

# Acute hepatitis B leading to acute pancreatitis and acalculous cholecystitis

## Abstract

Hepatitis B virus (HBV) infection can result in liver complications such as acute or chronic hepatitis, cirrhosis and hepatocellular carcinoma. Although the virus (HBV) has a greater affinity for hepatocytes, extrahepatic manifestations are described in other organs and systems. Acute acalculous cholecystitis and pancreatitis are described as rare presentations of acute HBV infection. In the present paper, we report the case of a patient with acute viral hepatitis B associated with acute cholecystitis and acute pancreatitis. The patient presented a good response to conservative management.

**Keywords:** acute hepatitis, hbv, acalculous cholecystitis, acute pancreatitis

## Case Report

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Rafael Bergesch D’Incao, Marcelo Campos Appel-da-Silva, Patrícia dos Santos Marcon, Fernanda de Quadros Onófrío, Maritza Bleil de Souza

Department of Gastroenterology, Hospital Mãe de Deus, Brazil

**Correspondence:** Rafael Bergesch D’Incao, Hospital Mãe de Deus, Rua Jose de Alencar, 286, Porto Alegre, RS, Brazil, Tel +55-51-32306000, Email Rafael\_dincao@yahoo.com.br

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**Abbreviations:** HBV, hepatitis B virus; ALT, alanine aminotransferase; AST, aspartate aminotransferase; APACHE-II, acute physiology and chronic health disease classification system II; BISAP, bedside index of severity in acute pancreatitis; HIV, human immunodeficiency virus; HBsAg, reactive hepatitis B surface antigen; IgM anti-HBc, IgM antibodies against hepatitis B core antigen; HBeAg, hepatitis B “e” antigen; Anti-HBs, hepatitis B surface antibody; Anti-HCV, hepatitis C virus antibody

## Introduction

Hepatitis B virus (HBV) infection can result in liver complications such as acute or chronic hepatitis, cirrhosis and hepatocellular carcinoma. In addition to these well-known expressions of HBV, other immune-mediated extrahepatic manifestations are also described, although infrequently.<sup>1</sup>

Acute HBV infection is usually mild and oligosymptomatic, and may not be easily diagnosed in two thirds of cases. Symptoms are frequently non-specific and patients may present with malaise, abdominal pain, nausea, fatigue, jaundice and, rarely, hepatic failure.<sup>2</sup> Acalculous cholecystitis and pancreatitis are rare extra-hepatic complications of acute HBV infection that may be a differential diagnosis of abdominal pain in these patients.<sup>3-5</sup>

## Case presentation

A 63-year-old female patient was admitted to the emergency room, with complaints of malaise, nausea, jaundice and sudden onset of acholia. Her past medical history was significant for the diagnosis of systemic arterial hypertension, dyslipidemia, and depression, and she was taking captopril, atenolol, sertraline, and simvastatin. On presentation, her general condition was good. Her pulse was 90

beats per minute, regular, and of good volume, her blood pressure was 140/80 mmHg and an axillary temperature of 36.8 °C. There was no sign of peritonitis, in the examination of abdomen. Laboratory tests showed alanine aminotransferase (ALT) 3.101 mg/dL, aspartate aminotransferase (AST) 1.413 mg/dL, total bilirubin 6.93 mg/dL, direct bilirubin 5.6 mg/dL, lipase 1.611 mg/dL, leukogram in the normal range, normal renal function, and C-Reactive protein 32.5mg/L. Amylase and lipase were high. An abdominal ultrasound showed a gallbladder with thickened walls, with no pathological content. Diagnosis of acalculous cholecystitis and mild acute pancreatitis, with Ranson score=3, Bedside Index of Severity in Acute Pancreatitis (BISAP)=1, Acute Physiology and Chronic Health disease Classification System II (APACHE-II) score=3 and C-reactive protein <150mg/L. Complementary tests showed reactive hepatitis B surface antigen (HBsAg), positive IgM antibodies against hepatitis B core antigen (IgM anti-HBc), with positive Hepatitis B “e” antigen (HBeAg), negative anti-HBe and HBV-DNA 13.241,999 UI/mL, non-reactive hepatitis C virus antibody (anti-HCV) and non-reactive human immunodeficiency virus (HIV) antibody. With symptomatic treatment and supportive measures, in addition to antibiotic therapy (ampicillin-sulbactam), the patient showed good clinical evolution, with resolution of the cholecystitis and acute pancreatitis. She was discharged from the hospital after being hospitalized for 11 days. There was seroconversion with HBsAg negativity and the appearance of hepatitis B surface antibody (anti-HBs) in the outpatient follow-up.

## Discussion

Although hepatitis viruses have a hepatocyte tropism, their antigens can also be found in the pancreas and gallbladder tissues.<sup>6</sup> Other viral infections are also associated with acute pancreatitis, including mumps, measles, Coxsackie B and Epstein-Barr.<sup>7,8</sup> The

incidence of acute pancreatitis is estimated to be 33% in acute fulminant hepatitis or in hepatitis associated with hepatic failure.<sup>9</sup> In a study that monitored 27 carriers of HBsAg positive in post-liver transplantation, six cases of acute hepatitis were observed, of which four were associated to acute pancreatitis.<sup>10</sup> However, cases associated with non-fulminant acute hepatitis are rarer.<sup>11</sup> Most reports show patients with symptomatic pancreatitis at the beginning of symptoms.<sup>5,11-13</sup> The estimated frequency of acute pancreatitis related to acute viral hepatitis is 5.65%.<sup>5</sup>

In addition to acute pancreatitis, another complication of acute viral hepatitis is acute acalculous cholecystitis, defined as an inflammation of the gallbladder in the absence of calculus or biliary sludge.<sup>14,15</sup> Cases of acute viral hepatitis, both type A and B, associated with acute cholecystitis are found in the literature.<sup>4,15,16</sup> Acute acalculous cholecystitis is a rare condition, accounting for 2-5% of acute cholecystitis, and is usually associated with infections that affect the gallbladder wall, particularly *Salmonella Tphi*, but can also occur in cases of systemic vasculitis, streptococcal infections and abdominal traumas.<sup>14</sup>

Among the pathophysiological mechanisms, we highlight the direct invasion of the virus in the biliary tract and gallbladder wall, according to a previous report in a patient with hepatitis A virus infection.<sup>17</sup> Besides that, HBV can cause local vasculitis, which also appears to have a role in the development of acute cholecystitis.<sup>4</sup> Thus, in the case of acute viral hepatitis, structural and functional changes in the gallbladder can occur, and may result in acute acalculous cholecystitis. However, this is extremely rare, appearing to have a milder course and extremely low mortality.<sup>3</sup>

After a thorough search in the literature we found two reports of acute hepatitis A associated with pancreatitis and cholecystitis,<sup>18,19</sup> two cases of acute non-fulminant viral hepatitis E, presenting with acute pancreatitis<sup>20,21</sup> and a systematic review about Epstein-Barr virus infection causing pancreatitis and cholecystitis.<sup>22</sup> In the present case, we observed a rare occurrence of acute viral hepatitis B associated with acute pancreatitis and acute cholecystitis, which also had clinical improvement with conservative management. We believe that this association may be underdiagnosed, mainly due to its oligosymptomatic presentation. In the outpatient follow-up, the patient presented seroconversion with HBsAg negativation and increase of anti-HBs.

## Acknowledgements

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## Conflict of interest

The authors declare no conflict of interest.

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