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Fascioliasis observed during laparoscopic cholecystectomy

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Abstract Fascioliasis is an uncommon zoonotic disease caused by *Fasciola hepatica*, a liver fluke, for which humans act as an accidental host, *infected* by the ingestion of water or raw aquatic vegetables contaminated with the metacercaria. We report the case of a patient who presented to our clinic with right upper abdominal pain and nausea. Physical examination and abdominal ultrasonography revealed cholelithiasis. Peripheral blood eosinophilia was the only positive sign observed during routine laboratory tests. We therefore decided to perform laparoscopic

cholecystectomy. During laparoscopy peritoneal implants approximately 0.5–1 cm diameter were detected which gave an impression of peritoneal carcinomatosa. Laparoscopic cholecystectomy was performed, and biopsies were taken from the peritoneal implants which were examined histopathologically, and fascioliasis was determined.

Key words *Fasciola hepatica* · Laparoscopy

Abbreviations ELISA, enzyme-linked immunosorbent assay

Introduction

The fluke, *Fasciola hepatica*, is an unsegmented hermaphroditic flat worm of the class Trematoda that infects sheep, goats, and cattle. Large (140×75 µm), oval, yellow-brown, percolated eggs are passed in the feces of infected animals and hatched into ciliated miracidia in water. To be infective the miracidium must find its intermediate fresh-water snail host, *Lymnaea natalensis* in Africa and *L. auricularia* and *L. acuminata* in Asia, within 8 h. Multiplication takes place within the snail, and cercariae with unforked tails emerge. Cercariae encyst on aquatic vegetation and develop into the metacercarial stage. Metacercariae are ingested by either normal hosts (sheep or cattle) or accidental hosts (humans). The metacercariae excyst in the intestine, perforate the intestinal wall, enter the peritoneum, and then pass through the liver capsule to enter the biliary tree. In the biliary tract the mature fluke releases eggs that are once again passed in feces, completing the life cycle [1]. The disease is endemic in South America, Puerto Rico, Africa, Australia, and China, where it is of economic impor-

tance in the sheep and livestock industry [2]. In general, the geographic prevalence of human disease parallels that of endemic animal illness.

Clinical suspicion of the infestation may arise in patients with tender hepatomegaly, fever, and eosinophilia which begins approximately 2 weeks after ingestion of contaminated water and may last for several weeks. The adult fluke may produce obstructive jaundice or predispose to cholelithiasis [3]. The diagnosis can be confirmed by serology and by the identification of the ova in the stool or in duodenal aspirates.

We report an unusual case of a patient with hepatic fascioliasis who was diagnosed during laparoscopic cholecystectomy presenting as “peritoneal carcinomatosa.”

Case report

A 58-year-old woman was admitted to the hospital with a right upper quadrant pain radiating to the right shoulder and epigastric region, anorexia, night sweat, and weight loss. She resided in Gerede, a rural area in central Anatolia. She gave a history of drinking probably

