Biliary ascariasis: Experience from a district hospital

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Abstract

Objectives: Acute abdominal pain is a common cause of hospital admission in our clinical experience. Cholelithiasis, acute pancreatitis and peptic ulcer disease are well known causes of acute abdominal pain and some of them may require immediate surgical intervention. In our hospital, biliary ascariasis appears to be a common cause of hospital admission among the female patients, which is occasionally seen in the male. The aim of this study was to see the exact data among the female patients with biliary ascariasis including age, occupation, marital status, relationship with pregnancy and economic status and also to see the outcome of conservative treatment along with oral anti-helminthic medication without surgical intervention or invasive endoscopic extraction (ERCP). Methods: This was a retrospective study. We have selected 100 female patients from registry, who were admitted with acute upper abdominal pain and or vomiting in Noakhali General Hospital from January 2007 to December 2007 in female medicine ward. All patients were investigated with routine examination of urine, stool and complete blood count. Sonographic examination of abdomen performed in all patients. Liver function tests (S. Bilirubin, SGPT, Alkaline phosphatase) and Serum amylase were estimated in selected cases. Age, occupation, marital status and economic condition of every patient were recorded. Presence of Ascaris lumbricoides (AL) in the common bile duct were confirmed by sonographic examination. After admission, all patients were given conservative treatment including nasogastric suction, intravenous fluid, antispasmodics, inj. Amoxicillin and inj. Ranitidine empirically. After sonographic confirmation of the presence of worm in the common bile duct, oral antihelminthic drug were added through nasogastric tube while on conservative treatment. Results: Presence of AL in the common bile duct (CBD) were confirmed sonographically in 86 cases. All patients were given antithelminthic drug while on nasogastric suction. 24 to 72 hours later about all (n=84) patients improved symptomatically and were given oral diet. Further observation for 24 to 48 hours revealed no relapse of pain. Then they were discharged with prior health education about ascariasis and advised to come back for follow up examination or symptomatic relapse. The rest 2 patients remained symptomatic despite antihelminthic medication. They were transferred to tertiary hospital for endoscopic or surgical intervention. Conclusion: Conservative management along with oral antihelminthic medication was found to be effective in treating biliary ascariasis in the majority of patients and thus avoiding surgical intervention or invasive endoscopic extraction.

Key words
Biliary ascariasis, epigastric pain, acalculous cholecystitis, pancreatitis, biliary lithiasis, echogenic shadow, ERCP (endoscopic retrograde cholangio pancreatography).

Introduction
Ascariasis is a helminthic infection caused by Ascaris lumbricoides (AL). It is the...
commonest helminthic infection worldwide affecting about 1.4 billion people. In Bangladesh, 82% of the population are affected. Noakhali is a densely populated district situated in the coastal belt of Bangladesh where warm and humid environment and soil are in favour of maintaining the helminthic infection. And most of the people near coastal belt are poor and live in an inadequate hygienic condition and sanitation facilities.

Biliary ascariasis is one of the common causes of acute abdominal pain among the hospitalized female patients in our clinical experience, which is occasionally seen in the male. Accordingly, we have selected only the female patients in this study. The most common symptoms are acute upper abdominal pain, nausea, vomiting and occasionally fever & jaundice simulating acute cholecystitis. Common complications of biliary ascariasis are acute cholecystitis, acute cholangitis due to accompanying bacterial contamination, acute pancreatitis and liver abscess. Hepatobiliary lithiasis can occasionally be seen as a remote complication.

Ascaris lumbricoides infection starts with the ingestion of fertilized ova in contaminated food and drink. In the intestine, the larva hatches which then penetrate the intestinal wall and enter into the enterohepatic circulation and then to pulmonary circulation. In the lung they enter into the alveoli from there they migrate to the upper respiratory tract. The individual then swallow the larva, which enter into the intestine where they grow into adult worm.

An adult worm varies in size from 15 cm to 50 cm long and 5-6 mm in breadth. In heavily infected individuals some of the worms migrate into the duodenum from where they enter into the common bile duct (CBD) through duodenal papillae then it is known as biliary ascariasis. The alive worm in the CBD may migrate into the gall bladder, which is called gall bladder ascariasis. The adult warm in the CBD may also cause acute pancreatitis. Occasionally worm may migrate into the intrahepatic duct and causes liver abscess. Often the worm comes out from the CBD into the duodenum. But at times they may die into the CBD gall bladder or intrahepatic duct and then disintegrate. The pieces of dead worm may act as nidus for stone formation in the CBD, gall bladder and in the intrahepatic duct (hepatolithiasis). The condition can accurately be diagnosed by ultrasonographic examination of hepatobiliary system and pancreas which often shows tubular echogenic structure without casting acoustic shadow in the dilated CBD with a linear hypo-echoic centre along its long axis indicating the gut of the worm (Figure).

Figure: USG showing round warm in dilated CBD

The aim of this study is to see the clinical data among the female patients particularly relationship with age, occupation, marital status, pregnancy, socioeconomic condition and finally to see the outcome after conservative treatment without going for costly and invasive surgical and endoscopic intervention.

