

Multiple liver abscesses: an unusual case which demonstrates the importance of ultrasonography in the detection of liver pathology

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SUMMARY

A 48-year-old caucasian male was admitted to hospital with right-sided chest pain, pyrexia and cough. He had no history of dysentery. He was treated with erythromycin and cotrimoxazole for right lower lobe pneumonia but failed to respond. Tender hepatomegaly developed and ultrasound scan demonstrated multiple abscesses in the liver. *Entamoeba histolytica* was identified in his faeces. He was treated with intravenous metronidazole, chloramphenicol and gentamicin and then oral tinidazole, after which improvement was rapid. He was later transferred to Australia. Subsequent abdominal CAT scan and aspiration of abscesses confirmed the diagnosis of multiple amoebic liver abscesses with secondary bacterial infection. Final treatment was with oral ciprofloxacin and metronidazole for four weeks. Ultrasonography is a noninvasive technique which is invaluable in the diagnosis of abdominal and especially liver pathology. This technique should be available in larger centres in tropical countries. Anyone living in or visiting the tropics should be aware of possible exotic diseases presenting in unusual ways.

Introduction

Liver diseases such as hepatitis, amoebic and bacterial abscesses, hepatoma and subphrenic abscess are relatively common in Papua New Guinea. Ultrasonography is a modern noninvasive technique whose use in the diagnosis of abdominal and especially liver pathology has drastically reduced the mortality from liver abscesses (1-6). This unusual case demonstrates the value of simple ultrasound investigation in providing fast and accurate diagnosis in a patient who initially presented with right lower lobe pneumonia and failed to respond to therapy.

Case report

A 48-year-old caucasian male was admitted to hospital in Tabubil, Star Mountains, Papua New Guinea on 12 November 1992 with a ten-day history of fever, cough and right lower

chest pain. Chest X-ray showed right lower lobe consolidation and a diagnosis of right lower lobe pneumonia was made. The results of laboratory investigations are given in Table 1. He was commenced on oral erythromycin but this was changed to cotrimoxazole on day 3 because of persisting fever. He remained unwell with a swinging fever, cough and increasing right-sided chest pain, and by day 5 had developed tender hepatomegaly and icterus. There was no history of bowel dysfunction.

Laboratory investigations on day 6 confirmed deteriorating liver function tests (Table 1). An ultrasound scan of his liver showed multiple abscesses whose appearance was considered to be consistent with both bacterial and amoebic aetiologies. Intravenous therapy was initiated with chloramphenicol 1 g every 6 hours, gentamicin 60 mg every 8 hours and metronidazole 500 mg every 8 hours. His

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TABLE 1

LABORATORY INVESTIGATIONS

	Day 1 12/11/1992	Day 6 17/11/1992	Day 15 26/11/1992
Full blood examination			
Haemoglobin	13.8 g/dl		
White cell count	14,000/ μ l	18,000/ μ l	10,600/ μ l
Neutrophil polymorphs	73%	85%	
Lymphocytes	27%	15%	
Eosinophils			7%
Liver function tests			
SGPT (N<40)	Normal	44.5 U/l	Normal
SGOT (N<40)	Normal	51.6 U/l	Normal
Bilirubin (N<17)	Normal	25.1 μ mol/l	
ALP (N 30-115)			324 U/l
GGT (N<70)			197 U/l
Faeces culture		<i>Entamoeba histolytica</i> , pus cells++, red blood cells++	
Serology		<i>E. histolytica</i> haemagglutination (EHH) titre = 32	
Sputum culture		No growth	
Blood culture	Negative (X2)	Negative	
Chest X-ray	Right lower lobe consolidation		

SGPT = ALT = alanine transaminase
 SGOT = AST = aspartate transaminase
 ALP = alkaline phosphatase
 GGT = gammaglutamyl transferase

clinical condition improved within 24 hours but he remained pyrexial with very tender hepatomegaly. On day 9 tinidazole 2 g daily was substituted for metronidazole, which resulted in rapid defervescence. The tinidazole, chloramphenicol and gentamicin were continued for five days and then changed to oral metronidazole 400 mg three times daily.

On day 12 the patient was transferred to Australia, where repeat ultrasound and CAT

(computed axial tomography) scans showed persistent multiple filling defects throughout both lobes of the liver (Figures 1 and 2). The total recorded number of abnormalities was in the order of 30-35, the largest being some 5-6 cm in diameter. Percutaneous aspiration of several lesions was performed. An 'anchovy paste' aspirate was obtained, but on examination only large numbers of neutrophil polymorphs, red blood cells and gram-positive cocci were seen. No amoebae were evident.

