Acute Acalculous Cholecystitis in a Teenager with Hepatitis A Virus Infection – A Case Report

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Acute viral hepatitis A is a common systemic infection in children, especially in developing countries. Acute acalculous cholecystitis in the course of this infection is a rare and poorly reported event that needs to be diagnosed because of the possibility of complications, such as gangrene and perforation of the gallbladder wall. We present the case of a 16-year-old teenager with clinical and ultrasonographic findings of acalculous cholecystitis during an episode of hepatitis A virus infection, which took place December 2007 in Plantadores de Cana Hospital.
Key-Words: Acute viral hepatitis A, acute acalculous cholecystitis.

Hepatitis A is a benign viral infection (HAV), self-limiting, common in childhood [1-5] and frequent in developing countries [2]. Even though the majority of cases are asymptomatic, clinical presentation can begin with nausea, vomiting, diarrhea, fever and jaundice. Usually the recovery period ranges from two to three weeks. The main laboratorial alterations are: leukopenia, lymphocytosis, signs of altered hepatic functions and hepatitis IgM serology. Thrombocytopenia alone is a marker of severity [6]. The main complications of HAV are acalculous cholecystites [1,2,4,7-12], ascites, pleural effusion [1,5,9] and acute renal failure [13-15].

Acute acalculous cholecystitis (AAC) is inflammation of the gallbladder free from calculi, clinically characterized by a state of typical biliary pain, jaundice, and mass in the right hypochondrium, which often is perceived as acute abdominal pain. The diagnosis is suspected clinically and then confirmed through ultrasound. When there is a delay in diagnosis, gangrene or perforation of the gallbladder wall can occur.

We report a case of acute acalculous cholecystitis as a complication of acute viral hepatitis A in a male teenager.

Case Report

The patient, F.J.S.R.J., a 16-year-old male, born and raised in Campos dos Goytacazes, had complaints of abdominal pain, fever, nausea, vomiting and cephalalgia; he was admitted during the sixth day of evolution to the Plantadores de Cana Hospital. His medical history was unremarkable; there was no history of drug hypersensitivity or drug abuse. On physical examination, he presented fatigue, diffuse abdominal pain to superficial and deep palpation, and no abdominal masses or signs of peritoneal irritation. On the following day, laboratory studies revealed leukopenia with lymphocytosis and absence of band neutrophils, thrombocytopenia, decreased erythrocyte sedimentation rates (ESR), hyperbilirubinemia, mostly due to an increase in direct bilirubin, a large increase in liver enzymes levels, and anti-HIV serology and dengue fever antigen both negative. Only symptomatic medication was administered to the patient and he maintained similar clinical and laboratory findings during five days.

On the 11th day of illness, the patient's general state worsened. His abdominal pain and vomiting frequency increased, and he developed choluria and mild jaundice. Physical examination revealed a distended abdomen, with pain in the right upper quadrant, positive Murphy and Blumberg signs and reduced peristaltic sounds. Laboratory studies found leukopenia, increased total bilirubinemia liver enzymes, prolonged prothrombin time (PT), serum amylase and lipase within normal limits, negative anti-dengue fever IgM serology and positive hepatitis A IgM serology (using The Abbott Axsym microparticle enzyme immunoassay method). Abdominal ultrasound did not show dilation and tortuosity of the intra and extra hepatic bile ducts; his gallbladder wall was thickened (7.0 mm) and surrounded by echogenic content; there was no lithiasis inside the gallbladder (Figure 1). When the surgeon was contacted, he decided to follow a conservative treatment.

On the 16th day of illness, the patient had an improvement in his general state. Complementary exams showed a marked decrease in liver enzymes, normalization of the PT and persistence of hyperbilirubinemia due to direct and indirect bilirubin levels. On ultrasound scan, the liver appeared with enlarged dimensions, a smooth surface and homogeneous echogenicity (Figure 2); the gallbladder presented with the same aspect as previously (Figure 3) and a small quantity of fluid was visible at the anterior wall of the liver (Figure 4). The results of laboratory tests are shown in Table 1.

Fourteen days after admission, symptoms and signs gradually regressed. The patient was dismissed from the hospital and was referred to outpatient monitoring.

