Tehran University of Medical Sciences Publication
http://tums.ac.ir

Iran J Parasitol

Open access Journal at
http://ijpa.tums.ac.ir

Iranian Society of Parasitology
http://isp.tums.ac.ir

Case Report

Fasciola hepatica Diagnosed with Endoscopic Ultrasound and Treated with Endoscopic Retrograde Cholangio Pancreatography: A Case Report

***Mustafa Zanyar Akkuzu, Ahmet Yavuz, Berat Ebik, Ümit Karabulut, Ali Üzel, Ferhat Bacaksız**

Diyarbakir Gazi Yasargil Training and Research Hospital, Diyarbakır, Turkey

Received 20 Aug 2024
Accepted 29 Oct 2024

Keywords:
Fasciola hepatica;
Endoscopic ultrasound;
Endoscopic retrograde cholangiography;
Eosinophilia;
Abdominal pain

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

Abstract
This article discusses *Fasciola hepatica* infection, a zoonotic parasite that lives in the liver bile ducts. A 31-year-old female patient was diagnosed with symptoms such as nausea, increased liver enzymes, and right upper quadrant pain for about a year. The parasite was detected in the common bile duct by Endoscopic Ultrasound (EUS) and removed by Endoscopic Retrograde Cholangio Pancreatography (ERCP). Treatment was performed with 10 mg/kg triclabendazole. Eosinophilia, abdominal pain, and dietary history are important clues in the diagnosis of infection. Imaging methods, especially EUS, play a critical role in diagnosis. With this method, parasites can be seen as mobile hyperechogenic structures. If untreated, parasites can survive in their hosts for many years, therefore early diagnosis and treatment are important in preventing complications. It is recommended to monitor the eosinophil levels and serological test results of patients after treatment. As a result, EUS is a very valuable diagnostic tool in suspected cases.

Introduction

Fasciola hepatica is a zoonotic parasite that settles in the liver bile ducts and is known among the public as the "liver fluke". There are 2 types: *F. hepatica* and *F. gigantica*. While *F. gigantica* mostly lives in tropical climates, *F. hepatica* is found in temperate climates. These parasites live in the bile ducts of herbivorous animals and their larvae are found in aquatic plants. These parasites are ingested by animals or humans as a result of

consuming contaminated aquatic plants, and infection occurs (1).

Regardless of the host, the life cycle is similar. Adult parasites lay their eggs in the bile ducts of the host. These eggs are excreted in the feces and develop into embryos that are then passed to snails. Parasites that develop in snails develop into metacercariae and are transmitted to new hosts via contaminated plants. Ingested metacercariae migrate to the liver bile ducts where they develop into adults. If left untreated, the parasites can live in their hosts for up to 13 years (2-4). Adult parasites can live in an average host for up to 13 years if left untreated (5).

Migrating metacercariae triggers a cascade of inflammatory and immune responses, causing parenchymal liver damage. Adult parasites can partially or completely obstruct the bile ducts, causing fibrosis, hypertrophy, and, over time, dilatation of the proximal biliary tree. Parasite burden is generally positively correlated with the degree of liver damage (6).

In this article, a case of fasciolosis diagnosed only with Endoscopic Ultrasound at an early stage before the development of jaundice due to hepatica and treated with Endoscopic Retrograde Cholangio Pancreatography is presented. Our case is presented because it is a very rare case and was detected only with EUS.

Case Presentation

Informed consent and ethical approval was obtained from the patient. A 31-year-old female patient living in Bingöl/Turkey presented with complaints of nausea, right upper quadrant pain, moderately elevated liver enzymes, and occasional itching that had been ongoing since 2023. The patient's vital signs and physical examination were normal. Laboratory results showed elevations in ALT, AST, ALP, and LDH levels that ranged from 2 to 3 times normal. Hepatitis and autoimmune panel results were normal, but the patient's total IgE The value was high between 544 and 1218 IU/ mL. The highest eosinophil elevation was found to be 61%, but *F. hepatica* antigen test (IHA) gave negative results twice. In the patient's other examinations, there was also a significant increase in sedimentation rate and it was determined as 41 mm/hour.

