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Case report

Gall bladder Ascariasis: A rare entity

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ABSTRACT

Gall bladder ascariasis is a rare entity. The causative organism for gall bladder ascariasis is Ascaris lumbricoides It usually presents as acute acalculous cholecystitis. Conservative management with anti-helminthic drugs is preferred while sometimes the patient may need surgical intervention.

Introduction

Ascaris lumbricoides is the most common helminthic organism. It is a remarkably infectious and persistent parasite that infects more than 1.2 billion people [1]. These organisms normally reside in the small intestine especially in the jejunum but are actively motile and can invade the papilla, thus migrating into the bile duct and causing biliary obstruction with a variety of hepatobiliary complications [2]. Ultrasound is the investigation of choice for the diagnosis of gall bladder ascariasis. It is also usually associated with serum hyper-eosinophilia [3]. This condition is usually managed conservatively with vermifuge and occasionally requires surgical intervention.

Case history

An eight-year-old male presented to the emergency with a complaint of right upper quadrant abdominal pain for two days. It was intermittent and colicky in nature aggravated with the intake of food and relieved with oral anti-spasmodic. The pain was associated with 2 episodes of non-bilious, non-blood mixed vomiting that contained undigested food particles. He does not have a history of recurrent similar illnesses. He had no history of loose stool, fever, cough, Jaundice, cough, burning micturition, abdominal distension, increased urinary frequency, swelling of any parts of the body. The patient had attained all developmental milestones as appropriate for his age. He has received immunization as per the national guidelines of Nepal.

On examination, the child was anxious due to pain but was well oriented. He had no pallor, icterus, dehydration, and lymphadenopathy. Vitals were normal as per his age. The abdomen was soft and non-distended. There was no tenderness, no organomegaly and the Murphy sign was negative. Chest and cardiovascular system examination revealed no abnormality. Symptomatic management for pain in the emergency was done with Inj. ketorolac, Inj. pantoprazole and Inj. Ondansetron and the child was kept in NPO.

Baseline investigation revealed a total count of 15,200/uL with neutrophil 70% however eosinophilia was not noted. LFT revealed total serum bilirubin of 0.6, ALT of 261 IU/L, AST of 512 IU/L and ALP was 217 U/L. Ultrasound showed a distended gallbladder with a linear echogenic mobile structure nearly 10 × 3 mm within the lumen of the gallbladder suggestive of worm infestation. (Fig. 1).

The patient was admitted to the pediatric ward with a diagnosis of gall bladder ascariasis and treated with tab albendazole 400 mg and supportive treatment. Ultrasonography was done to monitor the parasite. On the fifth day of admission, there was no evidence of any echogenic material in the gall bladder. To prevent future infection, we recommended deworming with albendazole every six months. We counseled the patient to wash or cook raw vegetables before eating and practice hand hygiene.

Discussion

Ascariasis is one of the major parasitic diseases with approximately 1.2 billion people infected worldwide. The majority of the cases are

Abbreviations: ALP, Alkaline Phosphatase; LFT, Liver Function Test; MRI, Magnetic resonance imaging; MRCP, Magnetic resonance cholangiopancreticogram; ALT, Alanine Aminotransferase; AST, Aspartate Aminotransferase; USG, Ultrasonography

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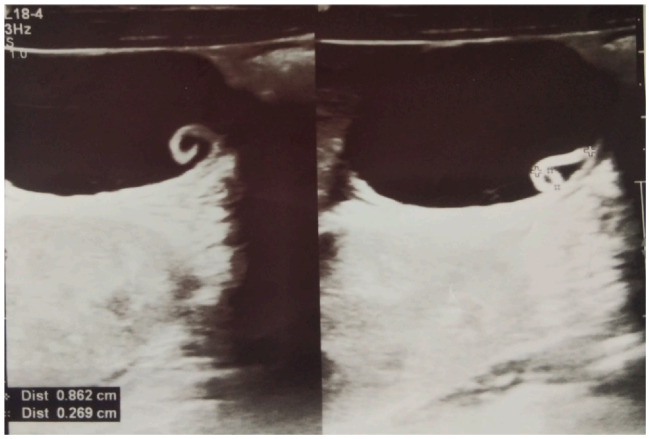

Fig. 1. Ultrasound scan shows a motile tubular structure suggestive of ascaris in gall bladder.

distributed in the tropical areas of Asia, sub-Saharan Africa, and the Americas [4]. Ascariasis is transmitted through ingestion of fecal contaminated material that contains embryonated eggs. Larva generated from the egg can penetrate the intestinal wall and may migrate to the liver and heart via the portal vein, lungs via the thoracic duct. Ascaris worms generally live in the jejunum and can migrate to the biliary system through the papillary orifice and causing biliary obstruction and a variety of complications [2]. Hepato-biliary manifestations of ascariasis include biliary colic, acalculous cholecystitis, pancreatitis, subhepatic abscess, ascending cholangitis, and obstructive jaundice [5,6].

Ultrasonography remains the investigation of choice for the diagnosis of biliary ascariasis given its sensitivity, specificity, and safety [3]. On ultrasound scanning, a roundworm can appear as an echogenic structure with a central anechoic tube in coil or strip form. The movement of the worm in the gall bladder may be erratic and non-directional. There may be a presence of gallbladder distention, gallbladder wall edema, sludge in the gallbladder, or pericholecystic collection [7]. MRI including MRCP is another important diagnostic modality that can provide three-dimensional imaging. In MRI, worms are visualized as linear, slightly hyperintense tubular structures with a central hypointense area [2]. However, it is less used owing to it being less cost-effective.

Treatment of biliary ascariasis can be done by conservative, endoscopic, or open surgical methods. Conservative treatment by keeping patient nil per oral, supplementing intravenous fluids, antibiotics, and antispasmodics is successful in 68–80% of patients. Ideally, the vermifuge must not be started until the worm has moved out of the biliary tract to protect the death of the worm inside the biliary tree. The movement of the worm out of the biliary tree can be identified by subsidence of symptoms like pain, fever, and jaundice. The vermifuge used are albendazole, mebendazole, and pyrantel pamoate. Endoscopic as well as surgical treatment can be carried out in those who fail to respond to conservative management [1,3].

Endoscopic intervention is required in acute severe pyogenic cholangitis, recurrent biliary colic not responding to therapy, when worm persists in the biliary tract for more than 3 weeks or when the worm is dead. Grasping forceps or dormia basket could be used for worm extraction. However endoscopic spincterectomy should be avoided as it may help re-entry of worms in the future [2]. Surgery is required if endoscopic treatment fails to retrieve worms. Our patient received conservative treatment with antibiotics, antispasmodics, and albendazole. The worm was absent in the gallbladder on USG at fifth day of admission.

Conclusion

Gall bladder ascariasis should be among the differential diagnoses of the patient presenting with right hypochondrium pain from an endemic region. Often it can be diagnosed through bedside ultrasonography by visualization of the characteristic movement of the organism. It should be managed conservatively. Surgical intervention should be judicious.

Ethical approval

Ethical approval was not required.

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Consent

Informed consent was received from the patient.

CRediT authorship contribution statement

SG and SKD: Both authors were involved in conception and design, data collection, drafting of manuscript, and final approval of the version to be published.

Conflict of interest

The authors state that there is no conflict of interest.

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