Ascariasis Presenting as Acute Abdomen—A Case Report

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Abstract Infection with *Ascaris lumbricoides* is common in tropical and subtropical regions of the world. Prevalence of ascariasis is related to poverty, poor hygiene and poor fecal sanitation. This helminth usually lives harmlessly in small intestine but can also cause intestinal obstruction or perforation peritonitis which is common in childhood. *Ascaris* can also migrate through ampulla of vater to produce cholangitis, pancreatitis, cholecystitis and rarely hepatic abscess. *Ascaris* induced hepatic abscess can sometimes present with acute abdomen (like acute pyogenic abscess). We present a young adult with *Ascaris* induces hepatic abscess who presented and a case of acute abdomen in emergency department

Keywords Ascariasis · Acute abdomen · Hepatic abscess

Introduction

Infestation with *Ascaris lumbricoides* is common among people living in tropical and subtropical regions of world. Prevalence of ascariasis is related to poverty, poor hygiene, and poor fecal sanitation. Ascariasis is relatively more prevalent in the state of Jammu and Kashmir, India. Infection with *Ascaris* starts with the ingestion of embryonated eggs which hatches

into larva to pierce through the duodenal wall to reach portal circulation, and via liver they migrate to lungs where they change into larva. Larvae of *Ascaris* reach alveoli and with the secretions move up to upper respiratory tract, and with the swallowed sputum completes the journey in small bowel. In small bowel, they develop in an adult and usually live asymptotically, but in cases with high worm load they can also produce intestinal obstruction or perforation peritonitis which should always be kept in mind while considering differential diagnosis of acute abdomen especially in children. This worm can also move across the ampulla of Vater and present with hepatobiliary and pancreatic ascariasis, which is considered as second after stone disease to produce biliary symptoms and pancreatitis in endemic regions [1, 2]. Biliopancreatic ascariasis usually presents with biliary colic, acute cholangitis, acute cholecystitis, and acute pancreatitis, but in 2.1 % cases, they can also produce hepatic abscess and may harbor worms inside the abscess cavity [3]. Ultrasonography is a quick, safe, and noninvasive tool to diagnose hepatic abscess and ascariasis [4, 5]. *Ascaris*-induced hepatic abscess can present with features of acute abdomen and should be kept as a differential diagnosis. We present an adult who presented as acute abdomen and found to have *Ascaris*-induced hepatic abscess.

Case

A 28-year-old man presented with severe acute pain in the right upper abdomen which was associated with bilious vomiting and high-grade fever. He had jaundice a few days back which resolved spontaneously. He was not having constipation, obstipation, or diarrhea. On clinical examination, he was febrile (101 °F), icteric, and well hydrated. His preabdomen examination was normal except tender hepatomegaly. His laboratory parameters were Hb 10.4 g%, TLC 12,300/cc, and serum bilirubin 6.98 mg/dl (direct 6.42 mg/dl). His

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transaminases were mildly elevated and serum alkaline phosphatase was normal. He had normal serum amylase level and coagulation profile. His X-ray abdomen did not show dilated bowel loops, fluid levels, and gas under the diaphragm, and therefore clinical diagnosis of hepatic abscess was considered and to confirm it ultrasound abdomen was advised. Ultrasound showed a large irregular hypoechoic space occupying lesion in the right lobe of liver with a coiled echogenic linear structure inside the abscess cavity suggestive of an *Ascaris* (Fig. 1). There was no evidence of stone disease and no other worm in biliary tract and pancreas. The patient was treated with parenteral antibiotics, oral albendazole, and percutaneous drainage of abscess. The worm was extracted from the cavity under ultrasound and fluoroscopic guidance through the upsized percutaneous catheter. The percutaneous catheter was removed on day 7 and patient was discharged on day 10. He remained asymptomatic in follow-up.

Discussion

A. lumbricoides infection is common in tropical and sub-tropical regions of the world. Jammu and Kashmir state has got the highest incidence in India. Prevalence of ascariasis is closely related to poverty, poor hygiene, and poor fecal sanitation [1]. *A. lumbricoides* begins its life cycle in human beings after ingestion of embryonated eggs, which pass through the duodenal wall (after its transformation into larva) and transmitted via portal blood to liver; from there

they migrate to lungs where they moult twice and move up to the upper respiratory tract. Larvae of *Ascaris* swallowed with the sputum and develop into an adult worm in small intestine. Adult roundworms lay their eggs in small intestine which pass outside with feces. *Ascaris* usually lives asymptotically in small intestine, but in cases with high worm load they can form worm bolus and cause small bowel obstruction or perforation. Worm bolus obstruction is an important cause of intestinal obstruction in children [1]. Roundworms can also migrate through ampulla of Vater to biliary tract and pancreas and cause biliary colic, acute cholangitis, acute cholecystitis, and pancreatitis. In some cases, this worm can also produce hepatic abscess and present with acute abdomen. In a series of 500 cases with hepatobiliary and pancreatic ascariasis, only 4 cases (0.8 %) had *Ascaris*-induced hepatic abscess [2]. In another series from the same region (Jammu and Kashmir), out of 510 cases with hepatic abscess 74 (14.5 %) had *Ascaris*-induced abscess but only in 11 cases (2.15 %) the worm was found inside the abscess cavity [3]. Diagnosis of roundworm-induced hepatic abscess is straightforward in presence of the worm inside the abscess cavity, but in its absence fluid from abscess cavity can suggest the diagnosis. Ultrasound is a good modality to diagnose hepatic abscess and ascariasis as it can easily detect presence of roundworms as linear echogenic structure without shadowing although in some cases other modalities such as CT scan or MRI with MRCP are needed for diagnosis. ERCP should not be used for diagnosis of hepatobiliary ascariasis. It should only be used

Fig. 1 *Ascaris*-induced hepatic abscess with worms inside the abscess cavity

for therapeutic purposes [2–6]. The patient with *Ascaris*-induced hepatic abscess should be treated with broad-spectrum antibiotics, antihelminthic drugs, and percutaneous aspiration/drainage abscess, which should be followed by removal of worms by endoscopic, percutaneous, or surgical methods, if feasible [2, 3, 6, 7].

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