



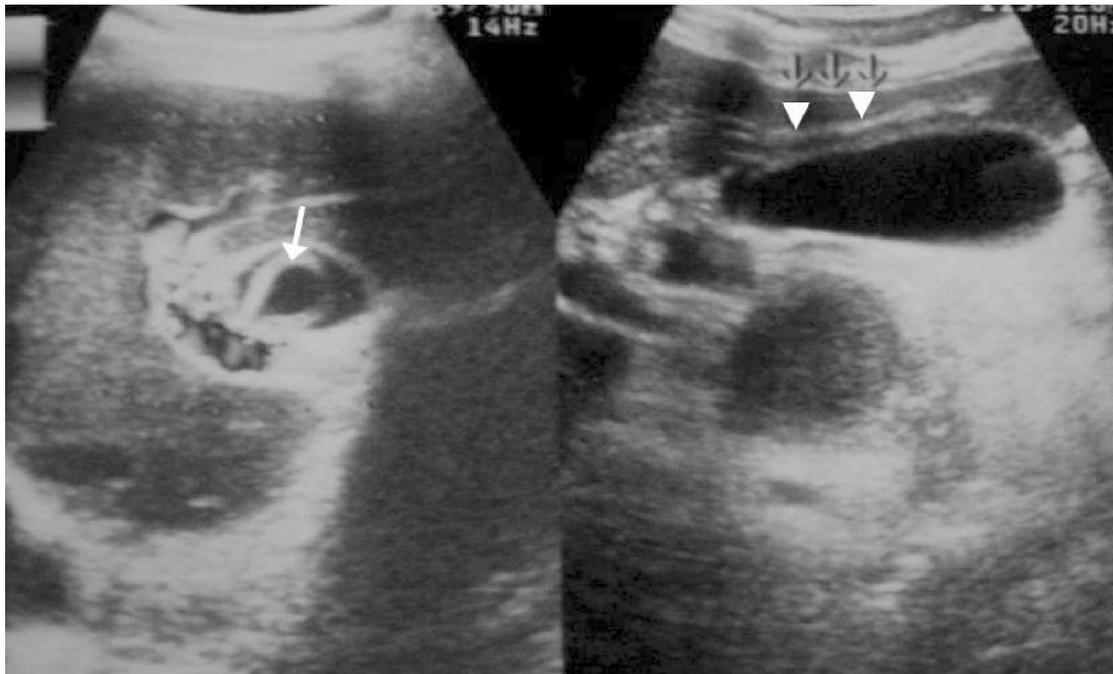
QUIZ 2

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**Question** \_\_\_\_\_

58 year old female patient without any co-morbidities presented in emergency department with complaints of right upper quadrant pain since 20 days and vomiting since 2 days. Pain was sudden in onset and moderate in intensity. It was associated with multiple episodes of bilious vomiting. Ultrasound was carried out.

What are the findings?

## QUIZ 2

### Answer

Ultrasound examination shows dilated CBD with worm (white arrow). Linear tubular echogenic structure (arrowheads) in the biliary channel of left lobe of the liver is also representing worms.

### Discussion

Ascariasis is a common helminthic disease in developing countries, especially in the tropical and high temperature regions. Life cycle of ascariasis in humans starts with ingestion of eggs. The larvae hatch in the small intestine and invade the mucosa migrating through the circulatory system to the lungs. In the lungs they invade the alveoli, ascend the tracheobronchial tree, and then are swallowed back into the small intestine where they mature into adult worms.<sup>1</sup>

Usually intestinal infestation is asymptomatic. It may cause a variety of symptoms, but most commonly causes abdominal pain, nausea, vomiting, diarrhoea, and loss of appetite. It may cause symptoms of intestinal obstruction, volvulus, or intussusception when they increase in large numbers. They rarely migrate into bile duct. In the bile duct they may be asymptomatic, but may cause complications resulting in biliary colic, cholecystitis, cholangitis, intrahepatic abscess, or pancreatitis.<sup>2</sup> Our patient presented with severe abdominal pain with vomiting and elevated amylase and lipase suggesting pancreatitis.

