CASE REPORT

GALL BLADDER ASCARIASIS: A RARE ENTITY

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Gall bladder ascariasis is a rare entity accounting for only 2.1% of biliary ascariasis features due to anatomical features of the cystic duct. It usually presents with vague abdominal features. Ultrasonography is the most sensitive and useful investigation for its diagnosis. We present a case of gall bladder ascariasis in an antenatal young female patient showing features of cholecystitis. She was diagnosed by ultrasonography and managed by laparoscopic cholecystectomy followed by oral anti-helminthic drugs. She made an uneventful recovery and is doing great in follow-up visits.

Keywords: Gall bladder; Ascariasis; Cholecystitis; Ultrasonography

Citation: Akbar I, Javed Z, Zaib Z. Gall bladder Ascariasis: A rare entity. J Ayub Med Coll Abbottabad 2023;35(3):500–2.

DOI: 10.55519/JAMC-03-10212

INTRODUCTION

Ascariasis is the most common helminthic infection affecting 25% of the world's population more so in tropical countries.[1] The parasite most commonly resides in jejunum where it is mostly asymptomatic.[2] Migration into the biliary tract can lead to important complications including biliary colic, obstructive jaundice, choledocholithiasis, acute pancreatitis, liver abscess, common bile duct stricture, pancreatic abscess and liver cirrhosis.[3] Gallbladder ascariasis (GB ascariasis) is a rare entity accounting for only 2.1% of biliary ascariasis cases.[4]

This is most probably due to the narrow and tortuous structure of the cystic duct which prevents migration of worms.[5] Symptoms of GB ascariasis are not pathognomonic. Ultrasonography, magnetic resonance imaging (MRI), and endoscopic retrograde cholangiopancreatography (ERCP) are useful investigations for diagnosis.[6] Ultrasound is the most sensitive and useful investigation, which sows linear echogenic shadows or "belly dance" of worms. Treatment options include conservative management and cholecystectomy.[7] We present a case of gall bladder ascariasis that presented to us at ER and was managed by cholecystectomy.

CASE REPORT

A 30-years old, 3 months antenatal female presented from a rural area to ER of Ayub Teaching Hospital Abbottabad with complaints of pain right hypochondrium and multiple episodes of vomiting for 1 day. She had similar episodes in the past few months. There is no history of any chronic illness or surgery. On examination, the patient was of normal built, and vitally stable with no signs of jaundice or anaemia. The right hypochondrium was mildly tender on abdominal examination without palpable liver or gallbladder.

Her lab investigations showed haemoglobin: 11 mg\dl, leukocyte count: 8000 with no eosinophilia. Serum aspartate aminotransferase (AST), alanine aminotransferase (ALT), bilirubin, amylase, urea and creatinine were in the normal range. Ultrasound showed a moving curvilinear tubular structure in the gall bladder lumen with a 3.6 mm shorter axis and a 7cm longer axis, with a hypoechoic center and hyperechogenic periphery. Other sonographic findings included a partially distended gallbladder with an oedematous gallbladder wall measuring approximately 4.7 mm. The common bile duct was not dilated. Twelve weeks gravid uterus with a single alive foetus was also visualized. Diagnosis of GB ascariasis was made.

The patient was admitted to the Surgical B unit. The patient was kept nil per oral and started on analgesics intravenous fluids, antispasmodics and antibiotics. The case was discussed in the ward and surgery was planned. Cholecystectomy is performed under general anaesthesia via a laparoscopic technique using standard four ports in reverse Trendelenburg position. Peritoneal cavity pressure was kept low for pregnancy. There were many adhesions around GB. The extracted specimen showed a single alive worm. Histopathology of the gall bladder showed acute cholecystitis with submucosal eosinophilia.

Postoperatively, the patient made an uneventful recovery. She was given oral mebendazole for 3 days and discharged the next day. On a follow-up visit after 2 weeks, the patient was doing very well and had no complaints.

