Case Report

Acute Acalculous Cholecystitis due to Viral Hepatitis A

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Inflammation of the gallbladder without evidence of calculi is known as acute acalculous cholecystitis (AAC). AAC is frequently associated with gangrene, perforation, and empyema. Due to these associated complications, AAC can be associated with high morbidity and mortality. Medical or surgical treatments can be chosen according to the general condition of the patient, underlying disease and agent. Particularly in acute acalculous cholecystitis cases, early diagnosis and early medical treatment have a positive effect on the patient and protect them from surgical trauma. AAC is a rare complication of acute viral hepatitis A. Herein, we present an adult patient of acalculous cholecystitis due to acute viral hepatitis A. She responded to the conservative management.

1. Introduction

Hepatitis A is generally an acute, self-limited infection of the liver by an enterically transmitted hepatitis A virus (HAV). Infection may be asymptomatic or result in acute hepatitis, and rarely, fulminant hepatitis can ensue. Recognized complications of hepatitis A include cholestasis, prolonged and relapsing disease, fulminant hepatitis, and triggering of chronic active autoimmune extrahepatic disease [1]. Acute acalculous cholecystitis (ACC) is a rare complication of acute viral hepatitis [2]. Although the origin is obscure, demonstrated invasion of the gallbladder and bile duct epithelium by HAV and cell-mediated immunologic response have been proposed in the pathogenesis of HAV infection induced cholecystitis [3, 4]. Herein, we report a case of acalculous cholecystitis due to acute viral hepatitis A along with the published literature.

2. Case Report

A 31-year-old female patient was admitted to the hematology department because of pancytopenia in February 2013. She had nausea, loss of appetite, back and joint pain, darkening of urine, and abdominal pain for 10 days. Her medical history was unremarkable. There was no history of medication or drug abuse. Physical examination showed body temperature of 37.5°C, heart rate of 92/minute, and blood pressure of 110/60 mmHg. Scleral icterus was present. The right side of the abdomen was tender with painful fullness in the right hypochondrium (a positive Murphy’s sign). Her liver was painful and palpable 3 cm under right costal margin. After examination, she was referred to general surgery with a diagnosis of acute cholecystitis, and surgery was planned. Laboratory investigations revealed microcytic anemia, leukopenia, and thrombocytopenia, elevated levels of
and accuracy are 97.8 and 96.1%, respectively. Treatment is ultrasound for detection of AAC is 88.9%, and the specificity of the intra- and extrahepatic bile ducts. The sensitivity of (4) perivesical liquid accumulation; and (5) no dilatation wall.

The ultrasonographic criteria for diagnosing AAC include suspected clinically and then confirmed through ultrasound. Her symptoms regressed with in four days, I.V. metoclopramide, and I.V. ranitidin with low fat and high carbohydrate diet. Hersymptomsregressedwithinfourdays, a close followup, with indications for urgent cholecystectomy in cases of gangrene or perforation of the gallbladder wall [8]. HAV induced AAC has been very rarely reported. Indeed, by searching the MEDLINE database for published articles using the words “acalculous cholecystitis” and “viral hepatitis A,” we identified only 20 reports in the literature, including twenty-two patients with ACC due to acute viral hepatitis A [2, 3, 8–24] of which fifteen had appropriate information for analysis (Table 2). Four of these publications were in adults [9, 11, 13, 22].

Ozaras et al. [11] described two adult patients (28 and 20 years of age) with acute cholecystitis due to HAV infection. Both patients had acute HAV infection documented by biochemical, serologic, and clinical features. Cholecystitis developed during the course of the disease but did not lead to an acute phase response and required neither administration of antibiotics nor surgical intervention. With a close followup, both of the patients had fully recovered. Melero Ferrer and coworkers [14] reported a 39-year-old woman with fever, abdominal pain, and moderately elevated transaminase levels who developed jaundice and peritoneal irritation. Diagnosis of acute cholecystitis was given by abdominal ultrasound and magnetic resonance imaging. The patient underwent surgery. In the postoperative period, positive IgM antibody titers for HAV were obtained, confirming the diagnosis of HAV infection. Ultrasonography showed a slightly distended gallbladder containing echogenic bile. Laparotomy revealed a distended gallbladder with areas of necrosis. Dalgic et al. [12] presented case had acute HAV infection with acalculous cholecystitis developed during the course of the disease. Surgical intervention was not required in their patient. A repeated imaging with ultrasonographic findings regressed after 4 days of admission. Mourani et al. [9] described a patient with acute cholecystitis due to HAV infection. They detected the HAV antigen immunohistochemically in the gallbladder which was removed by laparoscopy. This patient was operated on considering a diagnosis of cholecystitis with ascending cholangitis. Both ultrasonography and retrograde cholangiopancreatogram showed thickening of the gallbladder wall.

