

CASO CLÍNICO / CLINICAL CASE

Ascaridíase: uma causa inesperada de icterícia obstrutiva complicada por colangite aguda numa zona urbana

Ascariasis as an unexpected cause of obstructive jaundice with ascending cholangitis in an urban area

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/ **Resumo**

Introdução: Ascaridíase é uma das infeções helmínticas mais comuns no mundo em humanos. A migração do *Ascaris lumbricoides* para a árvore biliar pode causar patologia hepatobiliar e pancreática. No entanto, a infestação da vesícula biliar é rara. Apresentamos um caso de icterícia obstrutiva complicada com colangite aguda por ascaridíase biliar (ductos biliares e vesícula biliar) num doente residente numa zona urbana.

Descrição do caso: Homem de 52 anos que recorreu ao serviço de urgência por temperatura subfebril, icterícia e dor no quadrante superior direito do abdómen. Parâmetros laboratoriais compatíveis com citocolestase hepática, com predomínio de colestase. Na ecografia abdominal, presença de dilatação dos ductos biliares intra e extra-hepáticos e vesícula biliar repleta de múltiplas estruturas lineares, tubulares e ecogénicas sugestivas de *Ascaris lumbricoides*. O doente foi tratado conservadoramente com sucesso, com terapêutica anti-helmíntica, assistindo-se à expulsão espontânea do *Ascaris* para o duodeno, confirmada por controlo imagiológico posterior.

Conclusão: O *Ascaris* é uma causa incomum de obstrução da via biliar nos países desenvolvidos e raramente migra para a vesícula biliar. O tratamento médico é eficaz, reservando-se a terapêutica endoscópica e cirúrgica para os doentes não responsivos à abordagem conservadora e àqueles que apresentem complicações.

Palavras-chave: *Ascaris lumbricoides*; Colangite; Vesícula biliar; Terapêutica anti-helmíntica

/ Abstract

Introduction: *Ascariasis* is one of the most common helminthic human infections worldwide. Migration of adult *Ascaris lumbricoides* into the biliary tree can cause hepatobiliary and pancreatic diseases. However, infestation of the gallbladder with ascaris worms is rare. We presented a case report of obstructive jaundice complicated with acute cholangitis by biliary ascariasis (biliary duct and gallbladder) in a patient coming from an urban area.

Case report: 52 years-old man, presenting with low fever, jaundice and right hypochondrium pain. Laboratory findings showing liver cytolysis and cholestasis with predominance of the latter. On ultrasonography of the abdomen presence of dilated main biliary tract and gallbladder with multiple linear echogenic, tubular, parallel lines inside suggesting *Ascaris lumbricoides*. The patient was treated conservatively with success using anthelmintic drug and there was spontaneous expulsion of the worms back to the duodenum confirmed by following radiologic exams.

Conclusion: *Ascaris* is an uncommon cause of biliary obstruction in developed countries and rarely the worm migrates to the gallbladder. Medical treatment is effective, reserving the endoscopic and surgical approach for the non-responsive patients or in the presence of complications.

Keywords: *Ascaris lumbricoides*; Cholangitis; Gallbladder; Anthelmintic drug

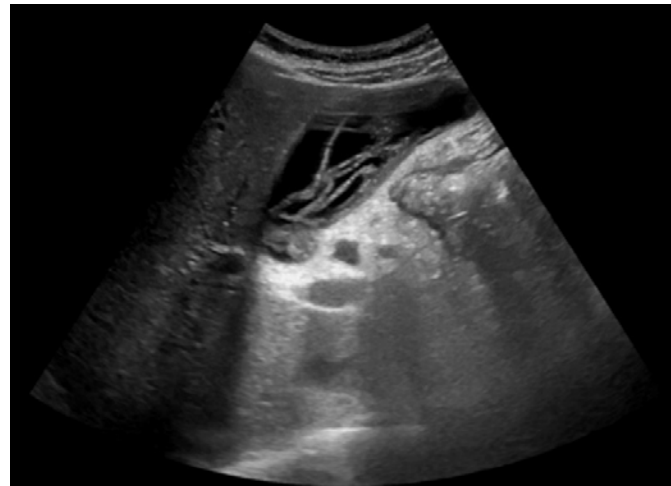
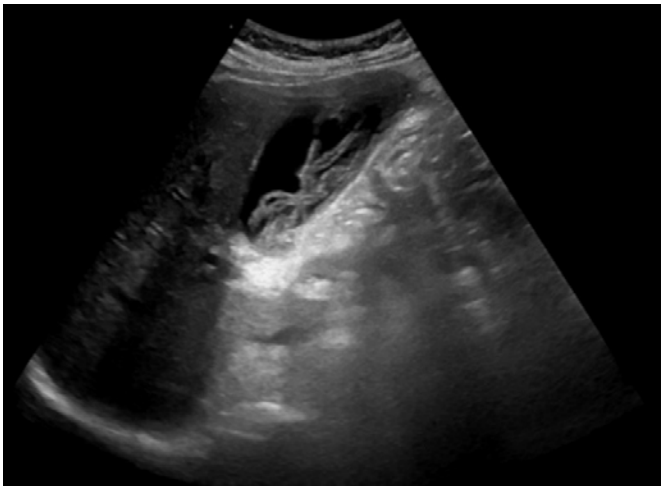
/ Introduction