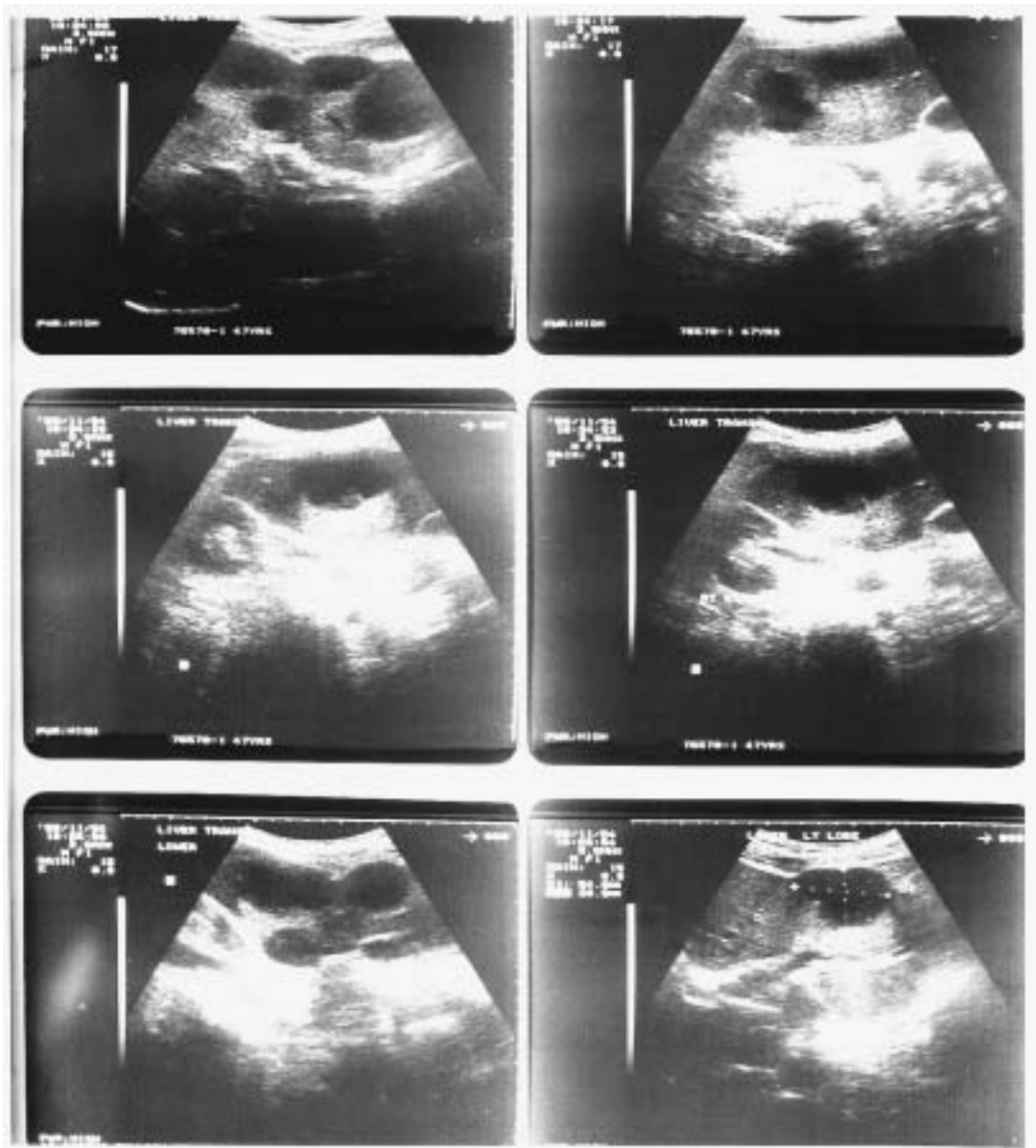


Figure 1. Ultrasound scan of the liver 12 days after initial presentation.

On day 15 the patient travelled to Brisbane, still taking oral metronidazole 400 mg three times daily. Further CAT scans (Figure 3) showed persisting intrahepatic lesions, and liver function tests remained abnormal (Table 1). Clinically, he was afebrile and his right hypochondrium pain had subsided. Because of the slow resolution of the intrahepatic lesions oral ciprofloxacin was added to the metronidazole and both were continued for a further four weeks.

