

## Successful Iterative Drainage and Partial Hepatectomy for Pyogenic Liver Abscess in a HIV Seropositive Patient

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**Key words.** Pyogenic liver abscess ; radiography ; drainage : antibiotics ; major abdominal surgery ; partial hepatectomy ; human immunodeficiency virus ; acquired immunodeficiency syndrome ; highly active antiretroviral therapy.

**Abstract.** The case of cryptogenic *Escherichia coli* pyogenic liver abscess in a 59-year-old Human Immunodeficiency Virus (HIV) seropositive man is reported. The initial treatment was a percutaneous drainage. As the abscess did not reduce in size, surgical drainage was planned but during surgery a necrosectomy had to be performed resulting in a partial hepatectomy. After nine months of amoxicillin-clavulanic acid treatment, drainage and highly active antiretroviral therapy, the patient recovered completely.

It is expected that because of highly active antiretroviral therapy, mortality rates of surgical interventions in patients with HIV infection will decrease.

Because of the increased life expectancy in persons with HIV infection, the criteria for considering surgical interventions in these patients should be broadened.

### Introduction

Early diagnosis by computed tomography (CT) or ultrasound (US), image-guided percutaneous drainage (PD), and improved antibiotic therapy have reduced both mortality and need for surgery in patients with pyogenic liver abscess (PLA). Nevertheless, the overall mortality from PLA remains 8-40% (1-8). The reported mortality rate from abdominal surgery in Human Immunodeficiency Virus (HIV) infected patients is 15% to 48% (9-11). However, this mortality rate is likely to decrease in the future because of the recent advances in the treatment of HIV infection. Highly active antiretroviral therapy (HAART) has a powerful antiviral activity, inducing an immune reconstitution and slowing down the clinical progression of the disease (12-16). As life expectancy in persons with HIV infection has spectacularly increased since HAART, it is expected that the outcome of surgical interventions in HIV seropositive patients will improve (17-25).

### Case Report

A 59-year-old male HIV seropositive patient, 68 kg, was admitted to our hospital with fever, weight loss, anorexia and abnormal liver tests. His medical history revealed an episode of jaundice 20 years ago and a cholecystectomy seven years ago. Palpation of the right abdominal upper quadrant was slightly painful. Blood analysis showed an

inflammatory syndrome with WBC 11000/ml and CRP of 284 mg/l (normal range : 0-5). Other laboratory data included a haemoglobin level of 104 g/l (normal range : 120-150), a CD4 lymphocyte count of  $0.392 \times 10^9/l$  (normal range :  $0.480-1.700 \times 10^9$ ) and abnormal liver enzymes (GT 464 U/L (normal range : 7-32), aspartate aminotransferase (AST) 44 U/L (normal range : 2-40), alanine aminotransferase (ALT) 64 U/L (normal range : 2-50), alkaline phosphatase 644 U/L (normal range : 30-115)).

A chest X-ray showed an elevated right hemidiaphragm. Abdominal ultrasound (US) examination revealed a large cystic area in the right liver lobe with a diameter of 9 cm. An abdominal CT confirmed the presence of a multiseptated, lobulated mass in liver segments VI and VII (Fig. 1).

The abscess was aspirated and cultures grew *Escherichia coli* (E.coli). Parenteral amoxicillin clavulanic acid, metronidazol and diloxanide furoaat were given and five aspiration punctures were performed. HAART was started (ritonavir 400 mg 2x/d, stavudine 40 mg 2x/d and saquinavir 400 mg 2x/d). The fever disappeared after three days. However, at discharge 38 days after admission, the size of the abscess remained about 9 cm in diameter.

Two weeks later the patient was readmitted because of a recurrent abscess and a pig tail catheter was percutaneously placed to drain the abscess. The catheter obstructed after 8 days and was removed. Subsequently

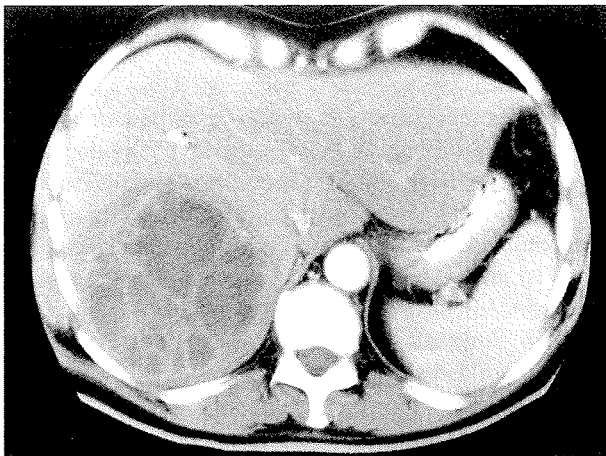


Fig. 1

IV iodine contrast CT scan. Presence of a multiseptated mass with nonenhancing cystic areas in liver segment VI and VII. Note the perilesional oedema of the liver parenchyma.

the patient again developed fever. Because of the persistent fever and the large size of the abscess, it was decided to drain the abscess surgically. However, during the intervention liver segments VI, VII and VIII had to be resected, because of the presence of a large necrotic and purulent area.