Discussion

The case report here describes a hepatitis A virus infection that developed into severe acalculous cholecystitis. This complication is rare and poorly reported in the international literature [1-5]; this is the first Brazilian report of this type of event.

Even though the majority of cases are asymptomatic, the clinical presentation can begin abruptly with nausea, vomiting, diarrhea, fever, jaundice, asthenia, reduced appetite and

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Table 1. Main laboratorial inpatient data of the patient with acute acalculous cholecystitis.

Laboratory tests	Admission	11th day of illness	16th day of illness
Ht (%) / Hg (g/dL)	41.7 / 14.2	40.3 / 13.7	36.7 / 12.5
Leukocytes (/uL)	2,360	3,710	4,010
Lymphocytes (%)	47.1	23.5	28.4
Band neutrophils (%)	0	0	0
Platelets (/uL)	112,000	224,000	290,000
ESR (mm/h)	6	-	-
TB / DB / IB (mg/dL)	5.01 / 3.69 / 1.32	6.72 / 5.93 / 0.79	10.9 / 7.50 / 3.40
ALT / AST (U/L)	1046 / 1265	2210 / 2080	769 / 191
Glucose (mg/dL)	122	75	108
Urea (mg/dL)	36	14	15
Creatinine (mg/dL)	0.9	0.35	0.4
Amylase / Lipase	-	38 / 53	-
Sodium /Potassium (mEq/L)	138 / 4.0	144 / 4.7	-
PT (seconds) / INR	-	20 / 1.82	13 / 1.15
Dengue antigen	not reactive	-	-
HIV serology	not reactive	-	-
Dengue IgM serology	-	not reactive	-
Hep A IgM serology	-	Reactive	-

Ht: hematocrit; Hg: hemoglobin; ESR: erythrocyte sedimentation rate; TB: total bilirubin; DB: direct bilirubin; IB: indirect bilirubin; ALT: alanine aminotransferase; AST: aspartate aminotransferase; PT: prothrombin time; INR: international normalized ratio; Hep A: hepatitis A.

abdominal distention. Usually the recovery period ranges from two to three weeks, with no development of a chronic infection or a carrier state. The main laboratorial alterations are: leukopenia, lymphocytosis, signs of altered hepatic functions and hepatitis A IgM serology. Specific laboratorial findings indicate a greater possibility of complications, such as thrombocytopenia, which alone is a marker of severity [6]. Kim et al. [6] found that a group of patients with hepatitis A that presented thrombocytopenia not only had delayed recovery, but also had more frequent complications.

The possible complications of HAV are acalculous cholecystites [1,2,4,7-12], ascites, pleural effusion [1,5,9], transitory sinus bradycardia [13], acute renal failure [14,15], massive hepatic necrosis and fulminating hepatitis, the latter two complications being more common in the elderly. Acute acalculous cholecystitis (AAC) is the inflammation of the gallbladder free from calculi, clinically characterized by a state of typical biliary pain, jaundice, and a mass in the right hypochondrium, which many times simulates acute abdominal pain. 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 (>3.5mm); (3) no acoustic shadow or biliary sludge; (4) perivesical liquid accumulation [16], and (5) no dilation of the intra- and extra hepatic bile ducts [17]. The sensitivity of ultrasound for detection of AAC is 88.9%, the specificity and accuracy are 97.8 and 96.1%, respectively [18]. Treatment is initially conservative [10,16], with indications for urgent cholecystectomy in cases of gangrene or perforation of the gallbladder wall.

Mourani el al. [1] reported a case of AAC caused by HAV in which a cholecystectomy was performed, followed by a biopsy with pathological and immunohistochemical analysis.

Figure 1. Ultrasonography - thickness of the gallbladder wall (7.0 mm).

