

HEPATOBIILIARY ASCARIASIS: 2 CASE REPORT

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ABSTRACT

Hepatobiliary ascariasis is a relatively uncommon helminthic disease occasionally found in Indian subcontinent and third world country. They commonly present as right hypochondrial pain with mild jaundice. Vomiting may also be associated finding of this disease. Ultrasound investigation is an important, easily available, low cost tool for early diagnosis and followup. Its safety, accuracy, easy repeatability, quick and non-invasive property makes it the first and prime modality for suspected biliary ascariasis.

KEYWORDS

Ascariasis, Hepatobiliary, Ultrasonography.

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INTRODUCTION: Ascariasis lumbricoides is more prevalent and its course is more serious in children than in adults.¹ Around 1.5 million people in the world are affected by Ascariasis lumbricoides (round worm) in their digestive tract. From the intestines worms can invade the biliary tree causing cholangitis, the pancreatic duct causing pancreatitis, and the gall bladder causing acalculous cholecystitis.^{2,3} Due to the anatomy, ascariasis lumbricoides rarely settles in the gall bladder and biliary tree.

Ultrasonography is a reliable and highly specific investigative technique in biliary ascariasis. The characteristic sonographic features of biliary ascariasis include: (1) Single, long, linear or curved echogenic structure without acoustic shadowing; (2) Multiple, long, linear, parallel echogenic strips, usually without acoustic shadowing; (3) Thick, long, linear or curved, non-shadowing echogenic strip containing a central, longitudinal anechoic tube, probably representing the digestive tract of the worm (inner tube sign).

CASE DESCRIPTION: Two cases of pediatric age group are included in the report which were referred to our department for ultrasound of whole abdomen.

CASE I: A 10-year-old boy presented with abdominal pain for 3-4 days and frequent vomiting.

He was treated in district hospital. He developed right upper quadrant pain, low grade fever with mild jaundice for which he was referred to Patna medical college & Hospital. Routine ultrasonography was done which showed long tubular echogenic stripe without acoustic shadow containing a central longitudinal anechoic tube with zig-zag movement inside distended gall bladder (Figure 1, 2, 3, 4). The diagnosis of ascariasis in gall bladder with acute cholecystitis was made.



Fig. 1: Ascaris in GB Lumen



Fig. 2: USG showing a long coiled tubular echogenic stripe containing a central longitudinal anechoic tube. Features are in favour of worm in GB



Fig. 3: Worm in GB Lumen

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Fig. 4: Ascaris in GB Lumen. Note the variable appearance of Ascaris in GB Lumen

(Fig. 1, 2, 3, 4) Representing zig-zag movement of Ascaris.

The child was treated conservatively with albendazole therapy and complete resolution was noted on follow up scan with ultrasonography.

CASE II: A 12 years old boy came to hospital with symptoms of fever, abdominal pain and mild jaundice. Ultrasonography was performed and showed the same characteristic findings of ascariasis in mildly dilated common bile duct (Figure 5). The intrahepatic biliary radicals were also mildly dilated.



Fig. 5: Ascaris in Common Bile Duct (CBD)

He was treated with mebendazole for a week. On follow ultrasound scan, ascariasis was noted in intrahepatic biliary radicals. (Figure 6, 7) along with abscess formation in right lobe of liver. (Figure 8, 9, 10)



