Hepatic abscess by klebsiella pneumoniae in a type 2 diabetic

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ABSTRACT

Klebsiella Pneumoniae is a potentially lethal superbug whose likelihood of causing pyogenic liver abscess is already known. The following report describes the clinical case of a 65 years old diabetic, who had dark fever, abdominal pain and nausea. The patient had been diagnosed with a pyogenic liver abscess caused by the microorganism *Klebsiella Pneumoniae*. The study aims to emphasize to the public the importance of strict glycemic control to potentially reduce the predisposition to infections. It details the adopted diagnostic approach, therapeutic conduct composed mainly of antibiotic therapy, its clinical evolution and its outcome.

Key-words: Liver abscess; *Klebsiella Pneumoniae*; Diabetes Mellitus.

1 INTRODUCTION

Liver abscess, an infection of the liver parenchyma, is a potentially fatal disease, with high rates of recurrence, the incidence of which was prevalent in Southwest Asia but is increasing in many countries, such as the United States, Denmark, Taiwan. Diabetes mellitus (DM), pre-existing hepatobiliary disease and old age are known risk factors for AH. Among these individuals at risk, diabetics tend to have more serious complications, for which the gram-negative multiresistant bacteria *Klebsiella pneumoniae* (KPC), one of the most lethal bacteria in the world, has shown to be the main pathogen 7. Diabetic patients generally have abnormalities in cell-mediated humoral immune responses, which results in greater susceptibility to infectious diseases. Hypervirulent strains of KPC cause extrahepatic metastatic infections in unusual distant sites, and can cause meningitis, brain abscess, endophthalmitis, endocarditis, septic pulmonary emboli, prostatitis, splenic abscess, osteomyelitis, etc. They have been observed prevalently in patients with dysglycemia. In addition, in vitro studies revealed that, in high glucose media, KP K1 serotypes increased gene expression and increased synthesis of capsular polysaccharide (CPS), which is an important virulence factor for KPC. It was also observed that the phagocytosis of the KP and K2 serotypes of KP by neutrophils was impaired in type 2 diabetic patients with poor glycemic control, being associated with a greater risk for metastatic complications. An unconfirmed but biologically plausible mechanism for this observation is that the metastatic spread by KPC with specific serotypes during bacteremia is due to the loss of permeability or vascular integrity correlated with diabetes mellitus 7. The association with gastric surgery is very rare. We present a case of *Klebsiella* liver abscess with bacteremia. Informed consent was obtained from the patient for this study.

2 CASE REPORT

A 65 years old Amazonian with a previous medical history of diabetes mellitus was admitted to a large hospital in Manaus - Amazonas - Brazil, with complaints of fever of undetermined origin followed by pain in the upper right quadrant of the abdomen, accompanied by vomiting, asthenia, loss of appetite

and weight loss of approximately 10 kg. On physical examination, we identified jaundice +++/3+, alteration in the consistency of the hepatic border, which was more hardened, very painful hepatomegaly and a positive Torres-Men sign. In the history previously, on suspicion of Sars-Cov2, he started prophylactic treatment with Azithromycin 500mg for 5 days, without improvement of fever. An abdominal Computed Tomography (CT) revealed a heterogeneous collection with enhanced contrast medium measuring 12.4 x 8.6 x 6.1 centimeters with a volume of 338 ml, suggestive of liver abscess (Fig. 1).

FIGURE 1: Multilocular liver abscess on computed tomography. Multilocular abscesses are more common than solitary abscesses¹. With permission from E.F.M.

Blood cultures grew *Klebsiella Pneumoniae*. The patient was treated with intravenous ceftriaxone associated with metronidazole. In addition, percutaneous drainage of the liver abscess guided by ultrasonography (USG) was programmed. During hospitalization on the 11th IHL, an ultrasound showed partial resorption of the liver abscess, without the need for drainage by interventional radiology. The antibiotic therapy was replaced by Ciprofloxacin orally, to complete the total of 28 days of treatment. After proper treatment, he progressed well during his course at the hospital and ended up being discharged from the hospital. Soon, he was instructed to perform clinical follow-up and outpatient return. It is important to note that *K. pneumonia* was previously an endemic disease in Southeast Asia, and it is noteworthy that with a population of highly migrant patients, it is currently seen worldwide, therefore, it is urgent to recognize that it must be the differential of diabetic patients who have single or multiple liver mass.

3 CONCLUSÕES

In this review, it was possible to observe that *Klebsiella Pneumoniae* Liver Abscess has its clinical course influenced by Diabetes Mellitus. Therefore, it is possible to conclude that the monitoring of diabetic patients can make a big difference in reducing morbidity, especially in the population with uncontrolled glucose levels.

In order to prevent this disease and minimize its impact, adequate management of diabetes mellitus is essential; likewise, diabetics must obtain an adequate response to glycemic control, so that there is an improvement in the quality of life and prognosis.

So, the therapeutic approach must advance in an attempt to find an effective, safe solution, which specifically corrects the damage caused, without compromising the affected organism.

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