Materials and method
This was a retrospective study. We have selected 100 female patients from the registry who were admitted in the female medicine ward with acute upper abdominal pain and vomiting clinically simulating with biliary ascariasis from January 2007 to December 2007. All patients were investigated with routine examination of urine, stool and complete blood count. Sonographic examination of abdomen were performed in all patients. Liver function tests (serum...
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bilirubin, transaminase and alkaline phosphatase) and serum amylase were estimated in selected cases. Age, occupation, marital status and socioeconomic condition of every patient were noted. Presence of Ascaris Lumbricoide in the common bile were confirmed by sonographic examination. After admission all patients were given conservative treatment including nasogastric suction, intravenous fluid, antibiotic (Inj. Amoxicillin), anti-spasmodic and inj. ranitidine empirically. After sonographic confirmation of the presence of worm in the common bile duct, antihelminthic drugs were added through nasogastric tube immediately after nasogastric suction. The duration of time taken to become symptom free was noted in every patient. The duration of hospital stay were also noted in every patient.

Results

86 Patients (100%) were confirmed sonographically, the presence of AL in the dilated common bile duct. Of these maximum numbers of 54 (62.79%) patients were admitted during the period April to July 07 and only single patient (1.16%) admitted in January 07 (Graph 1).

The age range of all patient were 15-60 years. Maximum number of patients (n=50; 58.13%) were in the age range of 15-30 years and only one (1.16%) in the age = 60 years (Graph 2). Occupational records showed that 40 (46.51%) were housewives and 26 (30.25%) patients were maid servants (Graph 3).

60 (69.76%) patients were married and 26 (30.23%) were unmarried. 12 (13%) patients had associated pregnancies. All patients (n=86:100%) had acute upper abdominal pain, 72 (83.72%) patients had vomiting, fever was noted in 12 (13%) patient and mild jaundice was present in 2 (2.32%) patients. Almost all (n=79; 91.86%) patients became asymptomatic within 5 days after starting treatment. 7 (8.24%) patients stayed a bit longer in the hospital upto 10 days. A total number of 84 (97%) patients including associated pregnancies became asymptomatic after conservative treatment along with antihelminthic medication. 2 (2.25%) patients remained symptomatic despite antihelminthic medication. These two patients were transferred to tertiary hospital for surgical or endoscopic intervention. Acute cholangitis, acute pancreatitis and hepatic abscess were not found in any patients. Also no case of associated hepatolithiasis was found in this study.

Discussion

The most common causes of intestinal helminthiasis is ascariasis worldwide1. The
hepatobiliary tree is one of the most common site for ascariasis. Biliary ascariasis was reported in the literature as early as 1946 or earlier. The first report of biliary ascariasis in North America or United Kingdom was published in 1977. Since then many report of biliary ascariasis published worldwide, specially in Asia and Latin America. Biliary ascariasis is a common complication of intestinal ascariasis in our clinical experience. It is the most common cause of acute upper abdominal pain in the female. The condition accounts for about 10%-19% of ascariasis related hospital admissions. It is second only to cholelithiasis as a cause of acute biliary symptoms worldwide. The worms (AL) have a great propensity to explore small opening. They enter into the CBD through duodenal papillae (ampulla of vater ). It is more commonly seen in women than in men (female to male ratio 3:1). The ratio may even be greater in our hospital. The maximum numbers of patients are in the 15-30 years age group in this study. Pregnant women are more prone to develop biliary ascariasis, this is also coincides with our observation. Of total number of 86 (100%) patients 12 had associated pregnancies in our study. All patients (100%) had upper abdominal pain 72 (83.72%) patients had vomiting, fever was noted in 02 patients. Common symptom are acute upper abdominal pain, vomiting, fever & jaundice. While entering into the CBD the worm carries infected intestinal contents and causes obstruction of the biliary tree. As a result ascending pyogenic cholangitis, acalculous cholecystitis, obstructive jaundice and pancreatitis may develop. Empyema of the gall bladder by obstructing the cystic duct is an uncommon complication of biliary ascariasis. Biliary ascariasis can accurately diagnosed with ultrasonographic examination of abdomen. Other methods of diagnosis are ERCP, MRCP, CT scan of hepatobiliary system & MRI. This are not cost effective for poor patient. In this study all cases were diagnosed by ultrasonogram of hepatobiliary system. In our study acute pancreatitis, pyogenic cholangitis and hepatic abscess were not found in any patient. Conservative treatment was shown to be effective in most cases and patients became asymptomatic within 72 hours after adding antihelminthic medication. Previous reports recommended to add antihelminthic drugs after subsidence of pain. But our clinical experience shows that pain relief occurred only after adding antihelminthic medication in most cases. However, we feel that this should be confirmed by further study.

Hepatolithiasis is not an uncommon complication of biliary ascariasis but not associated cholelithiasis/hepatolithiasis were not found in any patients in this study. As the condition is more common in this endemic area ascariasis related stone formation would be expected more among this population. Our clinical experience also differs with others in this respect. However long term follows up with USG of hepatobiliary system will be able to clear this situation. Surgical intervention and endoscopic extraction during ERCP (Endoscopic retrograde cholangio pancreatography) are the definitive treatment modalities for patients not responding to conservative treatment along with antihelmintic medication. These patients have severe upper abdominal pain and associated hepatobiliary and pancreatic complications.

**Conclusion**

Biliary ascariasis is a common cause of acute upper abdominal pain among the female in areas where intestinal ascariasis is endemic. This condition can accurately be diagnosed with ultrasonogram of abdomen. Conservative management along with antihelmintic medication is effective in most cases. Those patients not responding to conservative management must be treated with surgical intervention or endoscopic extraction of worms during ERCP. This condition can be prevented by providing standard sanitation facilities, improving personal hygiene through health education & by taking antihelmintic drugs at regular intervals.
References