Fig. 6: Ascaris in Intrahepatic Biliary Duct



Fig. 7: Worm in Intrahepatic Biliary Radical

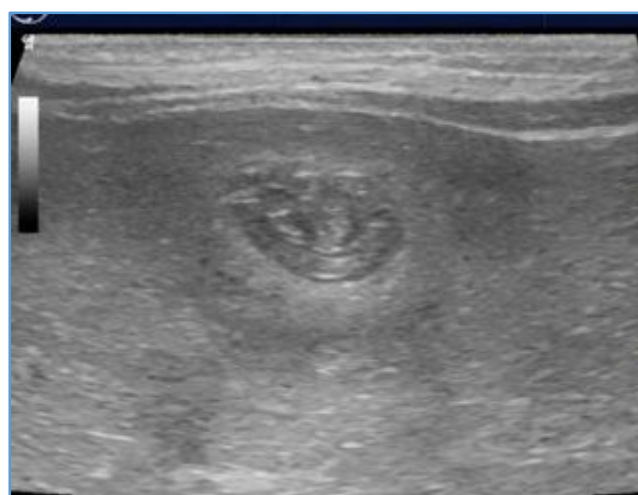


Fig. 8: Abscess in right lobe of Liver. Echogenic stripe seen within the lesion

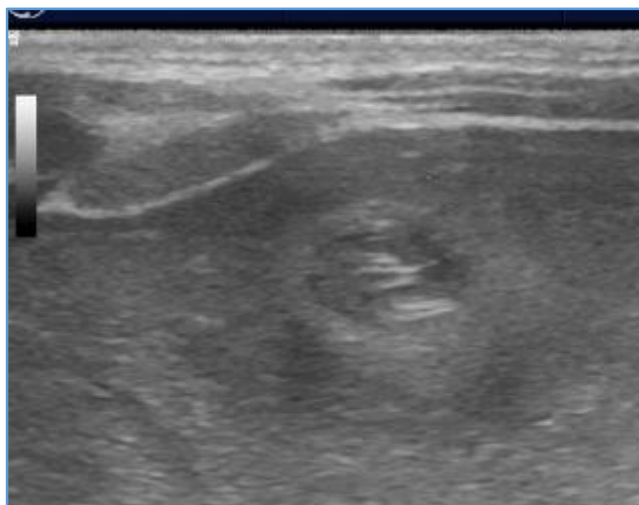


Fig. 9: Abscess in right lobe of Liver



Fig. 10: Abscess in right lobe of Liver

DISCUSSION: Ascariasis is one of the most common helminthic disease in human in Asia particularly Indian subcontinent which causes biliary colic, pyogenic cholangitis and acalculous cholecystitis if the parasite migrate from the intestinal lumen into the biliary systems.

Hepatobiliary and Pancreatic Ascariasis (HPA) can also be the clinical manifestation of ascariasis in human. Parasite in the duodenum enter the ampullary orifice causing obstruction or further advance into bile ducts and hepatic ducts. Common bile duct and cystic duct can be obstructed by parasite entering the orifices. Less frequent parasite can reach the gall bladder or entering pancreatic duct. Settlement of adult form ascariasis parasite in the gall bladder is rare constituting 2.1% of hepatobiliary ascariasis.⁴

HPA does not have any characteristic clinical or laboratory feature, radiologic imaging methods play the foremost role in the diagnosis of the parasite in the biliary tree. Computed Tomography (CT), Magnetic Resonance Imaging (MRI) and Endoscopic Retrograde Cholangiopancreatography (ERCP) are used in the diagnosis of hepatobiliary ascariasis. However, ultrasonography is still the first method and most preferred due to its ease of applicability and the fact that it is inexpensive and non-

invasive. The limitation of ultrasonography is, it cannot demonstrate ascaris in duodenum. However, ERCP could be substituted for ultrasonography to diagnose duodenal ascariasis.

USG is highly specific in the diagnosis of ascariasis in the gallbladder and the biliary tract.^{1,5,6,7} It also helps in identifying whether the worm is alive.⁵ by capturing its movements, an advantage over CT and MRI.⁸ It has been noted that the ascaris parasite can sometimes be observed as a soft tissue mass in the dilated biliary tracts.⁹ The characteristic sonographic features of biliary ascariasis.¹⁰ include:

- (1) Single, long, linear or curved echogenic structure without acoustic shadowing;
- (2) Multiple, long, linear, parallel echogenic strips usually without acoustic shadowing;
- (3) Thick, long, linear or curved, non-shadowing echogenic strip containing a central, longitudinal anechoic tube, probably representing the digestive tract of the worm (inner tube sign).

The characteristic movements of these echogenic structures highly suggests ascariasis. The characteristic sonographic findings of the ascaris in the bile ducts and gallbladder were described in 1982 by Cremin BJ.¹¹ in 1987 and 1992 by Khuroo MS, et al.⁴ However, there are only a few reports about the ultrasonographic diagnosis of hepatobiliary ascariasis. Nearly, 16–24% of cases had acute cholangitis,^{3,12} 13% to 16% had acute cholecystitis,³ and 4 to 10% had acute pancreatitis.^{3,12}

CONCLUSION: Two cases of pediatric age group were included in the report. In first case, ascariasis were seen in the gall bladder lumen with resultant acute cholecystitis. In the second case, worm was seen in common bile duct lumen with mild proximal biliary dilatation. Both the case was diagnosed on ultrasound and were given anti helminthic treatment. On follow-up scan with ultrasound, first case showed complete resolution with treatment while in second case, worm further progressed into the biliary radicals leading to cholangitis and abscess formation. The ultrasonographic diagnosis of hepatobiliary ascariasis were proved with surgical and medical treatment.

From the two cases, we emphasize ultrasound as the first and prime investigating modality for the diagnosis, follow up and better management of hepatobiliary ascariasis.

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