Imaging technologies, complementary abdominal ultrasonography, abdominal tomography and even dynamic abdominal magnetic resonance imaging were performed at an external center and reported as normal. As a result of magnetic resonance cholangiography, the width of the common bile duct was measured as 8 mm and slight thickening was detected at the level of the ampulla of Vater in the distal part. We performed an endoscopic ultrasound on the patient. In EUS The diameter of the common bile duct was measured as 7 mm at its widest point, and an appearance compatible with isoechoic mobile linear fasciola was observed (Fig. 1), and ERCP showed *F. hepatica* was removed (Fig. 2). The patient was then treated with 10 mg/kg triclabendazole.

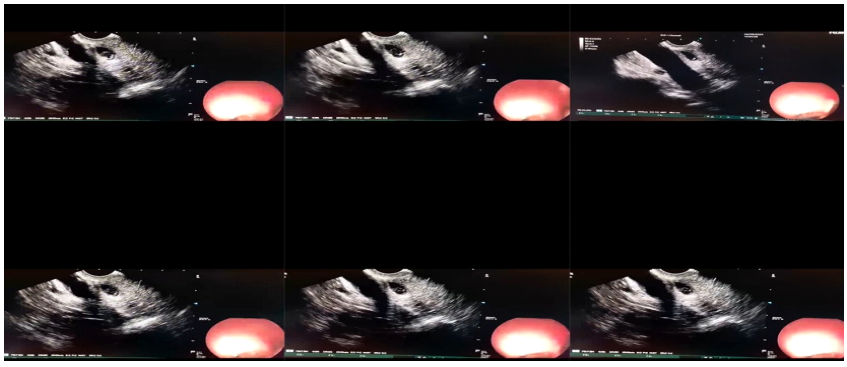

Fig. 1: Image of the parasite on endoscopic ultrasonography

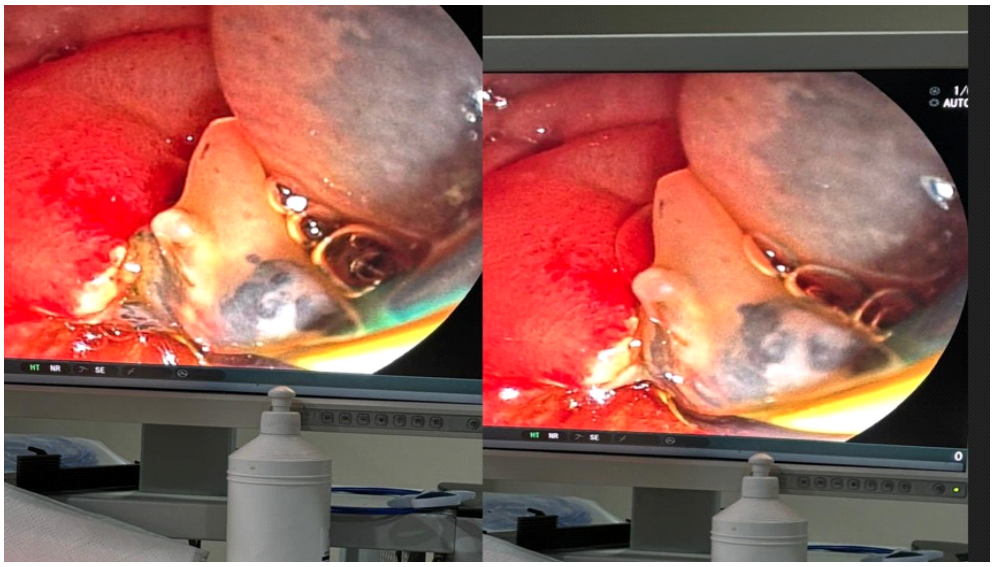

Fig. 2: Removal of the parasite by endoscopic retrograde cholangiography

Discussion

F. hepatica the infection is divided into periods characterized by different clinical and laboratory findings. The infection forms include acute (liver) phase, chronic (bile) phase, ectopic fascioliasis and pharyngeal fascioliasis is found. Fascioliasis diagnosis is made by peripheral should be considered in patients with abdominal pain and hepatomegaly accompanied by eosinophilia. When taking a dietary history, the consumption of cress or raw vegetables washed in dirty water should be questioned. Diagnostic methods include detection of adult parasites in endoscopic or surgical specimens or serologic testing. Imaging may be an adjunct diagnostic tool. Additional diagnostic clues include anemia, abnormal liver function tests, and elevated erythrocyte sedimentation rate (7,8).