Seven months later, a further ultrasound scan showed normal liver parenchyma with no evidence of previous liver pathology, and his liver function tests had all returned to normal.

Discussion

Patients with liver abscess usually present early to hospital with typical findings which include fever (98%), hepatomegaly (93%), leucocytosis (in excess of 10,000/ μ l) and

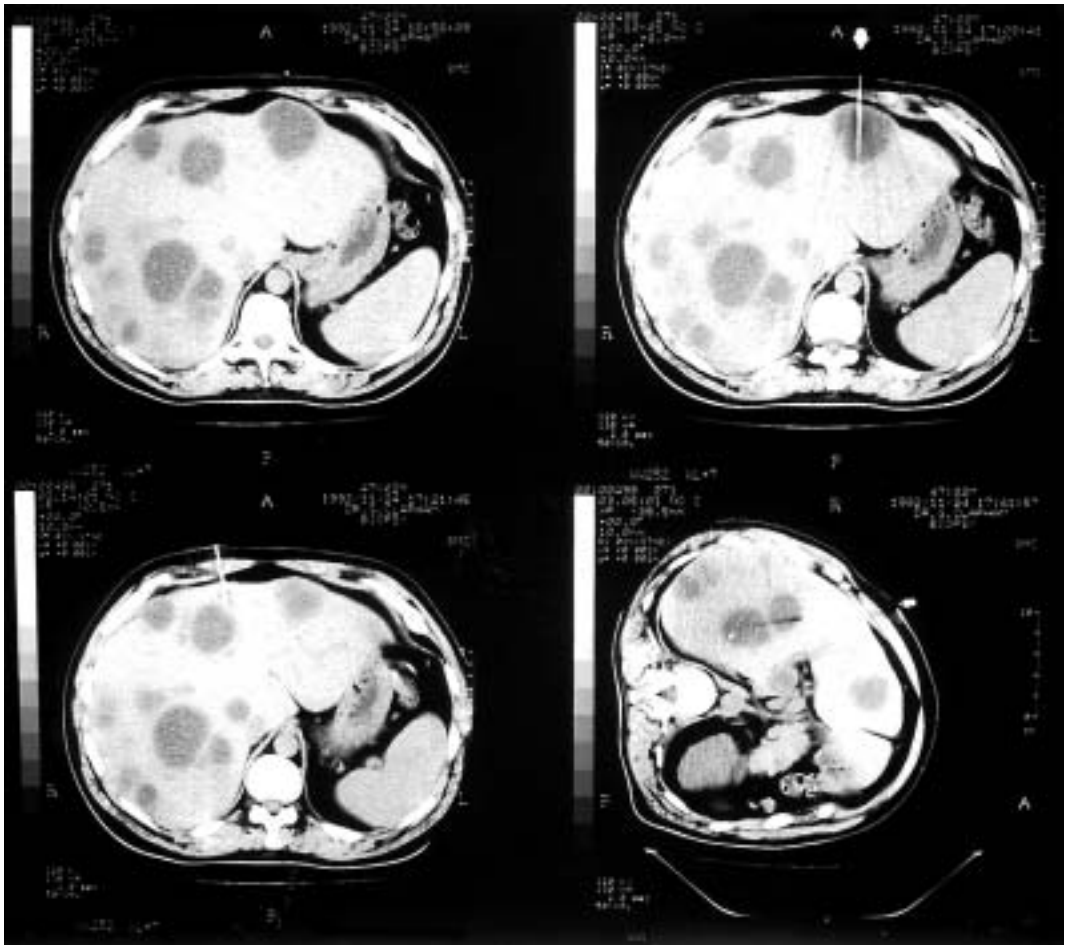


Figure 2. CAT scan of liver 12 days after initial presentation.

abnormal liver function tests (74%) (7,8). Our case reported here is noteworthy in its atypical presentation which suggested an initial diagnosis of right lower lobe pneumonia, but eventually developed more typical features of liver abscess.

Many studies have shown the enormous value of ultrasonography in the diagnosis of liver pathology and how this simple noninvasive technique has drastically reduced the mortality from liver abscesses (1-6). Pitt (6) found that computed tomography and ultrasonography are extremely useful in detecting liver abscess. Donovan et al. (2) state that ultrasound is the modality of choice since it detects almost 100% of all liver abscesses; confirmation of an amoebic abscess is made by the indirect haemagglutinin test,

which is positive in almost 100% of cases. Our case illustrates how useful ultrasonography can be in the diagnosis of liver abscess, especially when the clinical picture is not typical.

