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Acute pancreatitis by Ascaris lumbricoides: case report and literature review

Pancreatite aguda por áscaris lumbricoides: relato do caso e revisão de literatura

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ABSTRACT: Infection by *Ascaris lumbricoides* represents a common pathology in Brasil and in other underdeveloped regionalities. The location of the worm in gallbladder is rare and when there is an important clinical picture, this hypothesis should be raised as a differential diagnosis in relation to other diseases of the gallbladder tree. We report here a case of a 65-year-old patient admitted in emergency due to pancreatitis caused by ascaris in gallbladder, which later progressed to an alarming condition of multiple organ dysfunction.

Key-words: Ascaris lumbricoides; Pancreatitis; Gallbladder.

RESUMO: A infecção parasitária pelo *Ascaris lumbricoides* representa um acometimento comum no Brasil e em outras regionalidades subdesenvolvidas. A localização do verme em vesícula biliar é rara e quando há presença de quadro clínico importante, essa hipótese deve ser levantada como diagnóstico diferencial frente a outras doenças da árvore biliar. Relatamos o caso de paciente de 65 anos admitido em emergência devido à pancreatite por etiologia de áscaris em vesícula biliar, o qual, posteriormente, evoluiu para quadro alarmante de disfunção de múltiplos órgãos.

Palavras-chave: Ascaris lumbricoides; Pancreatite; Vesícula biliar.

INTRODUCTION

Parasitosis by the nematode Ascaris lumbricoides is a very common condition, but the presence of the worm in the gallbladder is unusual[1]. Found especially in endemic places and areas of poor sanitation, just like in some regions of Brazil, the worm is transmitted through fecal-oral route[2]. Its installation in the gallbladder may be asymptomatic or produce some constitutional symptoms, progress to cholecystitis, cholangitis, pancreatitis, and even worse complications[1,3]. Early diagnosis and treatment is difficult, increasing the risk of complications due to the installation and accentuated reproduction of the worm in the biliary tree. Thus, the suspicion of ascaris should be raised in patients living in endemic areas who have a biliary condition that is not characteristic of calculous biliary disease. The aim of this paper is to report a case of acute pancreatitis due to ascaris in the gallbladder in a 65-year-old patient, which later progressed to an alarming setting of multiple organ dysfunction and, at the same time, to perform a literature review regarding this condition.

CASE REPORT

A 65-year-old male patient, hypertensive, morbid obesity, with no history of alcoholism, was admitted to

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the emergency because of acute abdominal pain with onset two days ago, accompanied by fever (38.3 C) and a single episode of vomiting. Physical examination revealed jaundice (++/++++), pain on palpation in the epigastrium and right hypochondrium. Laboratory tests showed amylase 1286 U/L, lipase 1147 U/L, slight alteration in hepatic enzymes, and other results without specifications. Computed tomography (CT) of the abdomen suggested uncomplicated acute pancreatitis. Abdominal ultrasonography (US) showed an image suggestive of ascariasis (Figure 1).

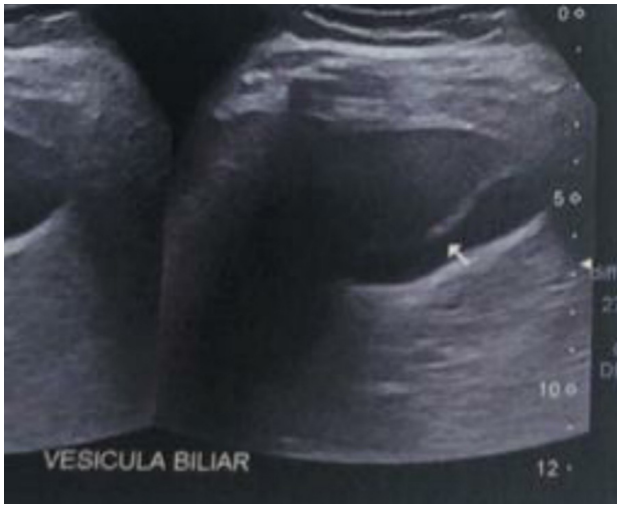

Figure 1: *Ascaris lumbricoides* in gallbladder in ultrasonography (US)

After fasting, analgesia and hydration during three days, there was clinical resolution of pancreatitis. The patient underwent laparoscopic cholecystectomy five days after admission, without any complication, discharged on the following day (Figure 2).

Figure 2: Gallbladder specimen in videocolecystectomy surgery for removal of Ascaris lumbricoides, approximately 10 cm.

