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Case Report

Diagnosis and Treatment of Fasciola Infection with Endoscopic Retrograde Cholangiopancreatography (ERCP) in Ardabil, Northwest of Iran: Two Case Reports

Shabnam Asfaram [1], Behnam Sajedi [2], *Behnam Mohammadi-Ghalehbin [1,3]

1. *Zoonoses Research Center, Ardabil University of Medical Sciences, Ardabil, Iran*
2. *Department of Internal Medicine, School of Medicine, Imam Khomeini Hospital, Ardabil University of Medical Sciences, Ardabil, Iran*
3. *Department of Microbiology and Immunology, School of Medicine, Ardabil University of Medical Sciences, Ardabil, Iran*

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***Correspondence Email:**
bmghalehbin@gmail.com

Abstract

Here we report biliary fascioliasis in two women 27 and 54 years old from Ardabil Province, Iran who presented with nausea, anorexia, weight loss, and pain between shoulder blades. Endoscopic ultrasound showed distal common bile duct strictures (CBD) and a lesion in its proximal. Endoscopic retrograde cholangiopancreatography (ERCP) was performed and live parasites were diagnosed and successfully managed into the duodenal lumen. The clinical findings of the patient improved after the procedure. This report emphasizes that the prevalence of *Fasciola* in Ardabil is predictable and this infection could be simultaneously diagnosed and treated by the ERCP.

Introduction

Fasciola sp. is a leaf-shaped worm, that commonly attacks domestic animals like cattle, sheep, and goats and is identified sporadically in humans as accidental hosts that are contaminated after eating encysted metacercariae-laden water plants. Despite the ectopic cases, juveniles penetrate the intestinal wall and dwell in the liver parenchyma, the bile ducts, and rarely in the gallbladder (1).

Typical causes of human fascioliasis in many parts of the world include an acute phase that

may last 3-5 months and is associated with the migration of flukes to the bile ducts and causes weight loss, urticaria, fever, abdominal pain, anorexia, hepatomegaly, anemia, ascites, eosinophilia, and jaundice. In the chronic stage, mature flukes are located in the bile ducts and cause biliary obstruction (2). The WHO has emphasized the widespread health problem of fascioliasis in different countries including Iran. A few cases of biliary obstruction by *Fasciola* have been reported in Iran (3,4). Also, extra-hepatic fascioliasis had been previously described in Ardabil province (5,6). ERCP has been widely used for the diagnosis and preferential treatment of diseases of the pancreas and common bile duct (7).

Here, we report two cases of biliary obstruction by *Fasciola* diagnosed and treated by ERCP in June and September 2023.

Cases description

Case 1

The first patient was a 27-year-old female with a history of fever, nausea, anorexia, weight loss, painful swallowing, and progressive epigastric pain radiating to her back who was admitted to the Imam Khomeini Hospital in Ardabil Province, northwest of Iran. She lived in a village that was not recognized as an endemic area of fascioliasis but had a history of husbandry, consuming contaminated local aquatic vegetables, and drinking well water. She had received treatments on an outpatient basis but had not recovered and her symptoms were gradually becoming worse. On admission, she appeared to be in poor general condition. So within one month, after the onset of symptoms, she had lost 5 kg. Laboratory findings patient upon admission consisted of a white blood cell count of 6400/mm3 without any evidence of eosinophilia. Her platelet count and hemoglobin were normal. Some biochemical parameters, direct bilirubin was 9 mg/dl, total bilirubin 1.19 mg/dl, aspartate aminotransferase 36 IU/L, alanine aminotransferase 56 IU/L, alkaline phosphatase 227 IU/L and amylase 41 IU/L. Endoscopic ultrasound demonstrated distal common bile duct strictures (CBD) and a lesion in its proximal measuring 34×12 mm. Then, the patient underwent magnetic resonance cholangiopancreatography, which due to the presence of a filling defect in the proximal CBD, the possibility of a parasitic infection or cholangiocarcinoma was raised. No serological tests were performed but during the ERCP process, several live thin-shelled and grey-colored *Fasciola* parasites were directed into the duodenum (Fig. 1). Triclabendazole (10 mg/kg single dose) was prescribed for therapy. Multiple stool examinations by formalin ether concentration method for ova of *Fasciola* and parasites were negative during 6 months of follow-up.

