

A CASE OF ASCARIASIS OF THE BILIARY TRACT

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SUMMARY : *This report describes a well-documented case of biliary ascariasis, resistant to conservative therapy and treated surgically. Ultrasound (US) findings were suggestive of mature forms of ascarides, both in the gall bladder and common bile duct. Resistance to conservative treatment was followed by ERCP and sphincterotomy, which also failed to extract the parasites. Cholecystectomy and choledocotomy with removal of the parasites were undertaken as the last and definitive step.*

Key words: *Ascariasis, Bladder Disease, Surgical Procedures, Biliary Tract Diseases, Endoscopic Sphincterotomy.*

INTRODUCTION

Infestation with *Ascaris lumbricoides* is seen worldwide, and there has been much interest in the rare and interesting biliary complications of this manifestation. The parasite is the largest and most common of intestinal roundworms (1,2). In most infected persons, *A. lumbricoides* acts as a commensal, stays in the gut lumen, produces no specific disease state, and eventually dies spontaneously and is shed. Rarely, the worm can enter the biliary tree and cause cholangitis and/or biliary colic. The migration of the parasite into the normally sterile biliary tract indicates an interesting type of infestation because the complications mainly result from the bulkiness of a single or several organism(s). The diagnosis, as well as the therapeutic strategy, might be difficult to figure out for such an atypical entity. The incidence of ascariasis is low in western countries; still, biliopancreatic *Ascaris*

infestations have been reported (3,4). From endemic regions, larger numbers have originated, and complications, such as ascending cholangitis, acute pancreatitis, and obstructive jaundice have been noted (5).

This report describes a well-documented case of biliary ascariasis, resistant to conservative therapy and treated surgically. Adult worms persisted both in the bile duct and gall bladder. The details of the diagnostic data and the aspects of therapeutic interventions are presented.

CASE REPORT

A 61-year-old woman from the eastern rural region presented with abdominal pain, nausea, and intermittent vomiting of a week's duration. She had experienced similar attacks several times during the last six years, without medical care and detailed investigations. The medical history was otherwise unremarkable. The blunt, colicky pain was localized to the right upper quadrant. On

physical examination, the patient appeared well without pyrexia and nothing specific except for a slight tenderness on the right hypochondrium with deep palpation was noted. Cholelithiasis was our initial possible diagnosis, and an abdominal ultrasound (US) was carried out as the initial step. To our surprise, US showed ribbon-like echogenic formations associated with debris both in the gallbladder and common bile duct (CBD), suggesting biliary ascariasis (Fig. 1). Laboratory investigations revealed the following abnormal findings: serum total bilirubin 1.66 g/dl (normal <1.5); direct bilirubin 0.51 g/dl (N:<0.5); alkaline phosphatase 152 U/l (N:30-110); AST 95 U/l (N:8-45); ALT 202 U/l (N:5-45); GGT 181 (N:3-33); LDH 491 (N:100-190). Parasitologic examination of the feces revealed mature forms of *A. lumbricoides*. Leukocytosis or eosinophilia

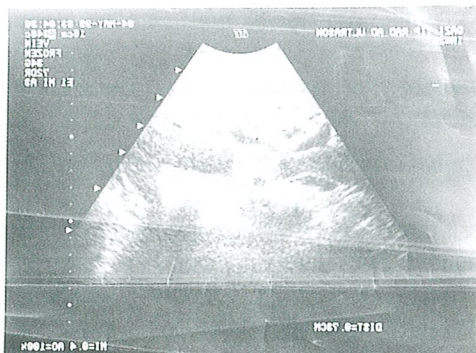


Fig - 1 :US view of the patient suggesting biliary ascariasis.

did not exist. Conservative treatment with US controls was started.