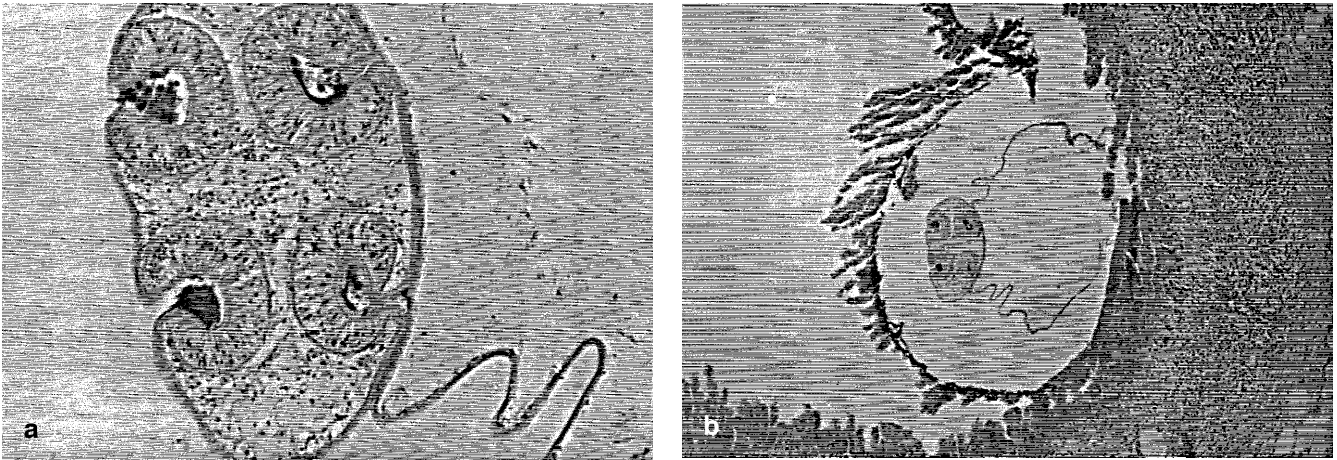


Fig. 1a, b *Fasciola hepatica* organism

contaminated water. Her current symptoms started 2 years before admission to our clinic. Physical examination revealed only mild right hypochondrial tenderness. Blood analysis showed: Hb 12.5 g/dl, 7800 leukocytes with 63% eosinophils, sedimentation rate 15 mm/h, total bilirubin 1.34 g/dl, ALT 45 U/l, AST 41 U/l, GGT 58 U/l, and alkaline phosphates 120 U/l. Results of three stool samples were negative for ova and parasites. Abdominal ultrasonography showed only cholelithiasis. Common bile duct and other viscera were described as normal. During the laparoscopic examination multiple grayish, white nodules approximately 0.5–1.0 cm in diameter were observed all over the surface of the liver, peritoneum, and omentum majus. No abnormality of other viscera was found. Frozen section of three different biopsy samples of these nodules revealed a benign disease, and laparoscopic cholecystectomy was performed. Histopathological examination of the paraffin-embedded tissue sections of gall bladder and nodules showed cholecystitis and *F. hepatica* organism, respectively (Fig. 1). Ornidazole was used in doses of 15 mg/kg t.i.d. for 6 months. After 6 months complete cure was observed by clinical, biochemical, radiological, and parasitological examinations.

Discussion

F. hepatica was first described in 1379 by Jehan de Brie [4]. The diagnosis of fascioliasis should be considered in patients from endemic areas with a history of ingestion of aquatic plants. The most common aquatic plant eaten by humans is watercress. Lack of ingestion of these plants does not rule out infection, however, as there is evidence of infection acquired by drinking water containing the infective metacercariae [5]. *F. hepatica* infection has two distinct phases, in which the signs and symptoms are quite different. The initial, or hepatic, phase of the illness occurs when the organism perforates the liver capsule and begins to migrate through the liver parenchyma toward the large biliary radicles. This stage usually lasts 1–3 months after ingestion of the metacercariae. It is characterized by fever, pain in the right hypochondrium, hepatomegaly, hypergammaglobuli-

nemia, and marked eosinophilia. Mild hepatitis, severe subcapsular hemorrhage, and frank hepatic necrosis have been associated with this stage of disease. In general, finding the triad of absolute eosinophilia, fever, and right upper quadrant pain should raise suspicion of hepatic fascioliasis.

Stool studies for ova and parasites are unrevealing during this phase since the parasites cannot produce eggs before invasion of the biliary tree. Probably our patient was also in the hepatic phase and therefore had the symptoms of hepatic fascioliasis, and stool samples were thus negative for ova or parasites.

The biliary stage often presents with intermittent right upper quadrant pain with or without cholangitis or cholelithiasis. Significant eosinophilia is a variable finding [6–10]. In the past, stool examination by the filtration-ninhydrin method was a sensitive screening test in this stage of disease [11]. More recently the ethylacetate-formalin sedimentation technique has been used in most clinical laboratories. Eggs of *Fasciolopsis buski* can be easily confused with those of *F. hepatica*.