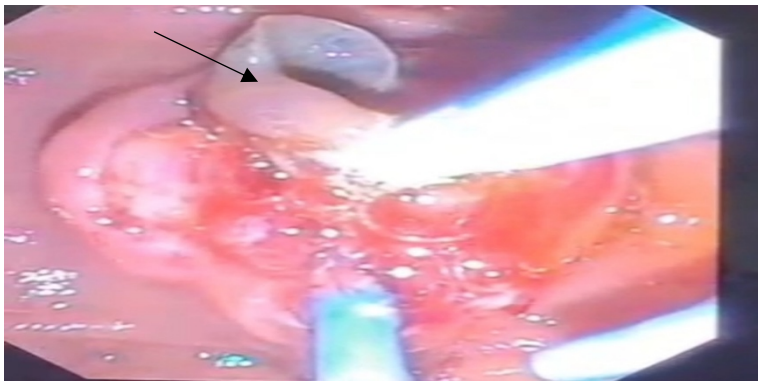

Fig. 1: Alive *Fasciola sp.* excised from the gallbladder during the endoscopic retrograde cholangiopancreatography (ERCP) procedure

Case 2

The second patient was a 54-year-old rural female who was admitted to Imam Khomeini Hospital in Ardabil Province with abdominal pain, nausea, anorexia, and pain in the right upper quadrant radiating to between her shoulder blades in the last eight months. According to the patient, the pain was not positional and had nothing to do with eating. In her previous medical history, there was cardiovascular disease and type 2 diabetes associated with fatty liver disease. During the physical examination, the patient was sensitive to palpation in the epigastric region and right subcostal area. The patient did not have a fever or chills. Her laboratory results upon admission showed the number of neutrophils and monocytes only slightly increased. No eosinophilia were observed. Routine liver biochemical tests and serum amylase/lipase concentrations were normal. The ultrasonographic findings of the patient showed dilatation of the CBD accompanied by a stone 22 mm diameter in the gallbladder. She had no icterus, tenderness, gardening, organomegaly, or ascites. Therefore ERCP was performed for diagnostic and therapeutic purposes and surprisingly, live green-brown parasites of *Fasciola* and biliary stone were evacuated (Fig. 2). Serological tests were not performed for the diagnosis of fascioliasis and Egaten (Triclabendazole) 10 mg/kg as an oral single dose was started for therapy. There were no problems in laboratory testing after 4 months of follow-up.