Due to the persistence of the worm, confirmed by US controls about two weeks later, endoscopic retrograde cholangiography (ERCP) was performed to confirm the diagnosis (Fig. 2). Sphincterotomy was added to the procedure for possible extraction of the parasite from the CBD. This trial was unfortunately unsuccessful, and follow-up with ultrasound revealed the persistence of the immobile worm in the biliary tree. Albendazole therapy (400 mg single oral dose) was then administered, but three weeks after all these interventions, the patient continued to experience episodes of biliary colic and the US

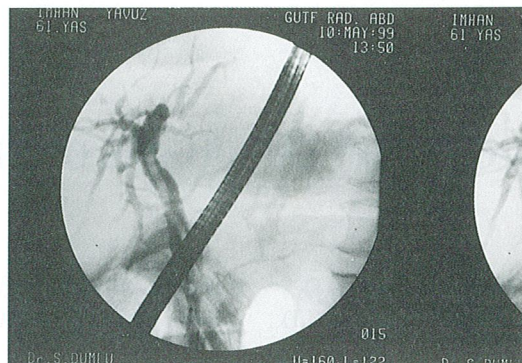


Fig - 2 :ERCP views demonstrating the parasite high in the biliary tract.

appearance was no different from the initial. Surgical therapy was decided.

Following laparotomy with a right subcostal incision, the gall bladder was first removed. A choledocotomy was then performed and a mature parasite, about 8 cm long, was extracted from the CBD (Fig. 3). The biliary tree was washed with saline to remove the accompanying debris, a T-tube was inserted, and the incision was closed after T-tube cholangiography. The removed gall bladder was incised to demonstrate a second mature ascaris (Fig. 4). The postoperative course was uneventful, and the T-tube was removed on

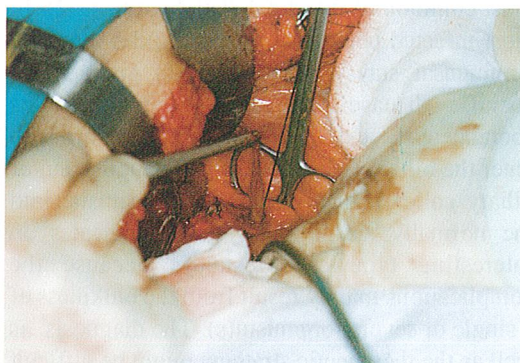


Fig - 3 :Choledocotomy and extraction of the dead parasite from the common bile duct.

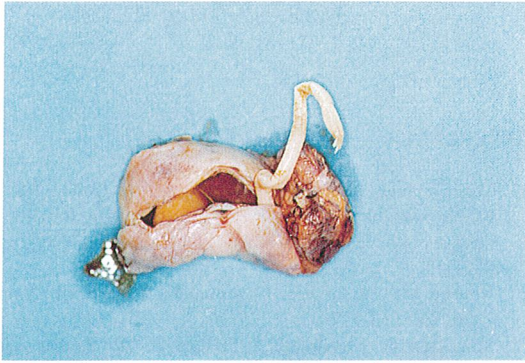


Fig - 4 : The removed gall bladder was incised to demonstrate a second mature ascaris.

the eighth postoperative day following a second normal postoperative T-tube cholangiography. Periodical antihelminthic therapy was advised.

DISCUSSION

This case exemplifies a rare clinical picture of biliary ascariasis. The US and ERCP views were clearly demonstrative of this entity. *Ascarides* existed both in the bile duct and in the gall bladder. Although the exact prevalence of this helminthic infection is not known in our country, it is possible that a considerable number of such infestations exist and that clinicians may be faced with similar cases. The case presented is exceptionally informative because almost all diagnostic and therapeutic interventions were carried out. During the initial conservative regimen, the parasite persisted in the common bile duct. Then, sphincterotomy and endoscopic trials to extract the parasite were unsuccessful. Surgery, as the last resort, was indicated for definitive elimination of the disease.

