Rev. Inst. Med. trop. S. Paulo
45(2):115-117, March-April, 2003

LIVER ABSCESS DUE TO *Salmonella enteritidis* IN A RETURNED TRAVELER WITH HIV INFECTION: CASE REPORT AND REVIEW OF THE LITERATURE

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SUMMARY

Bacteremia due to non-*typhi Salmonella* is more frequent in patients infected with the human immunodeficiency virus (HIV). However, focal complications have been rarely described. We report a case of liver abscess due to *Salmonella enteritidis* in an HIV-infected patient who recently returned to Sao Paulo, Brazil, from a trip in the Caribbean. A good clinical and radiological response was seen with both percutaneous catheter drainage and antibiotic treatment. To our knowledge, this is the first culture proven case of non-*typhi Salmonella* liver abscess in an HIV-infected patient in Brazil.

KEYWORDS: Liver abscess; *Salmonella*; Focal complications; Human immunodeficiency virus.

INTRODUCTION

Salmonellosis is an important health problem in developing countries. Over the last few years, with reports of *Salmonella* bacteremia in HIV-infected patients and increases in international travel, new groups are at increased risk to develop disease.

The clinical manifestations of *Salmonella* infections are wide, and may occur in five clinical syndromes[8,10]. Gastroenteritis is the most common presentation, accounting for about 70% of cases. The disease is self-limited, and antibiotic therapy is rarely indicated. Enteric fever is classically due to *Salmonella typhi* (typhoid fever), and antibiotic therapy shortens the duration of the disease and prevents complications. *Salmonella* may also cause a chronic carrier state (enteric or urinary) defined as the excretion of organisms for over a year after the onset of the disease. Finally, *Salmonella* may localize to one site in the body, producing a characteristic clinical syndrome. Localized *Salmonella* infection frequently occurs during bacteremia, but may also occur with enteric fever or gastroenteritis.

We report a case of liver abscess due to *Salmonella enteritidis* in a traveler with HIV infection who had recently returned to Sao Paulo, a non-endemic area of salmonellosis, from the Dominican Republic, an endemic area of *Salmonella* infection.

CASE REPORT

A 31-year-old homosexual man presented to our hospital in September 2002 with a 4-week history of daily fever, moderate right upper abdominal pain, and 5 kg weight loss. The patient was found to be HIV positive in July 2002, and had returned to Sao Paulo, Brazil, from the Dominican Republic three months before. In the Dominican Republic, he had fever and dysenteric diarrhea for 5 days, and was treated with ciprofloxacin for 7 days with relief of symptoms, but he continued with intermittent fever.

On examination he looked non-toxemic, his temperature was 38 °C, pulse 110 per min, and blood pressure 110/70 mmHg. He had pallor, without jaundice. The abdomen showed a tender liver, palpable 3 cm below the costal margin. The rest of the examination was unremarkable.

Investigations on admission disclosed hemoglobin 8.3 g/dL, white blood cell count 11.7 x 10^9/L, polymorphs 73%, band forms 5%, lymphocytes 13%, and monocytes 6%. The CD4+ cell count was 265 cells/μL. The sedimentation rate was 65 mm/h, alkaline phosphatase was 558 IU/L, and total serum bilirubin and transaminases were normal. A chest radiograph showed no abnormalities in the lungs or pleural space, but there was elevation of the right diaphragm. Serology for *Entamoeba histolytica* was not performed, and serology results for *Salmonella typhi* and *Salmonella paratyphi* were negatives. Blood and urine cultures showed no growth. A stool culture was positive for *Salmonella enteritidis*, and a computed tomography (CT) scan of the liver revealed one large abscess in the right lobe of the liver measuring 17 by 12 cm (Fig. 1).

When questioned about his activities while traveling in the Caribbean, the patient recalled that he eaten fresh lettuce and tomato. Given the presence of a single liver abscess and his recent travel to an area of endemicity, infection with *Entamoeba hystolitica* or *Salmonella* was suspected. Treatment was started with ceftriaxone and metronidazole.

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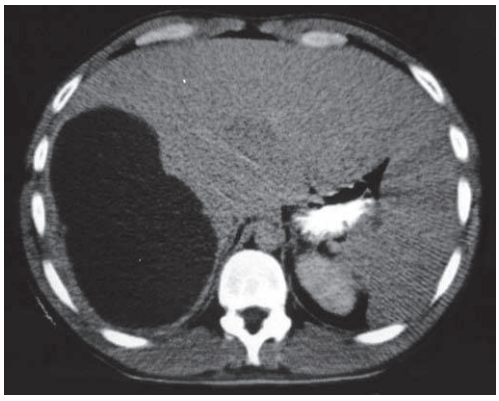

Fig. 1 - Abdominal computed tomography scan showing a large hypodense mass in the right hepatic lobe.

On day 3 in the hospital, a non-guided needle aspiration of the abscess was performed because there was no evidence of clinical improvement. The aspiration produced 200 mL of brown fluid, and a percutaneous drainage was inserted. Over the next two days, 700 mL of purulent material was drained. Direct microscopy was unhelpful, but culture demonstrated *Salmonella enteritidis*, sensitive to ampicillin, penicillin, cotrimoxazole, cephalosporins of second and third generation, and ciprofloxacin. Therapy with ceftriaxone and metronidazole was changed to intravenous ciprofloxacin. On day 12, the patient was better, but still with fever and mild abdominal pain. An ultrasound showed that the abscess had significantly decreased in size. After one week, he was afebrile and asymptomatic. The patient was discharged home on day 28, receiving oral ciprofloxacin to complete three months of antibiotic therapy. On follow-up, five months after the diagnosis, he did not present complaints and a CT scan of the liver showed no sign of a liver abscess.