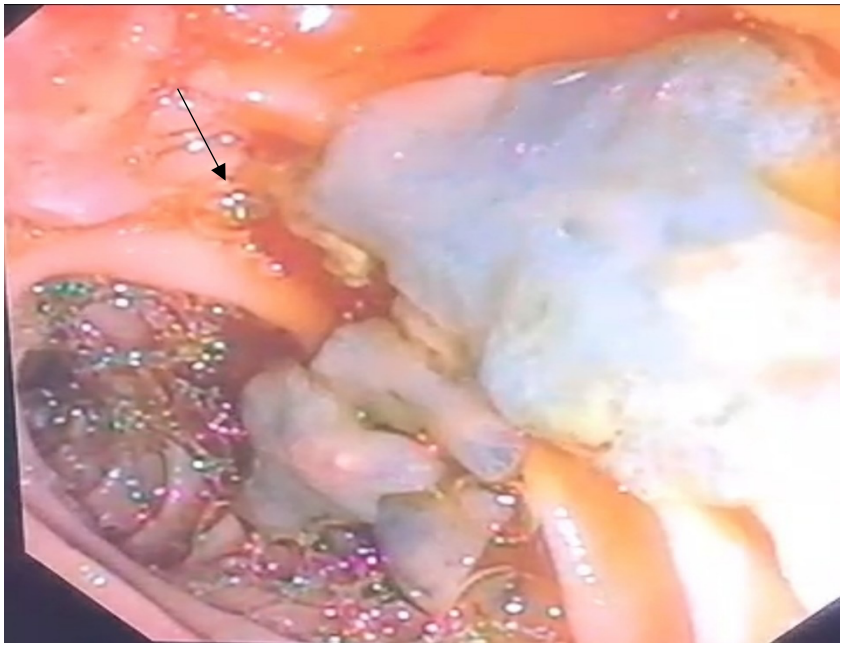

Fig. 2: ERCP showing the dilated bile ducts with alive Fasciola sp.

Discussion

Fascioliasis is a global emerging zoonotic infection. Environmental and climatic changes in some areas may increase rainfall and decrease temperature and provide a new habitat for the emergence of *Fasciola* and its hosts. One of the diagnostic problems of fascioliasis is having non-specific clinical manifestations that have different signs and symptoms depending on the stage of the disease. Therefore, it is necessary to have accurate information

about the place of residence and obtain the patient's medical history (8).

Consumption of aquatic plants, using contaminated water, and living near reservoir animals are the main sources of transmission of this parasite. Our cases mentioned a history of using local aquatic vegetables, drinking well water, and contacting cattle and sheep.

Among the laboratory findings, eosinophilia is common in patients with fascioliasis infection, seen in the acute stage of infection. However, in some cases, especially during the biliary phase the disease can occur without eosinophilia (9,10). In this study, eosinophilia was not observed in any of the cases, which is consistent with some other studies (3,11).

Although in the chronic stage, detection of the eggs in the stool accompanied by clinical and radiologic findings supported by serology can be helpful in the diagnosis, in the acute stage, stool examination cannot be used for the diagnosis because until the parasite reaches the bile duct, no eggs are detected in the stool. Therefore, ultrasonography, computerized tomography scan, and MRI (magnetic resonance imaging) are beneficial techniques for the recognition of fascioliasis and ERCP is used in the diagnosis and treatment of patients in the chronic phase (9,12).

If the parasite is present, it is possible to see a disturbance in the contraction of the gallbladder, debris in the gallbladder, tenderness on transducer application, gall stones, and wall thickening associated with marked bile duct dilatation in ultrasound findings (13). In cases of distal CBD obstruction, almost all patients have a positive history (4). Our patients did not present organomegaly, cholangitis, or elevated hepatic enzymes, and patients underwent ERCP due to CBD dilatation and a filling defect in the proximal CBD or distal CBD strictures observed in ultrasonography and despite normal laboratory findings, several *Fasciola* parasites were shoved into the duodenum. Other studies similar to our findings reported patients with biliary fascioliasis with normal laboratory findings (4,14). Removal of parasites by ERCP was necessary to prevent probable blockage of CBD because, if left untreated, fasciolosis may cause recurrent attacks of cholangitis and secondary biliary cirrhosis.

Therefore, to treat the parasite in the biliary phase, it is recommended to use triclabendazole and apply ERCP to remove living parasites from the bile duct (9). Also, for further investigations, live parasites are obtained and confirmed by pathology evaluation.

Conclusion

In the present reports, biliary fascioliasis was associated with different symptoms and without specific clues and the patients were admitted with the possibility of cholangiocarcinoma or bile duct stones. Before ERCP, fascioliasis was not considered, but by using the minimally invasive ERCP method, the early diagnosis and treatment of fascioliasis were done. Due to the short interval between the two reports and the previous reports of cases in the province, an epidemiological survey to determine the potential risk of endemicity is recommended. Also, there is a need to plan for improved diagnostic methods at laboratories in Ardabil province.

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Conflict of Interest

The authors declare that there is no conflict of interests.

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