and the good through transmission all suggested a cyst. The elliptical outline could have indicated an abscess or a cyst, but the septum was more suggestive of an abscess. Furthermore, as Green et al. and Schneider et al. have pointed out, all the ultrasonic criteria for diagnosing a renal cyst may also apply to other renal masses. The clinical, radiological and ultrasonographic findings should therefore be considered together for optimal accuracy. Amoebae do not form gas, unlike many pyogenic organisms. Our patient did not demonstrate acoustic shadowing or echogenic areas within the anechoic area, as have been described in abscesses due to gas-forming organisms.

Excretory urography with nephrotomography confirmed the presence of a mass (deficient nephrogram and displacement of calyces) but did not contribute additional information.

Pfister et al. have described the percutaneous aspiration of inflammatory renal masses with a narrow 22-gauge needle. Our initial failure to aspirate any fluid through a 20-gauge needle caused us to revise our diagnosis of cyst or abscess, and to consider the possibility of a homogeneous tumour with a sonolucent appearance. Green et al. found four sonolucent tumours in their series; they performed angiography and found that one of these four tumours, a metastatic malignant melanoma, was avascular.

The successful repeat puncture and withdrawal of pus through an 18-gauge needle (after previous aspiration through a narrow needle had failed) are in keeping with the experience of Conrad et al., who advocate a minimum needle size of 19-gauge for aspirating pus, in contrast to the 22-gauge suggested by Pfister et al.

We should like to thank Dr R. Gove, consultant physician, and Mr I. Lissoos, consultant urologist, of the Rand Mutual Hospital, who referred the patient to us, for their help and encouragement. We sincerely appreciate the advice of Professor Harry Mellins of Boston on the presentation of the subject matter.

### TABLE I. DETAILS OF PREVIOUSLY REPORTED CASES OF RENAL AMOEBOIC ABSCESS

<table>
<thead>
<tr>
<th>Author</th>
<th>Date</th>
<th>Site and No. of cases</th>
<th>No. of cases</th>
<th>Probable route of infection</th>
<th>Hepatic abscess</th>
<th>Result</th>
<th>Quoted by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kulz</td>
<td>1913</td>
<td>Renal (multiple)</td>
<td>2</td>
<td>?</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>Hartmann and Keppel</td>
<td>1923</td>
<td>Renal</td>
<td>1</td>
<td>Operative drainage of liver abscess</td>
<td>?</td>
<td>Yes</td>
<td>?</td>
</tr>
<tr>
<td>Vjchrew</td>
<td>1924</td>
<td>Renal (miliary cortical)</td>
<td>1</td>
<td>?</td>
<td>?</td>
<td>?</td>
<td>As above</td>
</tr>
<tr>
<td>Casco</td>
<td>1932</td>
<td>Renal</td>
<td>1</td>
<td>?</td>
<td>?</td>
<td>?</td>
<td>As above</td>
</tr>
<tr>
<td>Kirsh and Diaz-Riviera</td>
<td>1943</td>
<td>Perinephric</td>
<td>1</td>
<td>Lymphatic</td>
<td>Liver enlarged. No abscess</td>
<td>?</td>
<td>Amoebic pus in urine</td>
</tr>
<tr>
<td>Ross</td>
<td>1944</td>
<td>Perinephric</td>
<td>1</td>
<td>?</td>
<td>?</td>
<td>Amoebic pus drained and treated with emetine</td>
<td>?</td>
</tr>
<tr>
<td>Andrew and Glyn Thomas</td>
<td>1979</td>
<td>Renal lower pole — single</td>
<td>1</td>
<td>Amoebic lung abscess</td>
<td>Nil</td>
<td>?</td>
<td>Treated with metronidazole</td>
</tr>
</tbody>
</table>

The renal lesion, and the key to the diagnosis, were discovered by accident on longitudinal scanning of the right lobe of the liver to rule out an amoebic liver abscess. The merit of scanning the right kidney through the right lobe of the liver has been emphasized by Rosenfield et al.

The successful repeat puncture and withdrawal of pus through an 18-gauge needle (after previous aspiration through a narrow needle had failed) are in keeping with the experience of Conrad et al., who advocate a minimum needle size of 19-gauge for aspirating pus, in contrast to the 22-gauge suggested by Pfister et al.

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Leiomyoma of the ovary
A report of 3 cases

G. TSALACOPOULOS, A. J. TILTMAN

Summary

Three cases of leiomyoma of the ovary are presented. The ages of the patients ranged from 35 to 42 years. In 2 patients there were associated uterine fibromyomas but the ovarian tumour appeared to be primary at that site. The symptoms of these 2 patients were associated with pathological lesions of the uterus. In the 3rd patient the tumour was an incidental finding on routine examination.

Leiomyoma arising primarily in the ovary is rare. Although it was originally described by Sangalli in 1862, only 23 cases had been added by the time Fallahzadeh et al. reviewed the literature in 1972. They reported a further five cases. Since then 4 more cases have been recorded. We wish to present 3 patients seen at Groote Schuur Hospital, Cape Town, during the 10-year period 1970 - 1979.

Case reports

Case 1

The patient was a 35-year-old woman (gravida 5, para 5). Her last pregnancy was 10 years previously, and she had been on oral contraception for 9 years. On routine examination at a family planning clinic an asymptomatic, left adnexal mass was found which felt solid, smooth and non-tender and was separate from the uterus, which was of normal size; the right adnexal region was normal. At laparotomy a solid, left ovarian tumour was found, with a normal Fallopian tube stretched over it. The uterus, right ovary and tube were completely normal. A left salpingo-oophorectomy and right salpingectomy were performed. The postoperative course was uneventful.

The surgical specimen, consisting of a Fallopian tube and an ovary which contained a tumour measuring 8 x 5 x 4 cm, weighed 88 g. The cut surface of this tumour showed a whorled appearance, similar to a fibromyoma (Fig. 1). Microscopic examination showed a fibroleiomyoma covered by a cap of ovarian cortex. There was a moderately sharp delineation between the neoplasm and the ovarian tissue, with no capsule. A moderate amount of fibrous tissue was admixed with the smooth-muscle elements. A minor degree of cytological pleomorphism was seen adjacent to small areas of degeneration, but no mitotic figures could be found. The lesion was diagnosed as an ovarian leiomyoma. The presence of a normal Fallopian tube was also noted.

Fig. 1. Case 1. Typical appearance of leiomyoma with a cap of ovarian tissue.

Case 2

The patient was a nulliparous 38-year-old woman, who had had a myomectomy for infertility 10 years previously. She presented with menorrhagia and the uterus was enlarged to the size of that of a woman 10 - 12 weeks pregnant. At laparotomy, there were numerous adhesions between the fibroid uterus and adjacent structures. A total abdominal hysterectomy and bilateral salpingo-oophorectomy were performed. The surgical specimen, consisting of a uterus with one ovary and tube, weighed 75 g. The uterus contained numerous leiomyomas. The cut surface of the ovary revealed a nodule of 2 cm in diameter, which resembled a fibromyoma. Microscopic examination of the uterus showed myometrial leiomyomas and adenomyosis. The