It is almost impossible to describe specific clinical symptoms due to *F. hepatica*. Clinical manifestations vary depending on the period of the disease. The high rate of concomitant biliary stones is blamed on bile stasis and inflammation [6]. Although eosinophilia may be present during the acute phase of the disease, it disappears in the chronic phase [12]. Therefore it is not surprising in the present series not to have observed such a finding. Under proper environmental conditions *F. hepatica* has been reported to cause epidemics [3–15].

Ultrasonography and operative or percutaneous transhepatic or endoscopic retrograde pancreatico-cholangiography have been used to visualize the parasite in several cases [16]. The diagnosis of hepatic fascioliasis can be suggested by computed tomography when the following characteristics are seen: clusters of microabscesses arranged in tract-like fashion, subcapsular location of the hepatic lesions, and very slow evaluation of the lesion on follow-up examinations [17]. Operative diagnosis of *F. hepatica* is often

made upon being encountered accidentally while exploring the common bile duct for other reasons [18].

Although not available in most centers, enzyme-linked immunosorbent assay (ELISA), complement fixation, and diffusion precipitin tests, are very specific and have led to an advance in the definite diagnosis of *F. hepatica* [19, 20]. The ELISA has been shown to be rapid, sensitive, and quantitative. The assay detects antibody to the excretory-secretory antigen products from adult *F. hepatica* [1, 22]. In 45 Egyptian patients with fever of unknown origin ELISA had 100% sensitivity and 97.8% specificity for detection of antigen products [20].

The diagnosis of fascioliasis is based on the clinical symptoms, absolute eosinophilia, and the detection of ova or worm in the feces or duodenal juice during the stationary stage. The results of serological tests are especially useful in the acute stage of the disease because there are no eggs in bile juice or feces until the worm reaches the bile duct. It may prove virtually impossible to reach a preoperative diagnosis in *F. hepatica* patients with surgical complications without the aid of serological tests, should there be no evidence of the trematod in the feces.

Biliary obstruction, inflammatory changes, and recurrent cholangitic episodes leading to cirrhosis of the liver may be avoided if the parasite is diagnosed and treated medically early in the course. Emetine hydrochloride, bithionol, and praziquantel have been used with comparable success in the medical treatment of such early cases [2, 14, 15]. The cure rate with bithionol is in the range of 50% during a 1-month period; for this reason it is used in very few countries and is not available in most Latin American countries. Emetine is used because of its high efficacy in the treatment of acute and chronic infections, but it has important side effects: hypotension, tachycardia, electrocardiographic changes, vomiting, and diar-

rhea. For these reasons patients must be hospitalized. Dehydroemetine is better tolerated and causes less cardiac alterations.

Praziquantel, an antihelminthic with very good results against organisms other than *Schistosoma*, is not useful against *F. hepatica*, probably due to its thick tegument that obstructs drug penetration. Albendazole, which is efficient against animal fascioliasis, has a high rate of failure in human infections. Triclabendazole has high fasciolicide efficiency against acute and chronic infections in animals and is administered as a single oral dose, with very few adverse effects. Triclabendazole is licensed exclusively for animal treatment and has rarely been used in humans, and then only in severe cases when other drugs have failed and with the informed consent of the patients [3].

The case described here was probably a fascioliasis case in the invasion phase. We therefore could not find the eggs or the organism itself in the stool samples. The only positive finding was eosinophilia, and the patient's diagnosis was decided to be cholelithiasis. During the laparoscopic examination multiple grayish, white nodules approximately 0.5–1.0 cm in diameter were observed all over the surface of the liver, peritoneum, and omentum majus. Although it seemed to be as "peritoneal carcinomatosa", histopathological examination of the lesions revealed fascioliasis associated with cholelithiasis. In our clinic ornidazole was used in doses 15 mg/kg t.i.d. After 6 months complete cure has been observed by clinical, biochemical, and parasitological examinations. Findings on computed tomography were normal, but we did not have one before the operation; it was thought to have only limited value in evaluating our patient. We recommend the use of above medications at any stage of the disease to eradicate *F. hepatica*. Human fascioliasis should be kept in mind in any case of cholelithiasis or cholangitis.

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