

Salmonella Hepatitis & Colitis: A case report

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Abstract

Salmonella hepatitis it's a rare yet occasionally reported complication of Salmonella infection. The pathophysiological mechanism by which the infection causes liver damage is not completely known. Its cardinal clinical characteristic is jaundice, hepatosplenomegaly, the usual transaminase range is between 300-1000 U/L and an ALT/DHL ratio < 4 is characteristic, which is useful for its distinction from viral hepatitis. Histologically, Kupffer cell hyperplasia and typhoid nodules are the characteristic findings. The prognosis is good with treatment for the infection, however a mortality of up to 20% has been reported.

Keywords: Salmonella; Hepatitis; Colitis.

Introduction

Typhoid fever is a systemic infection transmitted by water or food contaminated with the bacteria Salmonella enterica serotype Typhi and/or Paratyphi A, B, C [1]. According to the World Health Organization (WHO), up to 20 million infections are estimated in the world per year; in Mexico, 70,000 infections are reported per year according to the General Directorate of Epidemiology [2]. Approximately 90% of patients with infection receive ambulatory medical care and present resolution of the typical presentation, characterized by fever, abdominal pain, diarrhea or constipation, and macular rash, with the appropriate use of antibiotics. However, there are less frequent and serious clinical presentations, which include intestinal perforation, hepatitis, and neurological manifestations [1,3].

Case report

We present the case of a 33-year-old man with no medical history who arrived to the hospital emergency department presenting fever with chills, headache, abdominal pain, diarrhea, and jaundice. On physical examination he was found to be dehydrated, with perfusing blood pressure, without tachycardia, febrile at 38°C, icteric tinge, no neurological compromise or signs of abdominal alarm. Blood cultures were taken from two sites, and laboratories were requested, highlighting a blood count with thrombocytopenia of 57,000, with hemo-

globin (Hb) and leukocytes in normal ranges, and coagulation times in normal parameters; in blood chemistry, serum creatinine stood out at 1.79mg/dl, abnormal liver function tests with mixed pattern, alanine aminotransferase (ALT) 240 U/L, aspartate aminotransferase (AST) 392 U/L, alkaline phosphatase 258 U/L, lactic dehydrogenase (DHL) 1176 U/L, gamma glutamyl transferase (GGT) 377 U/L, total bilirubins 14.7 mg/dl, and direct bilirubins 14.4 mg/dl.

In accordance with these findings, viral hepatitis A, B, C and E serology, TORCH profile, Legionella and Leptospira antigen, as well as HIV 1/2 serology were performed, with negative results. Abdominal ultrasound and magnetic cholangioresonance were carried out, showing mild periportal edema, increased volume of the left hepatic lobe, without bile duct dilatation and splenomegaly. The patient was managed with intravenous (IV) hydration with crystalloid fluids, antibiotic therapy with IV carbapenem, and general measures. Forty-eight hours after hospitalization, the isolation in both arms of Salmonella Typhi serotype sensitive to the therapy used was reported in blood cultures. The patient evolved with resolution of fever; however, he presented evidence of digestive tract bleeding characterized by melena and decreased Hb, for which an endoscopy of the upper digestive tract and a colonoscopy were performed, in which multiple fibrin-covered ulcers were found, predominantly in the right colon (Figure 1), biopsies showed necrotizing and non-necrotizing granulomatous active and ulcerated colitis, immunohistochemistry and special stains were negative for the presence of microorgan-

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isms. Due to the persistence of liver enzyme abnormalities and a differential diagnosis with other infectious and non-infectious entities, a percutaneous liver biopsy was carried out, reporting lobular hepatitis with diffuse sinusoidal mononuclear infiltrate and Kupffer cell hyperplasia, necrosis of isolated hepatocytes, multifocal lymphohistiocytic aggregates with the presence of polymorphonuclear cells, lobular and portal-distribution hemophagocytosis, and mild fatty microvesicular and macrovesicular changes (Figure 2), findings consistent with the diagnosis of salmonella hepatitis.

The patient presented a favorable evolution with antibiotic treatment and gradual improvement in liver biochemistry in a two-week period with supportive treatment, antioxidants such as silymarin and ursodeoxycholic acid, with full resolution of clinical and biochemical signs.

Discussion

Salmonella hepatitis was first documented by Osler in 1899 in 8 of 1500 patients with enteric fever. Although liver function tests are abnormal in up to 20% of patients, acute hepatitis only manifests in 1%-2% and is characterized by a greater elevation of liver enzymes and bilirubin [4]. The pathophysiological mechanism by which the infection causes liver damage is not completely known; however, it has been postulated that it may occur by direct invasion of the microorganism or by endotoxemia, with immune system-mediated damage [5]. Its cardinal clinical characteristic is jaundice, hepatosplenomegaly is observed in 50% of the cases and it can be accompanied by neurological manifestations, myocarditis or kidney injury in some patients.

Thrombocytopenia can be observed in up to 25% of the cases; the usual transaminase range is between 300-1000 U/L and an ALT/DHL ratio < 4 is characteristic, which is useful for its distinction from viral hepatitis.

Histologically, Kupffer cell hyperplasia and typhoid nodules are the characteristic findings [6,7]. The prognosis is good with treatment for the infection and general measures; however, a mortality of up to 20% has been reported when treatment is delayed or in patients with severe comorbidities.

According to the literature review carried out, there is no specific treatment for Salmonella hepatitis, other than general measures to combat the infection. In the case presented, silymarin was indicated, a molecule with hepatoprotective activity due to its antioxidant mechanism, which has shown

benefits in multiple forms of liver damage [8], as well as ursodeoxycholic acid, a bile acid that modulates bile metabolism that has been shown to have immunomodulatory effects, as well as its usefulness in patients with liver diseases [9].

Ethical considerations: The authors declare that the bio-ethical protocols of their work center regarding patient data publication were fulfilled. This article was not required to be submitted to an ethics committee assessment due to the type of publication. The authors declare that this article does not contain personal information and that the patient's informed consent was obtained for this publication.

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