Amoebic liver abscesses are often solitary but may also present as multiple lesions on ultrasonography. The aetiology of multiple liver abscesses may be amoebic, bacterial or helminthic infection or a combination of infections (9). Differentiating these aetiologies may be difficult, but should include cavity aspirate examination, stool culture and serology.

Percutaneous aspiration of large abscesses performed under ultrasound or CAT scanning guidance is the method of choice in reaching an early diagnosis and has been responsible for

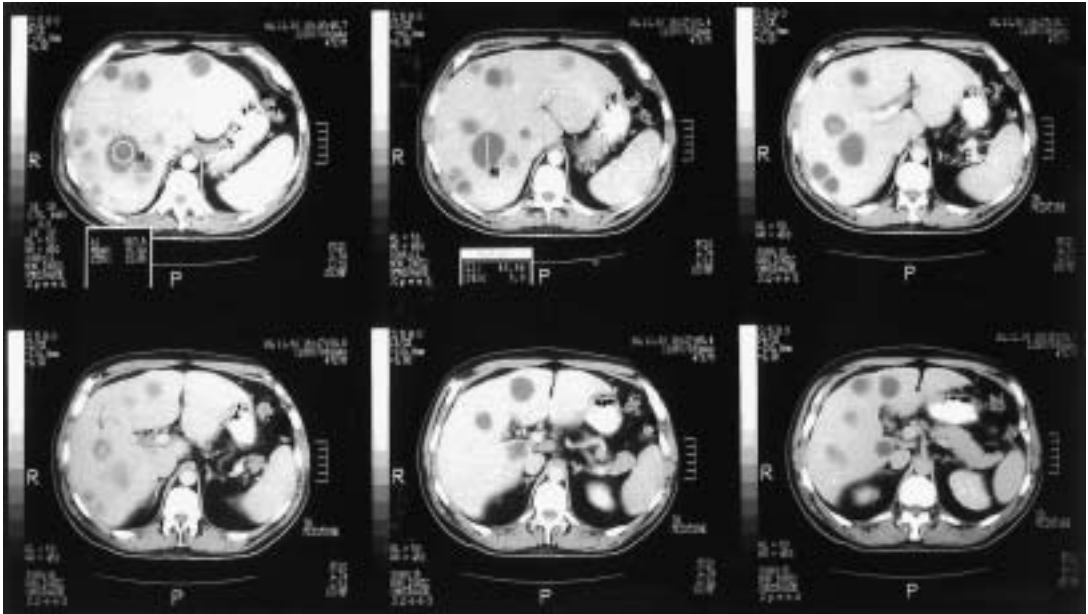


Figure 3. Further CAT scan of liver on day 19 after presentation.

the reduction in mortality from this severe disease. This minimally invasive technique has made surgical drainage no longer necessary (4,6,10-14). Percutaneous drainage of several abscess cavities resulted in clinical improvement in our patient and also assisted in pointing to a diagnosis of mixed infection (3,10,14-16).

Entamoeba histolytica was found in the stool, and the cavity aspirate demonstrated the typical 'anchovy paste' appearance of amoebiasis. However, the aspirate contained pyogenic cells, whereas it is usually sterile in amoebic abscess. Amoebae were not demonstrated on microscopy (as is frequently the case) and the serology was equivocal with an *E. histolytica* haemagglutination titre of 32 (Table 1). We concluded that this patient probably had both amoebic and bacterial infection, and hence ultimately treated him with both ciprofloxacin and metronidazole (3,10,15,17). The inability to definitively demonstrate an aetiology is perhaps explained by the early initiation of broad-spectrum antibiotic therapy.

During the same year five other patients were admitted at Tabubil Hospital with gross liver pathology. Three had large single amoebic abscesses, and all recovered rapidly after

tinidazole therapy. Two patients had primary carcinoma of the liver (hepatoma). Both had multiple lesions with fatal consequences. One hepatoma case was confirmed by laparotomy and biopsy and the other had multiple pulmonary secondaries and an extremely high alpha-fetoprotein blood level. Ultrasonography was instrumental in the rapid diagnosis of all these lesions, confirming opinions that ultrasonography can differentiate between amoebic and pyogenic abscesses and the solid primary or metastatic liver cancers (1,2,5).

Ultrasound scanning was crucial in demonstrating multiple liver abscesses in our patient, who initially presented with a clinical picture suggestive of pneumonia. We conclude that ultrasound is an invaluable tool that should be available in centres where infective liver pathology is common.

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