

Biliary Ascariasis Induced Acute Pancreatitis: A Case Report

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Ascariasis is one of the most common helminthic diseases in humans. Migration of *Ascaris lumbricoides* into the biliary tree may cause acute cholangitis, acute cholecystitis, biliary colic, acute pancreatitis or hepatic abscess. We report a case of acute pancreatitis caused by a live worm that obstructed the common bile duct. A 60-year-old housewife presented at our hospital, half an year after traveling to Mainland China and Vietnam. She complained of severe epigastric pain with vomiting for one day. Abnormally high serum amylase and lipase were found. Abdominal ultrasonography showed two small, round, echogenic lesions inside the dilated common bile duct in transverse section. Common bile duct stone with cholangitis and acute pancreatitis were suspected initially. One week later, endoscopic retrograde cholangiopancreatography showed an actively moving tubular filling defect in the common bile duct. Endoscopic removal of the worm was performed with an endoscopic basket after an sphincterotomy. Abdominal pain resolved rapidly after worm extraction and oral administration of mebendazole 100 mg twice daily for three days. There was no worm on stool passage. We consider that world travel is closely related with the ascariis infection in this case, although there was no direct evidence. As a result of increased population migration and world travel, such case will be found in the future.

Key words

biliary ascariasis, acute pancreatitis, endoscopic retrograde cholangiopancreatography, world travel.

INTRODUCTION

Ascariasis is one of the most common helminthic diseases in humans [1]. Infection is common in temperate as well as tropical regions, and whenever sanitation is poor. The prevalence of ascariis infection is high in Taiwan before and around 1960 when up to 80% primary school children were infected [2]. The adult roundworm *Ascaris lumbricoides* usually lives in the intestinal lumen without any significant symptoms. Sometimes, the worms cause intestinal obstruction, volvulus, or perforation of the bowel [1]. Movement of

worms into the biliary tree or pancreatic duct may induce acute cholangitis, acute cholecystitis, biliary colic, hepatic abscess, or acute pancreatitis [3]. Pancreatitis may occur by direct worm invasion of the pancreatic duct (pancreatic ascariasis), by worm invasion of

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the ampullary orifice, by entry into the bile duct and blockage of the pancreatic duct orifice (biliary ascariasis), and by worm invasion of both the bile duct and pancreatic duct (biliary and pancreatic ascariasis) [4]. Biliary ascariasis has become a relatively rare disease and can be missed in differential diagnosis after successful control of ascaris infestation in Taiwan [5]. We present here a case of biliary ascariasis induced acute pancreatitis. The patient had a history of eating uncooked vegetable dishes during her travels to Mainland China and Vietnam. World travel is considered as one reason for ascaris infection although there is no direct evidence in this case. In view of increased world travel and population migration, such cases is likely to become more prevalent in Taiwan.

CASE REPORT

A 60-year-old housewife presented at our emergency room with nausea, vomiting, and severe epigastric pain that radiated to the back for one day. No fever, chill, diarrhea, constipation or jaundice was observed. She had enjoyed good health except for an ovary tumor, for which she underwent total hysterectomy and oophrectomy 20 years ago. Half an year prior to this admission, she had traveled to Mainland China and Vietnam and eaten uncooked vegetable dishes. After coming back Taiwan, abdominal fullness and mild epigastric pain developed off and on. On examination, her consciousness was clear. Her blood pressure was 120/70 mmHg in a supine position. Body temperature was 36.6 °C. The conjunctivae were pink and the sclera were anicteric. The neck was supple without jugular vein engorgement or lymphadenopathy. Chest and heart were normal. The abdomen was flat and soft with tenderness and mild rebounding pain over the upper abdomen. Murphy's sign was positive. There was no palpable mass in the abdomen. Bowel sound was normal. There was neither cyanosis nor pitting edema in the extremities.

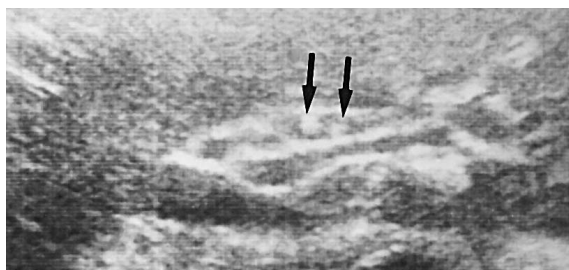


Fig.1 Ultrasonography showing two small, round nonshadowing echogenic lesions (arrows) in the common bile duct in transverse sections.



Fig.2 Ultrasonography showing a linear tubular structure (arrows) in the dilated common bile duct in longitudinal section.

