



Biliary Ascariasis in a Two Year Old Girl-Rare Entity

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Abstract

The most common helminthic infestation in the world is that of *Ascaris lumbricoides*, a nematode. It is prevalent mainly in the far East, Indian Subcontinent, Latin America and Middle East countries. Although it is prevalent in this part of the world, yet we have not encountered many cases. Here we present to you a case of 6 year old female who was evaluated for obstructive jaundice and was found to have biliary ascariasis on imaging and underwent ERCP and removal of worm.

Keywords: Biliary Ascariasis; Urinary Bladder; *Ascaris Lumbricoides*

Introduction

The most common helminthic infestation in the world is that of *Ascaris lumbricoides*, a nematode. It is prevalent mainly in the far East, Indian Subcontinent, Latin America and Middle East countries [1]. The population belonging to lower socioeconomic groups living in unhygienic conditions are the one likely to get effected. The adult roundworm normally lives in the small intestine. If the worm load is high, more than a few thousands, the worms tend to migrate away from the usual site to lung, peritoneum, urinary bladder and biliary-pancreatic system. Biliary Ascariasis accounts for about 2% of all cases of ascariasis [2]. Although it is prevalent in this part of the world, yet we have not encountered many cases. Here we present to you a rare case of a two years old girl who was evaluated for obstructive jaundice and was found to have Biliary Ascariasis.

Case Report

A two-years old girl, resident of Peshawar, came with complain of right upper quadrant pain for one month associated with vomiting for one day. She has history of passage of worms in stool one month prior to hospital presentation and uses tap water for drinking purposes. Her family history was positive for worm disease as one of her siblings had the similar history of passage of worms in stool and was dewormed. Her Labs revealed Hemoglobin of 13 G% with MCV of 69, and peripheral film revealing hypochromic microcytic anemia. She also had thrombocytosis with platelets of 699000. Her liver function enzymes revealed Total bilirubin of 0.96, Direct Bilirubin of 0.21, Alkaline Phosphatase of 240, SGOT of 84, SGPT of 152 and GGT of 72. She the underwent ultrasound abdomen

which revealed linear filling defect in the common bile duct (CBD) suggestive of CBD worm. Rest of the scan was normal. She then underwent ERCP which revealed *Ascaris lumbricoides* worm seen projecting out of ampullary opening (Figure 1). Deep cannulation achieved and dye injected to outline linear filling defect in the CBD and intrahepatic ducts suggestive of worms (Figure 2). Dormia basket and polypectomy snare were employed to remove six worms. A 7fr 5 cm double pigtail stent deployed and free flow of bile noted. Later, she was dewormed using mebendazole. On follow up after 6 weeks, her labs and ultrasound were normal and she was symptom free.



Figure 1: Showing *ascaris lumbricoides* in the duodenum.



Figure 2: Showing worm in CBD (Blue Arrow).

Discussion

The most common helminthic disease seen in developing countries is Ascariasis and is endemic tropical and high temperature zone areas [3,4]. In humans, small intestine is usual habitat. When the worm load is high, the migration of the worms occur outside their usual habitat and tends to enter and reside in the ducts and cavities [5-7]. The symptoms of biliary colic are commonly encountered when the worm migrates across the papilla. If the worm resides in the biliary tree, it can lead to acute and chronic complications such as cholangitis, calculi, cholecystitis, strictures, and pancreatitis. Some worms may also form liver abscesses when they travel further upwards and colonize the liver parenchyma. It has been seen to be affecting females 4-6 times more than males. The reason behind the majority of female population is not exactly known. High levels of progesterone hormone are seen in young and middle-aged females. Progesterone causes relaxation of smooth muscle. When the relaxation of smooth muscle of the sphincter of Oddi occurs, it allows worms to gain easy access into the common bile duct [8]. Repeated worm infestation of the biliary tract is common in endemic areas despite optimal treatment owing to poor hygiene and sanitation and accounts for about 15%. The factors predisposing to it include previous surgery of the biliary tract, sphincterotomy and Roux-en-Y hepatico-jejunostomy [6]. Prior cholecystectomy also predisposes to bile duct invasion by ascariasis. After cholecystectomy, common bile duct and other biliary ducts get dilated. Rise in the level of cholecystikinin leads to relaxation of the sphincter of Oddi. All these factors help entry of *ascaris* into the biliary tree [9]. In our patient, poor hygiene and use of tap or unboiled water was the most common etiology leading to biliary ascariasis. However, there was no prior history of abdominal surgical intervention in our patient.

There are different imaging techniques that aid in the diagnosis of biliary ascariasis by demonstration of worms in the biliary tract. Sonography has been shown to have a high diagnostic accuracy as a noninvasive procedure in the diagnosis of biliary ascariasis [2,10]. Its accuracy was found to be around 100% in various series.

ERCP has both diagnostic and therapeutic value. Endoscopic retrograde cholangio pancreatography (ERCP) usually shows the worm as a long-filling defect. Successful extraction of the worm from the CBD via endoscope can be performed by the trained

endoscopist safely. ERCP as a therapeutic intervention should be considered, if a patient fails to respond to conservative treatment or if the worm persists (serial sonograms) or has died within the pancreaticobiliary tree [2,11]. It has been shown that endoscopic worm extraction from the ampulla is almost 100% successful and from the bile ducts 90% successful by using endoscopic basket [12]. In patients who are resistant to conservative treatment, endoscopic worm extraction by snares, dormia basket or biopsy forceps is often a successful, second-line intervention [13,14]. However, more than 95% of the patients respond to conservative treatment [15-18].

Unlike other cases, our case was very rare as we have never encountered such a presentation of ascariasis at such a young age. This can be attributed to the poor hygiene and socioeconomic status of the family. In our case, the patient presented with worm in CBD which was extracted during ERCP using endoscopic dormia basket and was then given mebendazole as treating prior to intervention could have been detrimental in the presence of worm in CBD which can get calcified and worsen the condition resulting in cholangitis.

Conclusion

Biliary ascariasis should always be considered as a differential diagnosis in young age with obstructive jaundice, particularly in endemic areas due to poor hygiene. ERCP is the best intervention for biliary ascariasis followed by antihelminth treatment. This condition can be prevented by improving the sanitary conditions and using boiled or filtered water for drinking purposes.

Conflict of Interest

None.

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