Ascariasis is a helminthic infection of humans caused by the nematode *Ascaris lumbricoides*. *A. lumbricoides* is a cosmopolitan parasite and the most prevalent and largest of human helminths. The normal habitat of the adult worm is the jejunum. The infection is acquired by the ingestion of the embryonated eggs, and the larvae pass through a pulmonary migration phase for maturation. *Ascarides* in the duodenum may enter the ampullary orifice and block it; or else, they can advance further into the bile duct and

hepatic ducts. Less often, worms can reach the gall bladder or enter the pancreatic duct (2). In biliary or pancreatic ascariasis, *ascarides* reach the duodenum either because of excessive worm loading in the jejunum or abnormal retrograde mobility after an intestinal viral or bacterial infection. *Ascarides* have a great propensity to explore small openings, and while in the duodenum, may enter the ampullary orifice. Hepatobiliary and pancreatic ascariasis is more common in women than men with a mean age of occurrence being 35 years (6). It is rare in children, possibly due to the relatively small size of the bile ductal system (7). Endoscopic sphincterotomy predisposes patients to biliary ascariasis in endemic areas because of the widened ampullary orifice and easier passage of the worms into the bile ducts (2). Diagnosis of biliary ascariasis is possible with both US and ERCP. US is highly sensitive for the detection of the worm(s) with well-described characteristics (2,8,9).

The treatment strategy of biliary ascariasis has been a matter of debate, possibly due to the rarity of this clinical entity and the diverse clinical presentations it may cause. Unless a severe septic state exists, a conservative regimen is started initially. The rational treatment for biliary ascariasis is to treat cholangitis by conservative means and eliminate the parasite in the intestines by oral administration of antihelminthic agents (2). The initial conservative regimen includes some or all of the following factors: cessation of oral intake, intravenous fluids, anticholinergic antispasmodic agents, antihelminthics, and antibiotics if signs of cholangitis exist (2,10). The conservative approach stems from the fact that live adult worms, being agile and motile, occasionally migrate spontaneously out of the biliary tract into the intestines within a period of a few hours to weeks (11). Therefore, the early use of antihelminthics has been condemned as they cause flaccid paralysis of the worm in the biliary tree and result in the failure of worm migration from the biliary tract (11). US follow-up of the patient and a moderate delay in antihelminthic therapy thus appears to be the logical approach, as realised in our case. Another point that deserves emphasis is that the reinfection rate is high in endemic areas. Thus, possible reinvasion of the biliary tree should be prevented by keeping

the intestines free of worms and advising the patient to take effective antihelminthic therapy regularly (2,11).

In addition to being a useful diagnostic tool, ERCP has the therapeutic potential of removing the parasite from the common bile duct. ERCP with endoscopic extraction of the parasite, using a snare, Dormia basket or biopsy forceps, is a safe and effective procedure for the diagnosis and treatment of biliary ascariasis (3,12). According to Zargar, endoscopic biliary procedures are considered if: i) A patient fails to respond to adequate conservative treatment; ii) worms persist without changing location in the biliary tract for > 4 weeks, as by that time they are likely to die and thus be unable to migrate out of the biliary tree; iii) biliary tract contains dead worms that may provide nidus for stone formation; and iv) worms inside the biliary tract coexist with stones (11). Beckingham and coworkers reported 25 cases of endoscopic extraction, 19 of which were successful (10). Likewise, extraction from the bile duct or pancreatic duct was accomplished in 34 of the 38 patients (89.5%) in another series (13). Endoscopic removal was not successful in our case because access to the biliary tract was technically difficult even after sphincterotomy and the worm was located highup. In appropriate cases, endoscopic access even into the cystic duct and gall bladder has been attempted (13). The surgical phase of our treatment is quite straightforward. In the modern era of endoscopic procedures, surgery is required in a small number of patients in failure of conservative and endoscopic interventional biliary procedures, as exemplified in our case. Altogether, well-documented phases of a case of biliary ascariasis are described, as well as the pitfalls in treatment strategies.

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