Ascaris lumbricoides (AL) is the largest intestinal nematode parasitizing the human intestine and is one of the most common helminthic human infections worldwide, particularly in areas of lower socioeconomic standing.⁽¹⁾ Humans are infected by ingesting embryonated eggs, usually in contaminated water or adherent to raw vegetables. AL produces no symptoms in most infected persons except in those with a large worm burden.⁽²⁾ When symptoms are present, they occur often during the adult worm intestinal stage (as intestinal, hepatobiliary, or pancreatic manifestations) but may also occur during the larval migration stage (as pulmonary manifestations). AL is highly mobile and mature worms can enter the ampulla of Vater, from the intestine, and migrate into the bile or pancreatic ducts potentially causing biliary colic, obstructive jaundice, ascending cholangitis, acalculous cholecystitis or acute pancreatitis.^{(3) (4) (5)} The invasion into the gallbladder, however, is quite rare because of the anatomical features of the cystic duct. Additionally, pre-existing disease of the biliary tract or the pancreatic duct (like sphincterotomy and Roux-en-Y hepaticojejunostomy) can predispose to migration of the worm.

We present a case of obstructive jaundice complicated with ascending cholangitis caused by AL with gallbladder migration in a patient without previous biliary intervention living in an urban area of a developed country.

/ Case Report

A 52-years-old autonomous and healthy man born and resident in an urban city presented at the emergency department with fever and abdominal pain in the right hypochondrium with eight days of evolution. Physical examination revealed subfebrile temperature (37.5 °C), jaundice and marked tenderness at right hypochondrium. Laboratory testing results showed no anaemia, no leucocytosis, AST 146 U/L (reference range: 0-35 U/L), ALT 306 U/L (reference range: 0-45 U/L), alkaline phosphatase 243 U/L (reference range: 38-126 U/L), total bilirubin 8.7 mg/dL (reference range: 0.3-1.2 mg/dL), direct bilirubin 4.7 mg/dL (reference range: 0-0.5 mg/dL), lactate dehydrogenase 636 U/L (reference range: 313-618), C-reactive protein 1.3 mg/dL (reference range < 0.8 mg/dL) and a normal serum amylase. An abdominal ultrasound was performed with observation of intrahepatic biliary dilatation as well as of the main biliary tract (11 millimetres) without identification of the obstructive cause. In the gallbladder presence of a hyperechogenic elongated filiform endoluminal structures with a hypoechogenic centre suggestive of *ascaris lumbricoides* (Figures 1 and 2). The patient denied recent trips abroad. After getting blood cultures, it was decided to start medical treatment with mebendazole 100 mg twice daily. An abdominal computed tomography (CT scan) was performed one day later, confirming the dilatation of the intra and extrahepatic (12 millimetres) bile ducts as well as of the cystic duct which also presented a tortuous path. The walls of the main biliary tract showed higher enhancement



Figures 1 and 2 – *Ascaris lumbricoides* in gallbladder. AL has a characteristic appearance on US examination appearing as long, linear echogenic stripes that do not cast acoustic shadows

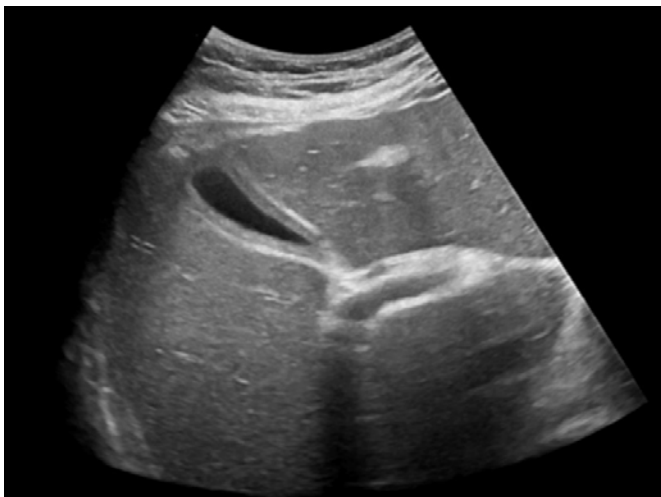


Figure 3 – Abdominal ultrasound after medical treatment. The gallbladder was in poor repletion, so it was difficult to value the discreet wall thickening, without alterations of the content