Acute hepatitis A virus (HAV) infection is frequently encountered in developing countries especially in children [11]. In our country, anti-HAV IgG positive rate in adult patients is between 85 and 100% in different studies [25]. Our

| Day(s) | WBC (4.1–11.2 × 10^3/L) | Hb (12.5–16 gr/dL) | Platelet (150–400 × 10^3/L) | ALT (0–40 U/L) | AST (0–41 U/L) | GGT (5–61 U/L) | ALP (<240 U/L) | Total bilirubin (0–1.2 mg/dL) | Direct bilirubin (0–0.3 mg/dL) |
|--------|--------------------------|-------------------|--------------------------|----------------|---------------|---------------|--------------|-------------------------------|-------------------------------|
| 1st    | 3.3                      | 9.5               | 139                       | 618            | 559           | 147           | 371          | 2.11                          | 1.92                          |
| 4th    | 2.2                      | 8.3               | 138                       | 533            | 360           | 120           | 148          | 1.45                          | 0.92                          |
| 7th    | 3.0                      | 8.9               | 190                       | 247            | 88            | 172           | 269          | 1.19                          | 0.53                          |
| 20th   | 4.4                      | 10.6              | 275                       | 36             | 27            | 57            | 196          | 0.63                          | 0.2                           |

3. Discussion

Inflammation of the gallbladder without evidence of calculi is known as ACC [5]. AAC is frequently associated with gangrene, perforation, and empyema. Due to these associated complications, AAC can be associated with high morbidity and mortality [6]. The pathophysiology of the acalculous cholecystitis during acute viral hepatitis is not clear: hypoaalbunemia, local extension of the hepatic inflammatory process, and elevated portal pressure all could be reflected as the edema of the gallbladder wall [7]. The diagnosis is suspected clinically and then confirmed through ultrasound. The ultrasonographic criteria for diagnosing AAC include (1) gallbladder distention; (2) thickening of the gallbladder wall (>3.5 mm); (3) no acoustic shadow or biliary sludge; (4) perivesical liquid accumulation; and (5) no dilatation of the intra- and extrahepatic bile ducts. The sensitivity of ultrasound for detection of AAC is 88.9%, and the specificity and accuracy are 97.8 and 96.1%, respectively. Treatment is initially conservative, with indications for urgent cholecystectomy in cases of gangrene or perforation of the gallbladder wall [8]. HAV induced AAC has been very rarely reported. Indeed, by searching the MEDLINE database for published articles using the words “acalculous cholecystitis” and “viral hepatitis A,” we identified only 20 reports in the literature, including twenty-two patients with ACC due to acute viral hepatitis A [2, 3, 8–24] of which fifteen had appropriate information for analysis (Table 2). Four of these publications were in adults [9, 11, 13, 22].

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Table 1: Laboratory findings of the patient during the follow-up period (ALP: alkaline phosphatase; ALT: alanine transaminase; AST: aspartate transaminase; GGT: gamma-glutamyltransferase; Hb: hemoglobin; WBC: white blood cells).

| Day(s) | Parameter | ALP (0–40 U/L) | AST (0–40 U/L) | GGT (5–61 U/L) | ALP (<240 U/L) | Total bilirubin (0–1.2 mg/dL) | Direct bilirubin (0–0.3 mg/dL) |
|--------|-----------|---------------|---------------|---------------|--------------|-------------------------------|-------------------------------|
| 1st    | WBC (4.1–11.2 × 10^3/L) | Hb (12.5–16 gr/dL) | Platelet (150–400 × 10^3/L) | ALT (0–40 U/L) | AST (0–41 U/L) | GGT (5–61 U/L) | ALP (<240 U/L) | Total bilirubin (0–1.2 mg/dL) | Direct bilirubin (0–0.3 mg/dL) |
| 4th    | 2.2       | 8.3           | 138           | 533            | 360          | 120           | 148          | 1.45                          | 0.92                          |
| 7th    | 3.0       | 8.9           | 190           | 247            | 88           | 172           | 269          | 1.19                          | 0.53                          |
| 20th   | 4.4       | 10.6          | 275           | 36             | 27           | 57            | 196          | 0.63                          | 0.2                           |
case is an adult patient. Looking at the literature, majority of the cases are children. Hepatitis A virus infection should be considered as a cause of acute acalculous cholecystitis in adult patients, in countries in which the disease is mainly passed in childhood such as our country.