Figure-1: Ultrasound showing worm in the gall bladder

Figure-2: extracted worm along with removed gall bladder

DISCUSSION

Ascaris lumbricoides is the most common helminthic infestation affecting 1 billion individuals in the world. A problem of tropical countries is now found worldwide due to more frequent travel.[1] Ascaris mostly reside in the small intestine (esp. jejunum), which is usually asymptomatic.[2] The adult worm can move from there into the duodenum and pass into the biliary tree via the ampulla. The worm either mechanically occludes or by chemical irritation leads to the sphincter of Oddi spasm leading to biliary stasis, pyogenic cholecystitis or pancreatitis.[3] The worm increases the risk of stone formation by converting soluble bilirubin into insoluble bilirubin precipitating as calcium bilirubin by beta glucuronidase. Dead worms induce fibrosis leading to stricture formation in the biliary tree.[3,8] Smaller diameter, tortuous nature and spiral valves of the Heister of the cystic duct which keep its opening closed provide a barrier for entry of worms into the gall bladder.[4,8,9]

We present a case of 30 years old antenatal female with GB ascariasis. A literature review shows that it is five times more common in adult females. A possible explanation can be the role of progesterone which relaxes the smooth muscles of the sphincter of Oddi, allowing the worm to migrate into the biliary tree.[3] The clinical manifestations of GB ascariasis are not pathognomonic. They usually include fever, jaundice, right hypochondrium pain, vomiting, hepatomegaly, and right upper quadrant tenderness.[6] Our patient complained of pain right hypochondrium and multiple episodes of vomiting for 1 day. On examination, the right hypochondrium was mildly tender without palpable liver or gallbladder.

Blood count may show Eosinophilia and stool examination for ova and parasite (O&P) may be positive. But it is seldom helpful as eosinophil count is usually normal and stool examination for ova and parasite (O&P) negative as in our case.[6] The presence of Ascaris eggs in the bile sample is a definitive diagnosis.[8] However, because this is not possible in many patients, imaging is the only modality conclusive of diagnosis. Options for diagnosis of hepatobiliary ascariasis include ultrasound (US), Computed tomography (CT), magnetic resonance imaging (MRI) and endoscopic retrograde cholangiopancreatography (ERCP). However, the US is still the first and most preferred method due to its ease of applicability and the fact that it is inexpensive and non-invasive. Ultrasound shows the curvilinear tubular structure in the lumen of the gall bladder with a center hypoechoic and the periphery hyperechogenic referred to as a 'triple sign' as seen in our case. Other characteristic US findings are impacted worm sign, spaghetti-like and a double-tube image. In addition, the US enables to identify nondirectional, erratic and zigzag movements characteristic of a live worm, an important advantage over CT and MRI. Dead worms are associated with abscess, stricture, stone formation and repeated surgical procedures, so dead worms are more dangerous than alive.[3] US can be used for follow-up in cases managed conservatively.[2,5,6,8] CT is useful for diagnosing complications as it gives details of hepatic parenchyma.[8] ERCP which is both diagnostic and therapeutic should be reserved for the diagnosis of those suspected cases of biliary ascariasis in which US is non-diagnostic or technically inadequate.[2]

Management options mentioned in the literature include conservative treatment, endoscopic removal and surgical removal. Conservative treatment includes keeping the patient nil per oral, analgesics, antibiotics, intravenous fluids and anti-helminthics. The most commonly used anti-helminthic agents are albendazole, mebendazole and piperazine. A few studies have reported successful treatment with oral anti-helminthic.[2,8,9] However many reported failed attempts with oral anti-helminthic.[5–7] Also, conservative therapy leads to the sequestration of dead worms, which presents a high risk of developing complications. Piperazine is effective via nasobiliary

drain for a worm in CBD but not in GB. Due to small absorption from the gut and less than 1% secretion in bile mebendazole is also not very effective.[5] There is a risk of recurrence as well in patients managed by a conservative approach ultimately requiring cholecystectomy.[3] So it is suggested that the conservative approach is only used keeping in mind these drawbacks. Absolute indications for cholecystectomy in gallbladder ascariasis include failure or recurrence of conservative treatment, a dead worm inside the GB and a worm associated with calculi or liver abscess.[7] We managed our patient by cholecystectomy and discharged her home on oral mebendazole. The patient was doing very well on follow up review.

CONCLUSION

As a conclusion, gallbladder ascariasis should be kept in the minds of surgeons and radiologists while assessing patients with cholecystitis, especially in endemic areas. Ultrasound is the most sensitive investigation for its diagnosis. Studies suggest starting treatment with conservative therapy. However, depending on our case, we suggest cholecystectomy as an initial therapy. Also, we recommend mass deworming of the population including antenatal patients after the first trimester.

Conflict of interest: none to declare

Funding disclosure: none to declare

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Submitted: September 29, 2021	*Revised: December 19, 2021*	*Accepted: March 27, 2022*

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