Final diagnosis

Spontaneous intercostal herniation of a lung bulla in a patient with severe emphysema and cavitary lung disease.

Keywords: lung bulla; herniation; mycobacterium; cavitary lung disease; bullous emphysema

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Mycobacterial liver abscess in a patient with AIDS

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A 33-year-old HIV-positive man was admitted to our hospital with a one-month history of low-grade fever, malaise and weight loss. Eight years before he had been diagnosed with an asymptomatic liver hydatid cyst, which had not been treated. Two months before admission his CD4 count was 15 cells/ μ l. Physical examination showed a cachectic patient. Blood cultures taken on the first day of admission were negative, but a sputum smear revealed 10 acid-fast bacilli/100 fields on Ziehl-Neelsen staining. Abdominal ultrasonography revealed one large hypo-echoic lesion in the liver (figure 1), a finding confirmed by computed tomography (CT) (figure 2). Treatment with isoniazid, rifampin, ethambutol and pyrazinamide was started, but the patient remained febrile and showed progressive deterioration.

Figure 1 Abdominal ultrasound

Figure 2 Abdominal CT scan

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Questions

- 1 Which aetiological agents should be considered?
- 2 How should the diagnosis be established?
- 3 What would be the best therapeutic approach?

Answers

QUESTION 1

The central feature in the clinical presentation of this severely immunodepressed patient is the presence of a liver abscess, along with acid-fast bacilli in the sputum smear. Although liver abscesses in AIDS patients are uncommon, most of the cases described in the literature were caused by *Mycobacterium tuberculosis*.^{1,2} In a review of abdominal CT scans in patients with AIDS and disseminated mycobacterial infection, Radin concluded that the presence of focal visceral lesions suggests *M tuberculosis* infection.³ Thus, the patient's presentation suggested disseminated tuberculosis involving the liver, but he did not respond to adequate therapy. Atypical mycobacteria, such as *M avium* complex, have been described as a rare cause of splenic abscesses,⁴ but do not generally cause liver abscess. Another feasible possibility is co-infection with two pathogens. Dual infections are common features of AIDS, and the isolation of organisms from sputum does not make other simultaneous infection less or more likely.

QUESTION 2

The lack of response to standard antituberculous treatment makes a tissue-based diagnosis necessary, to rule out other pathogens as a cause of the liver abscess. Aspiration of abscess material allows a definitive diagnosis to be obtained conservatively. In this case, percutaneous CT-guided aspiration of the liver lesion obtained a brownish material with positive acid-fast stain. Gram stain, bacterial and fungal cultures were negative. Fourteen days later liver aspirate culture in Löwenstein-Jensen medium yielded growth of *M avium* complex, as did the sputum mycobacterial culture.

QUESTION 3

Disseminated *M avium* complex disease responds well to medical treatment that includes clarithromycin or azithromycin in combination with rifabutin, ethambutol, ofloxacin, or/and amikacin.⁵ In pyogenic liver abscesses, it has been recommended that surgery be considered for patients whose fever persists for more than two weeks despite percutaneous catheter drainage and appropriate antimicrobial therapy. However, the optimal approach in the presence of a liver abscess due to *M avium* complex is still unknown. In our patient, we started treatment with a four-drug regimen (clarithromycin, ethambutol, ciprofloxacin and clofazimine), along with percutaneous drainage. The patient became afebrile and was discharged after evident clinical improvement. Repeated ultrasonography on follow-up showed a progressive decrease in the size of the liver abscess.

Discussion

Disseminated disease due to the *M avium* complex is the most common opportunistic infection of bacterial origin among patient with AIDS in developed countries. *M avium* complex organisms are ubiquitous: they are isolated

from water, soil, foods, and a variety of animal species.⁵ Most patients with AIDS and symptomatic *M avium* complex infection have evidence of multi-organ disease. Although autopsy reports show that *M avium* complex organisms can infiltrate virtually any organ,⁶ localised disease is less common, including pulmonary cavities, such as those seen in non-AIDS patients, soft-tissue involvement or prostatic infection.³ Despite its rarity, Khalil *et al* included *M avium* complex in the differential diagnosis of splenic abscesses in HIV-positive patients.⁷ However, to our knowledge the presentation of *M avium* complex as a liver abscess is exceptional.⁸

Pathogenic mechanisms leading to focal disease are unclear. *M avium* complex is rarely responsible for abscesses, probably due to a poor inflammatory reaction with minimal cellular infiltrate, reflecting the inability of the host to mount an effective immune response.⁹ Although blood cultures were negative, we believe that in our patient the formation of abscesses might be secondary to haematogenous seeding. Patients with disseminated *M avium* complex infection may have fluctuating low levels of mycobacteraemia and intermittently negative blood cultures.¹⁰ This patient had a previous liver hydatid cyst that could have been superinfected with progressive growth of the lesion. As occurs with amoebic liver abscesses, echinococcal hepatic cysts may also become secondarily infected.

No standardised reference method for susceptibility testing of *M avium* complex exists, nor has a correlation between the results of *in vitro* susceptibility testing and clinical efficacy been clearly established. Current recommendations for the treatment of *M avium* complex infection include the use of multidrug therapy to maximise efficacy and minimise the emergence of resistance. Thus, initial treatment should consist of at least two agents: oral clarithromycin or azithromycin is the preferred first agent and ethambutol is the most rational choice for the second agent. In appropriate cases, additional agents (rifampin or rifabutin, clofazimine, ciprofloxacin, or parenteral amikacin) may be added. Treatment is clearly associated with a reduction in mycobacterial load and an alleviation of symptoms, but therapy should be continued for life. Our patient responded well to treatment with clarithromycin, ethambutol, ciprofloxacin and clofazimine. We selected this regimen because of the presence of a focal lesion. The sustained clinical and radiological response to antibiotic therapy proves that medical treatment alone could be effective in the management of a visceral abscess due to *M avium* complex.

Final diagnosis

Liver abscess due to *Mycobacterium avium* complex, probably secondary to superinfection of an asymptomatic liver hydatid cyst.

Keywords: liver abscess; *Mycobacterium avium* complex; AIDS

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Abdominal pain in a healthy young man

Michelle N Dizon, Glenn Matfin

A 31-year-old man was admitted with a one-day history of dull intermittent abdominal pain. The patient had recently arrived from a vacation in Jamaica. He admitted to nausea, constipation, and loss of appetite but denied vomiting and diarrhoea. The pain was not associate with eating. He denied any fever or chills. On examination, he looked anxious but otherwise well developed and well nourished. The abdomen was soft, non-distended and only slightly tender with deep palpation. He had normal bowel sounds. Routine blood tests were normal. The plain abdominal X-ray is shown in figure 1.

Figure 1 Plain abdominal X-ray

Questions

- 1 What does the plain abdominal X-ray in figure 1 show?
- 2 What is the immediate management of this condition?
- 3 What other investigations would be helpful?

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