The treatment of AAC varies depending on the clinical presentation. Most cases are self-limited, and the gallbladder may spontaneously decompress with treatment of the underlying systemic disease within approximately two weeks. Associated complications such as gallbladder perforation and deterioration of abdominal signs have been suggested as indications for surgery [16]. Eleven of fifteen patients that had appropriate information for analysis in previous reports were managed conservatively [8, 11–13, 15, 16, 18–20] and others with surgical intervention [2, 9, 10, 14].

The case reported here is an adult patient who presented with HAV, which was confirmed serologically, and symptoms suggestive of acute cholecystitis with pancytopenia. Ultrasonographic examination revealed the diagnosis of acalculous cholecystitis which required neither antibiotic treatment nor surgical intervention. The anemia was due to iron deficiency which improved with oral iron supplements, and

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**Table 2: Review of the clinical presentation, ultrasound findings with treatment modalities, and outcomes of patients with acalculous cholecystitis due to viral hepatitis A published in the literature (F: female; M: male; NA: not available; USG: ultrasonography).**

| Publication, author, and year, (Ref.) | Cases, n | Age, year/sex | Clinical presentation | USG | Treatment | Follow-up time, months | Outcome |
|--------------------------------------|----------|---------------|-----------------------|-----|-----------|------------------------|---------|
| Black and Mann 1992 [2]              | 1        | 6/M           | NA                    |     | Surgery   | NA                     | NA      |
| Mourani et al. 1994 [9]              | 1        | 68/M          | Fever, nausea, vomiting, and chills |     | Surgery   | 1                      | Cure    |
| Ciftci et al. 2001 [10]              | 1        | 7/M           | Abdominal pain, distention, icterus, and fatigue |     | Surgery   | 6                      | Cure    |
| Ozaras et al. 2003 [11]              | 1        | 28/M          | Malaise, abdominal pain, dark urine, and anorexia |     | Surgery   | 3                      | Cure    |
| Dalgic et al. 2005 [12]              | 1        | 20/F          | Fever, fatigue, nausea, vomiting, malaise, pruritus, and anorexia |     | Conservative therapy | 6                      | Cure    |
| Kayabas et al. 2007 [13]             | 1        | 15/M          | Fever, nausea and vomiting, abdominal pain, loss of appetite, dark urine, and pale stool |     | Conservative therapy | 1                      | Cure    |
| Melero Ferrer et al. 2008 [14]       | 1        | 39/F          | Fever, abdominal pain, and jaundice |     | Surgery   | 1                      | Cure    |
| de Souza et al. 2009 [8]             | 1        | 16/M          | Abdominal pain, fever, nausea, vomiting, and cephalalgia |     | Conservative therapy | NA                    | NA      |
| Arroud et al. 2009 [15]              | 1        | 11/E          | Fever, asthenia, vomiting, and abdominal pain |     | Conservative therapy | 1                      | Cure    |
| Suresh et al. 2009 [16]              | 1        | 2.5/F         | Fever, nausea and vomiting, abdominal pain, loss of appetite, dark urine, and pale stool |     | Conservative therapy | NA                    | NA      |
| Arcana et al. 2011 [17]              | 1        | 14/M          | Abdominal pain, nausea, fever, and jaundice |     | NA        | NA                    | NA      |
| Hasosah et al. 2011 [18]             | 1        | 13/F          | Fever, vomiting, and jaundice |     | Conservative therapy | NA                    | Cure    |
| Herck et al. 2011 [19]               | 1        | 9/M           | Nausea, vomiting, fever, and abdominal pain |     | Conservative therapy | 6                      | Cure    |
| Prashanth et al. 2012 [20]           | 1        | 12/F          | Abdominal pain and vomiting |     | Conservative therapy | 6                      | Cure    |
leukopenia and thrombocytopenia were normalized during the followup (Table 1).

In conclusion, however, ACC is an extremely rare complication of acute viral hepatitis A, and mortality from ACC in patients with viral hepatitis A is extremely low in comparison to ACC of other origins that need urgent surgical intervention. It should be kept in mind that acute viral cholecystitis can develop during the course of acute HAV infection. Hence, conservative therapy may be adequate, so we can avoid unnecessarily invasive procedures.

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