After a week, the patient returned to the emergency complaining of weakness and fever. He denied abdominal pain, but reported episodes of hematoquezia, with no changes on physical examination. Laboratory tests showed hemoglobin (hb) of 6.9 g/dL, hematocrit 20%, amylase 111 U/L, and no other changes. An abdominal CT was requested and showed no signs of pancreatitis, but indicated pararenal fluid on the left side, thickening of retroperitoneal fascias, and a lesion in the left hepatic lobe. The patient was admitted to the hospital, so antibiotic therapy and blood transfusion were requested. The patient progressed with improvement of the symptoms and laboratory tests in hemogram, however the renal function (creatinine 3.0 mg/dL and urea 81 mg/dL), leukogram (leukocytes 20,000/mm3), and amylase (234 U/dL) got worse. Cholangiography was requested, which was not performed because the patient's weight was not compatible with the equipment. After ten days, a new abdominal CT was performed, which identified an increased hepatic lesion, peripancreatic collections, splenomegaly and free fluid in the cavity. A nasoenteric tube was requested, but the patient bronchoaspirated and evolved with poor oxygen saturation. The patient got hypotensive and a chest X-ray confirmed aspiration pneumonia. Due to the clinical worsening, the patient was sedated, intubated, and transferred to the Intensive Care Unit (ICU) of another institution, where he had a bad evolution, with no conditions to perform hemodialysis, dying four days later, probably because of renal failure and septic shock by pulmonary focus.

DISCUSSION

Ascaris lumbricoides is the largest nematode wich lives in the human intestine and it is one of the most common human helminth infections worldwide[1,4]. It is mostly present in tropical and subtropical environments[1], especially in underdeveloped regions, such as Asia, Africa, and South America, in this order[4], with poor resources and basic sanitation. Transmission of this parasite occurs by the fecal-oral route[2], by the ingestion of eggs present in food contaminated with feces containing these eggs. Most often, the parasite is seen in the small bowel[1] - so one of the possible complications of intestinal ascariasis includes hepatobiliary involvement, and the invasion of the biliary tract by the worms is justified by some authors as a tendency of these organisms to penetrate walls and small orifices[4].

The occurrence in the gallbladder is rare, present in only 2.1% of the cases affected by this pathology[1,5,6]. This occurs because the intrinsic anatomy of the biliary tree is a strong determinant of worm migration, considering the tortuosity and angulation of the cystic duct[1,5,7].

Ascariasis usually affects children[4]. The involvement of pregnant women increases because the hormone level facilitates the entry of the worm into the sphincter of Oddi[3].

Ascariasis usually does not produce symptoms[8]. When symptomatic, ascaris infection may range between abdominal and pulmonary manifestations, this one with early onset of cough and pulmonary wheezing[4]. At the late stage, manifestations start six to eight weeks after the ingestion of eggs and it is mostly intestinal, with abdominal discomfort, anorexia, nausea, vomiting, and diarrhea[4].

Hepatobiliary involvement by the worm can cause cystic duct obstruction, gallbladder dilatation, biliary colic and stenosis, acalculous cholecystitis, cholangitis, nausea, obstructive jaundice, liver abscesses, and bile duct perforation[1,3]. Biliary complications can mimic acute cholangitis or cholecystitis if there is an obstruction of the main bile duct or cystic duct, respectively. They can also cause acute pancreatitis, just as in this case, due to obstruction of the papilla of Vater and/or the main pancreatic duct[1,3]. Despite its benign prognosis, the parasitosis may be associated with other complications, such as intestinal obstruction by worm mass, acute appendicitis, peritoneal granulomas, volvulus and small bowel intussusception[9]. Laboratory tests do not show important specificities, but may show eosinophilia, indicating suspicion of helminth infection[9].

The chosen modality for diagnosing gallbladder ascariasis is focused on ultrasonography, which can identify the movement of live worms and their erratic path[1,3,5]. The worm has a lengthy, linear and tubular conformation, with an hyperechogenic structure. It is also possible to visualize, in some cases, thickening of the gallbladder wall, absence of acoustic shadow and a "target sign"[10]. In addition, when there is suspicion of invasion of the biliary tree or pancreatic duct by the parasite, it can be investigated through endoscopic retrograde cholangiopancreatography (ERCP), since diagnostic and therapeutic can be done[10]. However, this method is more expensive and invasive. The hospital where the patient was admitted did not have ERCP, which could have diagnosed and treated a possible obstruction of the pancreatic duct by a smaller worm. Also, there did not have an ICU, where the patient could have started intensive treatment.

The treatment for this parasitosis consists of conservative or anthelmintic therapy. In case of the biliary involvement, drug therapy has reduced excretion, so its use is limited[3,11]. Initial management with a conservative approach is an option, as long as there are no complications. However, in some cases, endoscopic or surgical removal of the worm is required. Some indications for the invasive approach are: failure of conservative treatment, presence of a worm trapped in the biliary tree, and worm associated with calculi[9].

Although the patient is asymptomatic and the physical and laboratory exams are normal, the use of transoperative cholangiography during laparoscopic cholecystectomy could show the presence of other worms in the biliary tract.

CONCLUSION

In conclusion, ascariasis involving the hepatobiliary system is a rare clinical entity. The diagnosis is difficult, since clinical suspicion is required. This pathology should be considered, especially in patients with a history of jaundice and upper abdominal pain with a risk factor of exposure to the pathogen and without an elucidated cause. Although it is benign and uncomplicated condition, usually with spontaneous resolution, there are some complicated and potentially fatal cases, so this condition should be suspected, recognized, and treated early. The initial management with a conservative approach is an option. However, after individualizing the case, endoscopic or surgical removal of the worm may be required.

Contribution of the authors: Nathalia Beck Corrêa: literature review and article writing; Fernanda Marcante Carlotto: structure and article writing; Luiza Seganfredo Mainardi: literature review and article review; Alessandra Morassutti: article review.

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