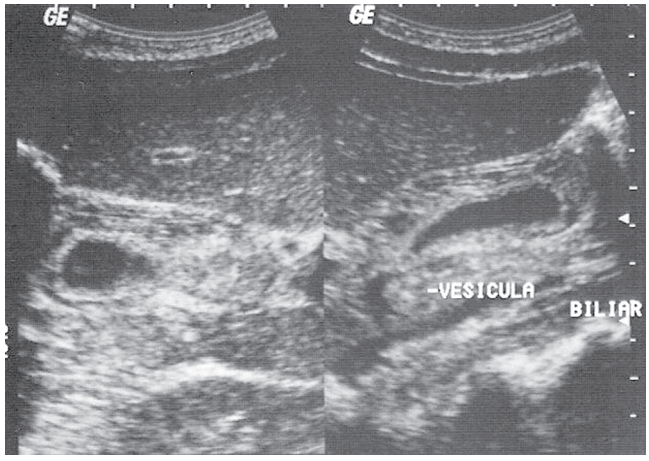


Figure 2. Ultrasonography – hepatomegaly.

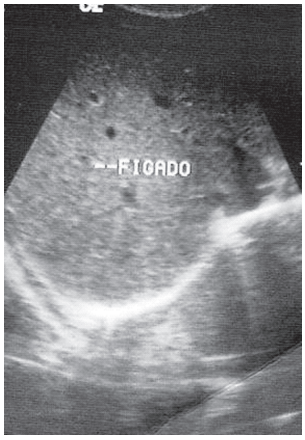


Figure 3. Ultrasonography - thickness of the gallbladder wall.

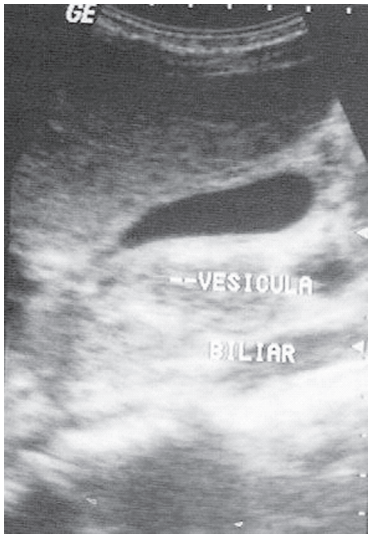
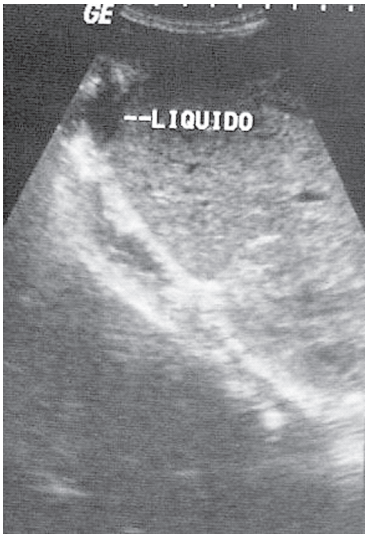


Figure 4. Ultrasonography – small quantity of fluid at the anterior wall of the liver.



Microscopic examination revealed severe portal inflammation, pericholangitis, hepatic cholestasis and lymphocytes in the gallbladder. The immunohistochemical analysis revealed the viral antigen in the gallbladder epithelium and in the intra- and extrahepatic bile ducts. These findings suggest three possible physiopathological mechanisms of AAC associated with hepatitis A. The presence of lymphocytes in the gallbladder inflammatory process suggests that the lesion is mediated by immunological mechanisms. The presence of the viral antigen in the biliary epithelium is consonant with direct viral invasion coming from the liver, while the presence of the antigen in the bile ducts suggests ascendant infection.

The case reported here referred to an adolescent who presented HAV, confirmed sorologically, with thrombocytopenia at the beginning of the disease, developing by the 11th day of disease, with symptoms suggestive of acute cholescystitis. On ultrasound examination, the vesicular inflammatory process was confirmed; however, no calculi or indirect signs of lithiasis were found. Thus, AAC was confirmed, based on the ultrasonographic criteria mentioned above.

Despite the severity of the patient's clinical manifestations, the patient received a conservative treatment under assisted monitoring. Clinical evolution was favorable, thus, surgical intervention was not necessary.

Conclusion

Acute acalculous cholecystitis is a rare complication of hepatitis A. Although there are only a few cases in the literature in which the clinical state is suggestive of cholecystitis during HAV, especially in the presence of thrombocytopenia, it is important to take into account the possibility of acute acalculous cholecystitis due to the complications it may cause, such as gangrene and perforation of the gallbladder wall.

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