Laboratory data showed serum amylase 2107 U/L (normal, < 128U/L), serum lipase 412 U/L (normal, < 190 U/L), aspartate aminotransferase 110 U/L, alanine aminotransferase 62 U/L, total bilirubin 1.14 mg/dl (normal, < 1.0 mg/dl), C-reactive protein 1.65 mg/dl (normal, < 0.8 mg/dl), prothrombin time 10.4 seconds (control, 12.2 seconds), red blood cell count 4.5 million/ μ l, hemoglobin 12.8 g/dl, white blood cell count 10700/ μ l with neutrophil 58%, lymphocyte 33%, and eosinophil 1.8%, and platelet count 223000/ μ l.

The chest X-ray and plain film of the abdomen were normal. The abdominal ultrasonography showed two small, round echogenic lesions in the dilated common bile duct (CBD) (**Fig.1**), and a linear tubular structure in the CBD in the longitudinal section (**Fig.2**). The abdominal computerized-tomography (CT) examination showed normal pancreas, dilatation of the CBD and intrahepatic duct, and hyperdense round lesion in the dilated CBD in the nonenhanced

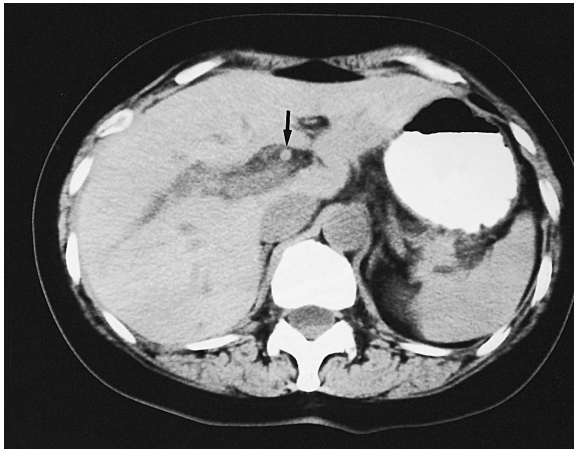


Fig.3 Nonenhanced CT showing a "bull's-eye" image (hyperdense round lesion in the dilated common bile duct, (arrow).

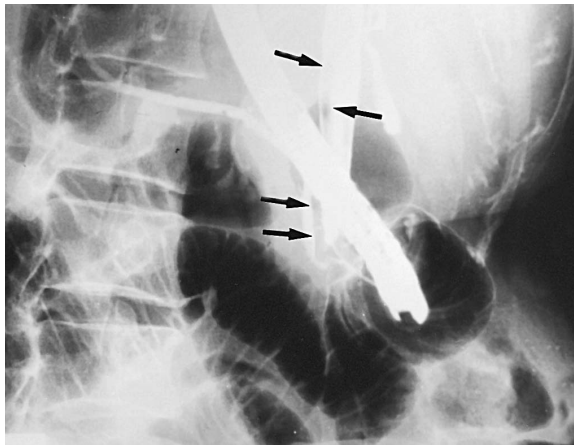


Fig.4 Endoscopic retrograde cholangiopancreatography showing a linear tubular filling defect (arrows) on the dilated common bile duct .

phase (**Fig.3**). The patient was treated with parenteral cephazolin, gentamycin, and intravenous fluid under the impression of CBD stone with acute pancreatitis and cholangitis. One week after admission, serum amylase and lipase normalized. Intermittent epigastralgia, however, was still presented. An endoscopic retrograde cholangiopancreatography (ERCP) was arranged and showed an actively moving tubular filling defect in the dilated CBD (**Fig.4**). Worm extraction was performed by an endoscopic basket after an sphincterotomy. An adult *Ascaris lum-*

bricoides measuring 22 cm in length was noted. Symptoms subsided after worm extraction. Stool examination with concentration method revealed negative ova of the ascaris two times. Mebendazole 100 mg was given orally twice daily for three days. There was no worm on stool passage. The patient was then discharged in good condition.

DISCUSSION

The etiology of acute pancreatitis varies geographically [3,6]. Biliary ascariasis is a common cause of adult biliary disease in endemic areas of the world [3, 7]. In Kashmir, India, 15% of biliary ascariasis present with acute pancreatitis [7] and 23% of acute pancreatitis shows ascariasis as an etiological cause [3]. Acute pancreatitis develops usually as result of worm invasion into the bile duct through the papilla of Vater causing its blockage or spasm (biliary ascariasis), invasion into the pancreatic duct (pancreatic ascariasis), or both (biliary and pancreatic ascariasis). Invasion of the pancreatic duct is rare owing to its narrowness [4]. Initially, we failed to diagnose our patient using abdominal ultrasonography and abdominal CT. One week after admission, biliary ascariasis was confirmed by ERCP. Although the prevalence of ascaris infection has decreased in Taiwan [5] and other developed countries, clinicians should be aware of its related abdominal complications because of the increased movement of tourists and immigrants [8].