The postoperative recovery was complicated by a right pleural effusion and a subphrenic abscess which were both positive for *E. coli*. To drain the abscess a van Sonneberg catheter was placed under CT guidance, and the patient was treated with intravenous amikacin and metronidazol, followed by amoxicillin clavulanic acid. The fever disappeared. A follow-up CT scan on the 8th postoperative day showed an almost complete disappearance of the subphrenic abscess. The patient was allowed to leave the hospital and oral ciprofloxacin was prescribed.

Ten days later he was admitted for the third time because of low grade fever, fatigue, loss of appetite and a loss of weight of over 20 kg since the initial hospital admission. Laboratory tests showed a CRP of 159 mg/l and a CD4 lymphocytes count of  $0.470 \times 10^9/l$ . The abdominal US examination and CT scan showed the presence of new abscesses. The first one was located posteriorly in and around the liver, and the second one in a presacral location. Again, the patient was treated with intravenous amoxicillin clavulanic acid, but since no amelioration was seen on the abdominal CT scan both abscesses were drained percutaneously. More than 100cc of liquid was evacuated from both abscesses. The general condition of the patient improved and he left the hospital 10 days later. Unfortunately, he had to be readmitted 2 months later with right thoracic and right upper quadrant pain and a deep abscess at the previous puncture sites. Again a van Sonneberg catheter was placed to

drain the posterior perihepatic abscess and a second catheter for the ventral perihepatic abscess. The patient was discharged one month later and continued with oral amoxicillin clavulanic acid for 6 weeks.

One year after the initial admission, there was no evidence of an abscess on abdominal US examination. Two years later our patient still continues to do well. He has gained 30 kg in body weight, has an undetectable viral load level and a CD4 lymphocyte count of  $0.495 \times 10^9/l$ .

## Discussion

PLA is an infrequent clinical entity with a prevalence of 1 to 20 out of 100.000 hospital admissions (5, 6, 7, 26, 27).

Generally, the aetiology is highly variable. In recent years haematogenous dissemination via the hepatic artery has become a more common cause of PLA, largely because of an increase in severely immunosuppressed patients (1-7, 27-31). In HIV patients hepatic abscesses of unusual aetiology are more frequent (32).

The treatment of choice for PLA, including those in immuno-compromised patients, is US-guided percutaneous drainage (PD) and initially parenteral broad-spectrum antibiotics followed by oral therapy (5-8, 32-35). GIORGIO *et al.* also report favourable results with percutaneous needle aspiration (PNA) with ultrasound guidance and antibiotherapy, but in their study a far lower percentage of immunocompromised patients was included compared to other studies (29). PNA in combination with systemic antibiotics should be considered as a first line alternative to PD, especially for multiple abscesses (38). On the other hand, a lower mortality with surgical drainage (SD) as opposed to PD (9.5-14% vs. 25-26%) has been described (3, 28). The published failure rates for PD and PNA are 7-31% and 3-32% respectively (2, 4-6, 28-30, 36, 37). LAMBIASE *et al.* report a lower cure rate with PD in immunocompromised than in immunocompetent patients (54% vs. 85%) (38). Recently, a cure rate of 96.3% has been described with the combination of US guided PNA or PD, decided case-by-case by the operator, and antibiotics, in a population of 27 HIV patients with PLA (32).

SD was widely performed in the 1970's and early 80's. Since then SD ceased to be the recommended treatment. Nevertheless surgery remains the treatment of choice in case of PD/PNA treatment failure, when these procedures are contraindicated, or when an associated acute abdominal pathology is present (2, 7, 37-39). CHOU *et al.* have reported a low mortality rate from partial hepatectomy (4).

This case illustrates that, due to the benefits of HAART, the prognosis of HIV infected patients, even with serious complications such as PLA, has improved considerably. In consequence persons with

HIV-infection should be treated for intercurrent illness in the same way as persons without HIV-infection. In the past, because of the reduced life expectancy and increased risk for infectious complications, there has been reluctance to perform complex surgical interventions in persons with HIV infection (40, 41).

This case report demonstrates that since we have become better at treating the virus, this attitude should change. Because the number of new HIV infections in Europe and the United States remains relatively stable and because persons with HIV infection live longer, it is likely that the total number of persons living with HIV will increase (24, 42). It is therefore expected that in the future, surgeons will increasingly be confronted with surgical interventions upon patients with HIV infection. Surgical teams need to be taught safer working methods without discrimination with regard to the type of patient they are treating (43).

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