than expected suggesting inflammatory phenomena. This exam did not identify endoluminal material in the gallbladder. It was observed a small image of 4 millimetres suggestive of calculus in the most distal segment of the biliary pathway, in the uncinata process of the pancreas, non-obstructive. Blood cultures were negative. Stool testing for parasites and ova were negative and there was no eosinophilia. The patient completed eight days of treatment and the abdominal ultrasound was repeated showing the resolution of the biliary dilatation previously identified and absence of the worms (Figure 3). The patient was discharged asymptomatic and with descending profile of the liver tests.

/ Discussion

Most case reports of biliary ascariasis published in medical literature are from highly endemic regions like Asia and Africa in which infection occurs mainly due to poor sanitation, unhygienic conditions and overcrowding as the route of transmission is faeco-oral.^{(6) (7)} We only found one case report from Europe describing a biliary obstruction by an AL trapped in the Vater papilla and the worm was extracted endoscopically.⁽⁸⁾ The infestation of the gallbladder with AL is rare, accounting for only 2.1% of biliary ascariasis cases. In the few published cases there is generally a high intestinal parasite load in the host.⁽⁸⁾ The incidence is low because of the anatomic characteristics of cystic duct (tortuous and narrow) limiting the access to the gallbladder.⁽⁹⁾

Biliary ascariasis presents with complaints of right upper abdominal quadrant pain, low grade fever, vomiting, tenderness of the abdomen, jaundice and multiple episodes of passage of worms in the stools. The presence of a worm in the gallbladder generally induces an acute cholecystitis, but it didn't occur in our patient. The clinical, laboratorial and radiological examinations suggested the diagnosis of cholangitis. Although the presence of AL in the main biliary was not documented, the indirect findings like dilatation and higher enhancement of main biliary tract as well as the presence of millimetric calculi are highly suggestive that it happened, at least transitorily. It is known that fragments of disintegrating worms within the biliary tract can serve as nidi for the development of biliary calculi.

All patients with AL infection warrant anthelmintic treatment, even those with asymptomatic infection. The traditional concept was that AL lodged in the gallbladder and in the biliary ducts responds poorly to medical treatment because less than 1% of the volume of antiparasitic drugs is excreted in bile. However, a case study of 28 patients in an Indian Hospital,⁽¹¹⁾ demonstrated that

22 patients were successfully managed conservatively. The authors hypothesized that spontaneous passage was based on the attribute of the worm to wander and seek natural orifices. Additionally, they think that in patients who have an early clinical presentation, the timely administration of prophylactic in addition to antihelminthic and the tendency of worms to move may explain the absence of cholecystitis. Like described by these authors, our patient had a favorable evolution only with medical treatment and even an ERCP was not required due to the clinical improvement together with the absence of obstructive cause in the imaging methods confirming a migration of the parasite from the gallbladder back into the duodenum. It is a rare event due to the anatomical features of the cystic duct. The authors reserve cholecystectomy, in gallbladder ascariasis, when there is a failure of a spontaneous clearance of worms after conservative treatment, when there is a dead worm inside the gallbladder and worm associated with calculi. Endoscopic worm removal from main biliary duct is indicated in the presence of serious infection, no responding patients and when the worm is trapped in the biliary tree.

/ Conclusion

AL is an uncommon cause of biliary obstruction and acute cholangitis, especially in developed countries. The present case confirms that ultrasonography is a useful diagnostic method since a careful examination can reveal suggestive features of the worms. Medical treatment with anthelmintic drugs and

antibiotics (if there are signs of concomitant bacterial infection) must be started as soon as possible since most patients respond well to medical management. Sometimes endoscopic retrograde cholangiopancreatographic or surgery are needed if the worm is dead and causing obstructive in the biliary system.

Statement of ethics

The patient authorised the publication of the data and the patient's anonymity is preserved in the article.

Conflicts of interest

The authors declare no conflicts of interest.

Authors Contributions

Cláudia Macedo: data acquisition and editing, manuscript drafting.

Nuno Almeida e Margarida Ferreira: data acquisition, manuscript revision.

Pedro Figueiredo: manuscript revision.

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