Ultrasound (US) is the imaging modality of choice for the diagnosis of biliary ascariasis. It is the modality of choice not only because of cost but also because it is sensitive, specific, safe, and noninvasive. Worms appear as echogenic non-shadowing tubular structures, 3–6 mm in diameter, with a relatively hypoechoic center and more echogenic walls. In comparison gallstones are more mobile, spherical and give dense acoustic shadowing. Ascariasis in gallbladder have also been described in literature.<sup>3</sup> If worms seen in bile duct do not move then it may represent their death, with time they may show evidence of calcification or may even break up into fragments. Several sonographic sign's explaining the appearance of biliary ascariasis have been explained including the Stripe sign representing a long linear or curved echogenic non-shadowing

structure without an inner tube; Inner tube sign representing a single thick, long linear or curved non-shadowing echogenic stripe containing either a central anechoic tube or tubular structure and Spaghetti sign representing multiple long linear overlapping echogenic structure.<sup>4</sup>

Enhanced CT scan can also be done but usually performed when US is non-diagnostic or when there is evidence of complications due to biliary ascariasis such as pancreatitis, abscess or pseudocyst formation.<sup>5</sup> Magnetic resonance imaging (MRI) and magnetic resonance cholangiopancreatography (MRCP) have the added advantage avoiding allergic reaction due to contrast injection however it is not cost effective, particularly in our community as most individuals presenting with this disease usually have limited health care facilities due to poor socioeconomic background.<sup>6</sup> Endoscopic retrograde cholangiopancreatography (ERCP) can be used for diagnostic and therapeutic purposes. Direct visualization of worms at papilla or in biliary tract by using contrast radiographic demonstration can be performed.<sup>7</sup>

Initially, biliary ascariasis can be treated conservatively for up to 72 hours.<sup>8</sup> Treatment includes NPO, administration of IV fluids, antibiotics and antispasmodics. Serial sonograms should be performed. Pyrantel pamoate, mebendazole or albendazole all have shown good results.<sup>9</sup> Endoscopic extraction is indicated in patients who do not respond to conservative management.<sup>10</sup> Indications for surgery are when endoscopic treatment failures and complications such as liver abscesses and gallbladder ascariasis.<sup>8</sup>

### References

1. Liu LX, Weller PF. Intestinal nematodes. In: Fauci AS, Braunwald E, Isselbacher KJ, et al., eds. Harrison's principles of internal medicine. 14th ed. New York, NY: McGraw-Hill, 1998; 1208-9.
2. Kedar RP, Malde HH. Biliary ascariasis associated with cholangiocarcinoma. *Abdom Imaging*. 1993; **18**: 76-7.
3. Elaldi N, Turan M, Arslan M. An unusual cause of cholecystitis: a worm in the bag. *Emerg. Med. J*. 2003; **20**; 489-90
4. Shah OJ, Zargar SA, Robbani I. Biliary Ascariasis: a review. *World J Surg*. 2006; **30**:1500–6

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5. Rocha MS, Santos Costa NS, Costa JC. CT identification of ascariasis in the biliary tract. *Abdominal Imaging*. 1995; **20**: 317–9.
  6. Fitoz S, Atasoy C. MR cholangiography in massive hepatobiliary ascariasis. *Acta Radiol*. 2000; **41**: 273–4.
  7. Kamath PS, Joseph DC, Chandran R. Biliary ascariasis. Ultrasonography, endoscopic retrograde cholangiopancreatography and biliary drainage. *Gastroenterology*. 1986; **91**: 730–2.
  8. Shah OJ, Zargar SA, Robbani I. Biliary Ascariasis: a review. *World J Surg*. 2006; **30**: 1500–6
  9. Khuroo MS, Zargar SA, Yattoo GNI. Worm extraction and biliary drainage in hepatobiliary and pancreatic ascariasis. *Gastrointest Endosc*. 1993; **39**: 680–5.
  10. Kamath PS, Joseph DC, Chandran R. Biliary ascariasis. Ultrasonography, endoscopic retrograde cholangiopancreatography and biliary drainage. *Gastroenterology*. 1986; **91**: 730–2.