

# Acut Cholangitis and Hepatitis Caused By *Fasciola Hepatica*: A Case Report

Ahmet Cumhuri Dülger\*, Mehmet Emin Küçüköğlü\*, Hasan Yılmaz\*\* , Serhat Avcu\*\*\*, Özgür Kemik \*\*\*\*, Mehmet Kadir Bartın\*\*\*\*\*

## Abstract

A 36 year old woman presented with fever and right upper quadrant pain. Physical examination revealed positive murphy sign. Also leucocytosis and eosinophilia were detected. Abdominal computerized tomography (ct) of the liver showed geographic tracts. A duodenoscopy was performed and examination of duodenal aspirate revealed fasciola hepatica ova. Triclabendazole was given for two days. And three months after treatment, physical, laboratory and radiological examinations were all normal. Fasciola hepatica is still a very rare cause of acute cholangitis and hepatitis. Because fasciola hepatica has a special tropism for the liver; abdominal pain, hepatomegaly, and constitutional symptoms are among the most common manifestations of fascioliasis. Eosinophilia is the most frequent laboratory abnormality. The ct scan has become a useful technique in the diagnostic work-up. A definitive diagnosis may be established by the detection of parasite ova in the feces or duodenal aspirate, but most cases may be diagnosed by serologic methods. Triclabendazole and bithionol are the most effective drugs against fasciola hepatica.

**Key words:** *Fasciola hepatica*, liver infection, triclabendazole

## Introduction

*Fasciola hepatica* (liver fluke) is a flat-worm trematode that infects cattle, sheep, and sometimes humans in many regions of the world (1). Humans acquire fascioliasis by ingestion of metacercariae attached to certain aquatic plants, such as watercress(2). The adult fluke lives in the common and hepatic bile ducts of the definitive hosts. It has got flat leaf- like body and oval, yellow-brown eggs(3). Clinical features of fascioliasis relate to the stage and intensity of infection. Acute disease develops during parasite migration and includes fever, abdominal pain, hepatomegaly, jaundice and eosinophilia(2).

We report a female patient with hepatobiliary fascioliasis who were diagnosed by duodenal aspirate and managed by triclabendazole.

## Case presentation

A 37-year-old woman presented with fever, chills, nausea, vomiting and intermittent right upper quadrant pain. She had experienced intermittent abdominal pain and malaise for 2 months. She was a farmer and she reported that she had eaten watercress.

On physical examination, the temperature was 39.6°C, the pulse 100 beats per minute, the respiratory rate 18 breaths per minute, and the blood pressure 102/54 mm Hg. The patient was uncomfortable but in no acute distress.

Physical examination revealed hepatomegaly. Abdominal bowel sounds were normal and there was moderate tenderness in the right upper quadrant; the remainder of the examination revealed no abnormalities.

The calcium level was 7.9 mg/dl; the total protein level, 8.1 g/dl; the albumin level, 3.6 g/dl; the aspartate aminotransferase level, 83 U/L; the alanine aminotransferase level, 175 U/L; alkaline phosphatase level 1554 U/L; GGT:110 U/L. The white-cell count was 13,400/mm<sup>3</sup>, with 65 percent neutrophils and 25 percent eosinophils; her urinalysis was normal. The levels of bilirubin, lipase, and creatinine were also normal. Radiographs of the abdomen and thorax were unremarkable.

\*Yuzuncu Yil University, Medical School, Division of Gastroenterology, Van, Turkey

\*\*Yuzuncu Yil University, Medical School, Division of Parasitology, Van, Turkey

\*\*\*Yuzuncu Yil University, Medical School, Division of Radiology, Van, Turkey

\*\*\*\*Yuzuncu Yil University, Medical School, Division of Surgery, Van, Turkey

**Yazışma Adresi:**Dr. Cumhuri Dülger

Yuzuncu Yil University, Medical School, Division of Gastroenterology, Van, Turkey

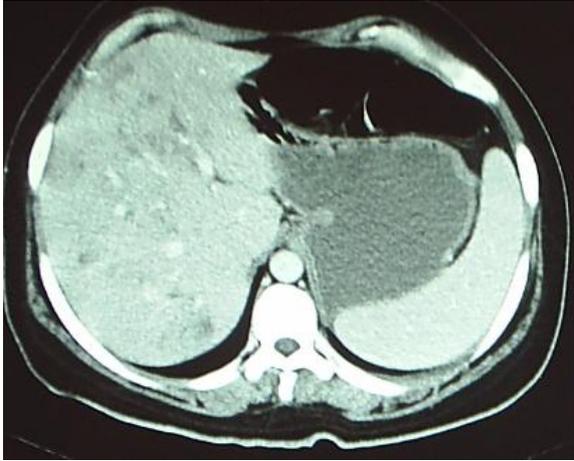


Figure 1. Contrast-enhanced CT of the liver of the patient with typical hypodense nodules and branching lesions.

Specimens of blood and urine were obtained for culture. Abdominal computed tomography (CT) after the oral and intravenous administration of contrast material showed migratory tracts in the right lobe of the liver. The gallbladder, biliary tract, kidneys, pancreas, adrenal glands, and large and small bowel were unremarkable (Figure 1).

Enzyme-linked immunosorbent assay (ELISA) test for *F. hepatica* was positive and parasites were observed in the duodenal aspiration fluid (Figure 2).