DISCUSSION

Non-*typhi Salmonella* infections are a well described complication in HIV-infected individuals. These patients have a risk at least 20 times higher than the general population of acquiring *Salmonella* infections and bloodstream invasion is 100 times more prevalent than in immunocompetent subjects[8]. Bacteremia is the most common manifestation of salmonellosis, and when recurrent it is considered an AIDS-defining illness[2]. Despite this, focal or suppurative infections have been rarely described in immunocompromised[8] or immunocompetent individuals[5]. Focal infections caused by non-*typhi Salmonella* may involve any organ or system. In the general population, suppurative complications have been recognized in 7-10% of all cases of salmonellosis. On the other hand, focal infections account for up one-quarter of cases of salmonellosis[8] in HIV-infected patients. In this population, case reports of infection of the urinary tract, lungs, bones and joints, vascular system, central nervous system, abdominal cavity, and soft tissue have been published[5].

A liver abscess due to *Salmonella* is extremely rare. We searched the MEDLINE database (National Library of Medicine, Bethesda, MD) from January 1983 to January 2003 using the Medical Subject Headings *liver abscess, focal complications* and *Salmonella*. We also searched manually in journals, and cases with incomplete microbiologic information were excluded. This review yielded only 23 cases of liver abscess due to *Salmonella*[3-9,11-19], including a historical review of extra-intestinal manifestations of *Salmonella* infections during the antibiotic era. In this study, COHEN *et al.* (1987) reported 10 cases of liver abscess since 1950 to 1987[5]. Interestingly, in the AIDS era, only one case has been reported in patients with HIV infection[17].

Salmonella infections occur throughout the abdomen but usually involve the hepatobiliary system and spleen. Cholecystitis is the most frequent intra-abdominal manifestation of salmonellosis and occurs in up to 3% of patients with typhoid fever[5]. Some conditions predispose to intra-abdominal *Salmonella* infections; for example, anatomic anormalies, malignancies, sickle cell disease, history of typhoid fever, ethanol abuse, and gastric achlorhydria[5]. In the case of liver abscess, some preexisting hepatobiliary diseases, including cholelithiasis[4], amebic abscess, echinococcal cysts, intrahepatic hematoma[1], and hepatocelular carcinoma[7,18] have been reported.

Patients with *Salmonella* liver abscess have clinical and laboratory findings similar to those observed in patients with other bacterial hepatic abscesses. Ultrasonography and CT are highly sensitive for the diagnosis of liver abscesses. Pyogenic abscesses can be single or multiple, and *Salmonella* abscesses, like amebic abscesses, are predominantly solitary and located in the right lobe[1,5]. Both ultrasound and CT scan can be used to guide needle aspiration for etiological diagnostic and therapeutic purposes[10].

In endemic areas, aspiration usually is not performed if an amebic abscess is suspected based on clinical, serological and ultrasonographic findings. Aspiration may be indicated in cases with a large left lobe abscess that may rupture into the pericardium and for the occasional patient responding poorly to metronidazole[1]. On the other hand, all pyogenic abscesses should be aspirated to guide antibiotic therapy, which should be started as soon as the diagnosis is suspected, and should be directed at anaerobes and Enterobacteriaceae. An amebic abscess is usually treated with metronidazole. As was the case for our patient, if a solitary right lobe abscess occurs in a young man from an endemic area, despite the finding of bacteria in the aspirate, additional antiamebic therapy should be recommended initially because of the likehood of a secondary infected amebic abscess[10]. Subsequently, microbiologic studies define the appropiate therapy.

Combined surgical and clinical treatment of a *Salmonella* intra-abdominal abscess has a good prognosis in adults[5]. However, survival is higher in patients with cholecystitis (100%) than in patients with either a splenic abscess (87%) or liver abscess (70%)[5].

We conclude that non-*typhi Salmonella* should be included in the differential diagnosis among HIV-infected patients with a single liver abscess, even in regions outside its traditional geographic boundaries. This case also indicates that early treatment with both aspiration with percutaneous catheter drainage and antibiotics seems to determine a good outcome.

RESUMO

Abscesso hepático por *Salmonella enteritidis* adquirido após viagem em paciente com infecção pelo HIV: relato de caso e revisão da literatura

Os pacientes com infecção pelo vírus da imunodeficiência humana (VIH) apresentam maior frequência de bacteremia associada a *Salmonella* não-*typhi*. Porém, complicações focais têm sido raramente descritas. Os autores relatam um caso de abscesso hepático devido a *Salmonella enteritidis* em paciente com infecção pelo VIH que retornou recentemente a São Paulo de uma viagem pelo Caribe. Após drenagem percutânea do abscesso e tratamento antimicrobiano, observou-se melhora clínica e radiológica. Segundo nossa revisão, este é o primeiro caso descrito de abscesso hepático por *Salmonella* não-*typhi* em paciente com infecção pelo VIH no Brasil.

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Received: 10 March 2003
Accepted: 07 April 2003