Ultrasonography is a highly sensitive and specific method for the detection of worms in the biliary tree [9], and is the choice for initial diagnosis. This investigation is non-invasive and can be repeated frequently to monitor movement of the worm in the duct. However, its sensitivity for detection of a single worm in the bile duct is only 50% [9]. Pancreatic ascaris may be missed unless there is a high index of suspicion [6]. The characteristic sonographic features of worms in the bile duct are long echogenic structures, linear or curved, single or multiple, with or without a central

longitudinal anechoic tube, mostly without acoustic shadowing and movement of the worms in the bile duct in longitudinal sections [9]. In transverse sections, a "bull's-eye" image may be seen, caused by the worm inside a dilated bile duct [10].

Using abdominal CT to detect the presence of worms is easier in the nonenhanced phase when they appear as hyperdense tubular structures surrounded by the hypodense bile. In transverse sections, as in ultra-sonography, a "bull's-eye" image may be seen because the worm is inside a dilated bile duct [11]. CT is able to demonstrate the worms inside bile ducts and to delineate the extent of possible complication [11].

ERCP not only is an excellent diagnostic tool but also has a major therapeutic role in biliary ascariasis [4,7]. The findings of biliary ascariasis in ERCP include a smooth long linear filling defect sometimes moving in the biliary tract. Since ERCP is invasive, it should be reserved for those suspected cases of biliary ascariasis in which sonography is technically inadequate or is not diagnostic [9] or a therapeutic attempt is considered [12]. Most patient's worms eventually move out to the biliary duct within 24 h to 3 weeks of induction of biliary and/or pancreatic symptoms [3,6,9,12]. Recent studies have shown that biliary ascariasis is a self-limiting disease and that most patients will respond to conservative treatment [3,7]. In endemic areas, regular anthelmintic therapy every 2 months is necessary because reinfection rates are high [4]. Endoscopic extraction of worms and endoscopic nasobiliary drainage (ENBD) are indicated in about one third of patients with biliary ascariasis [12]. Worm extraction is recommended if the biliary tree contains a dead worm, worms persist inside the biliary tree for more than one month, worms coexist with stones inside the biliary duct [13], patients who present with acute pyogenic cholangitis are critically ill [3], or recurrent biliary colic and pancreatic pain are not amenable to analgesics [4]. Worm extraction from the

ampullary orifice often leads to the rapid relief of biliary and pancreatic symptoms [3]. In endemic areas, endoscopic sphincterotomy is not necessary because recent worm invasions had widened the ampullary orifice and the likelihood multiple episodes of worm re-invasion were noted [3,12]. ENBD tube can be inserted during prolonged procedures and when the patients show signs of acute illness [14]. ENBD tube does not interfere with the passing of live worm [14], but is a major drawback with dead worm [13]. The treatment of biliary ascariasis with surgery is limited [7]. Surgery is required when patients have associated peritonitis [15] or when endoscopic worm extraction fails [13].

This case report discussed the methods of diagnosis and endoscopic management of biliary ascariasis in a tourist who had travel to Mainland China and Vietnam and eaten uncooked vegetables. World travel is considered to be closely related to ascariasis infection although there is no direct evidence in this case. In conclusion, we suggest that the biliary ascariasis should be included in the differential diagnosis in those patients who are world travelers or immigrants tropical areas with poor sanitation, and patients who manifest biliary or pancreatic symptoms in Taiwan.

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膽道蛔蟲症併發急性胰臟炎：一病例報告

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蛔蟲症是人類最常見的蠕蟲感染，當牠移行入膽道可引起膽管阻塞、膽管炎、肝膿瘍或胰臟炎。雖然在一些流行地區這些併發症仍屬常見，但在台灣已非常稀罕。本科於86年2月經歷一例蛔蟲阻塞總膽管併發急性胰臟炎，患者為60歲家庭主婦半年前曾到過越南及中國大陸地區，因急性腹痛而來就診，實驗室中檢查顯示血清澱粉酶及脂肪酶異常升高，而腹部超音波發現總膽管擴張，其中有兩個小的高迴音影象，初以為總膽管結石併發膽管炎及胰臟炎，後由內視鏡逆行性膽胰管攝影發現在總膽管內有一條蠕動折屈的蛔蟲，並以籃網經由內視鏡將蟲體取出，之後腹痛消失，並給予三日抗蛔蟲藥(mebendazole)，無蛔蟲解出，於門診追蹤治療。此病例與海外旅遊雖無直接證據，但仍相當有關。隨著國人海外旅遊及移民增加，此類病例在未來仍可能被發現，不容忽略。

關鍵詞

膽道蛔蟲症，急性胰臟炎，內視鏡逆行性膽胰管攝影，海外旅遊

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