Transabdominal ultrasonography is not specific for fasciola hepatica. Dilatation of bile ducts and fasciola in the common bile duct may be seen as hyperechogenic lesions. Endoscopic ultrasonography is a valuable imaging method in the differential diagnosis of biliary system diseases, where the parasite may present itself as a mobile, hyperechogenic formation. Both diagnosis and treatment can be achieved with ERCP (9). Triclabendazole is the preferred treatment and is effective on both immature and adult parasites (10).

In this case, detection of parasites with EUS was evaluated as a highly specific finding. Fascioliasis should definitely be considered in patients with high eosinophils, increased liver enzymes and suspicious findings on MRCP. After treatment, patients' eosinophil levels and serological test results should be monitored. Additional therapeutic interventions may be needed, especially in patients with fibrosis and scarring in the bile ducts (11). When a patient is diagnosed with fascioliasis, other family or household members should be tested for serum *Fasciola* antigens. Any patient who tests positive, whether symptomatic or not, should be treated to avoid the risk of future complications.

Conclusion

F. hepatica early diagnosis and treatment of the infection is critical to prevent chronic complications of the disease. Imaging and in-

tervention methods such as ERCP and EUS can be used for both diagnostic and therapeutic purposes in such rare cases. EUS is a very valuable diagnostic tool in suspicious cases where other diagnostic methods cannot detect it due to the dynamic imaging it provides.

Conflict of Interest

Non-declared.

References

1. Arjona R, Riancho JA, Aguado JM, Salesa R, González-Macías J. Fascioliasis in developed countries : a review of classic and aberrant forms of the disease. Medicine (Baltimore). 1995; 74 (1):13-23.
2. Marcilla A, Bargues MD, Mas- Coma S. A PCR-RFLP assay for the Distinction between *Fasciola hepatica* and *Fasciola gigantica*. Mol Cell Probes. 2002; 16 (5):327-33.
3. Soliman MF. Epidemiological Human Review and animal fascioliasis in Egypt. J Infect Dev Ctries. 2008; 2 (3):182-9.
4. Chai JY, Jung BK. General overview of the Current status of humanity foodborne trematodiasis . Parasitology. 2022; 149:1262.
5. Kaya M, Bestas R, Cetin S. Clinical presentation and management of *Fasciola hepatica* infection : single-center experience. World J Gastroenterol. 2011; 17 (44):4899-904.
6. Harinasuta T, Pungpak S, Keystone JS. Trematode infections. Opisthorchiasis, clonorchiasis, fascioliasis, and par-agonimiasis. Infect Dis Clin North Am 1993; 7:699.
7. Chan CW, Lam SK. Diseases caused by liver flukes and cholangiocarcinoma. Baillieres Clin Gastroenterol 1987; 1:297.
8. El-Shabrawi M, el-Karaksy H, Okasha S, el-Hennawy A. Human fascioliasis: clinical features and diagnostic difficulties in Egyptian children. J Trop Pediatr 1997; 43:162.
9. Schwacha H, Keuchel M, Gagesch G, Hagenmüller F. *Fasciola gigantica* in the common bile duct : diagnosis by ERCP. Endoscopy. 1996; 28 :323.
10. Khandelwal N, Shaw J, Jain MK. Biliary parasites: diagnostic and therapeutic strategies. Curr Treat Options Gastroenterol. 2008; 11:85 –95.
11. Richter J, Freise S, Mull R, Millán JC. Fascioliasis : sonographic abnormalities of the Biliary Tract and evolution after treatment with triclabendazole. Trop Med Int Health. 1999; 4 (11):774-81.