Triclabendazole was given at a dose of 10 mg/kg two days apart and was well tolerated. During the following weeks, the patient made a full clinical recovery and an eosinophil count performed on day 10 post-treatment had dropped to near-normal levels. Furthermore all liver tests were in normal ranges. A CT scan performed one month later revealed significant regression of the liver lesions.



Figure 2. Fasciola ova in duodenal aspirate.

## Discussion

A value above 600 eosinophils/ $\mu$ L of blood is abnormal in the vast majority of cases. The most common infectious cause for secondary eosinophilia is a tissue invasive parasite (4). Blood eosinophilia most commonly reflects an allergic, infectious, or neoplastic process (5,6). Other etiologies include primary biliary cirrhosis, hypereosinophilic syndrome, sclerosing cholangitis, eosinophilic cholangitis and eosinophilic cholecystitis (7).

The current patient had the triad of eosinophilia, fever, and abdominal pain. All of these findings endorsed a helminthic disease of the liver in this case. Additionally, a history of watercress ingestion is obtained at the outset in our case, and it was a key diagnostic feature. Furthermore, examination of duodenal sample of the case showed yellow- brown eggs and at this time, and an ELISA test for *F. Hepatica* was reported to be positive.

In a recent study from Turkey, seroprevalance of *F. Hepatica* was reported to be 2.78%(8). But, human fascioliasis is seen in Eastern part of Turkey only rarely.

Humans most commonly acquire *F. Hepatica* by eating freshwater plants, grown in rural areas. Humans can also infected by contaminated water containing *F. hepatica* (9).

These infective metacercariae excyst in the duodenum and burrow through intestinal wall, enter peritoneal cavity and penetrate the liver capsule and pass through the liver tissue into the biliary tract (10,11). A Loeffler's-like syndrome or right-sided pleural effusions may be seen (12). A careful dietary history should also be obtained in such patients, including a history of watercress ingestion or ingestion of fresh vegetables(13). Medical history of our case revealed the consumption of a large amount of watercress.

Chronic infection may cause to biliary colic and cholangitis. Pain in the right upper quadrant, diarrhea, nausea, vomiting, hepatic tenderness and jaundice can also occur (14). In reported case, cholestasis was also present and it was reflecting the features of biliary obstruction by adult flukes.

The most useful diagnostic technique is CT scanning of the liver, which may reveal small hypodense, tunnel-like, branching lesions that are most frequently in subcapsular areas in the liver (12). As added evidence, CT images of the presented case revealed small geographic and hypodense, leaf-shaped filling defects in the liver.

Serum or stool antigen tests may be able to detect the parasite a few weeks before ova appear in the specimens (15).

Serologic tests such as indirect hemagglutination, complement fixation, counterimmunoelectrophoresis, immunofluorescence assays, indirect hemagglutination, and enzyme-linked immunosorbent assay (ELISA) may be used to diagnose the parasite (16). Although successful treatment often correlates with a decline in ELISA titers, antibodies may be detectable for years after illness (17). Our serologic method to detect the parasite was ELISA.

Magnetic resonance imaging (MRI) has also been used for confirming the illness (18). Endoscopic retrograde cholangiopancreatography (ERCP) is the more useful technique for detection and elimination of flukes in biliary channel (19). Liver biopsy rarely reveals *Fasciola* eggs or adult flukes (20). The aspiration of the contents of the duodenum and examination for eggs could also have been a useful diagnostic procedure (21). ERCP did not perform in our case because of lack of this system in our hospital. But examination of duodenal aspirate obtained by duodenoscopy revealed *fasciola* ova.

The imidazole derivative, triclabendazole, is used for treatment. Triclabendazole is given at a dose of 10 mg/kg for one or two days and is well tolerated (22). Discussed case was treated by triclabendazole.

Bithionol (30 to 50 mg/kg in three divided doses on alternate days for 10 to 15 doses) is often used for either acute or chronic phases of the infection (23). A repeat course of treatment may be necessary (24). At the end of her treatment eosinophilia normalised and CT findings resolved.

When the diagnosis of fascioliasis is made in one member of a family, other family members at risk from ingestion should also be evaluated. In our case, five family members were positive for *F. hepatica*.

Infection can be prevented by avoidance of freshwater plant ingestion in hyperendemic areas. Treatment of definitive hosts also helps to control the infection.

This case illustrates several of the cardinal features of *fascioliasis* including eosinophilia, fever, right upper quadrant pain, hypergammaglobulinemia, cholestasis and hepatic masses. Human fascioliasis should be kept in mind in patients with cholangitis and eosinophilia especially in areas of only sporadic occurrence.

## ***Fasciola Hepatica'* ya Bağlı Olarak Gelişen Akut Kolanjit ve Hepatit: Olgu Sunumu**

### **Özet**

*36 yaşında bayan hasta ateş ve sağ üst kadranda ağrısı nedeniyle başvurdu. Fizik muayenede pozitif Murphy bulgusu vardı. Lökositoz ve eosinofili saptandı. Batın bilgisayarlı tomografi (BT)'sinde karaciğerde coğrafi lezyonlar bulundu. Duodenoskopi ile elde edilen duodenal aspiratın incelenmesinde fasciola hepatica yumurtaları tesbit edildi. Triklabendazol 2 gün boyunca verildi. Tedavinin 3. ayında fizik muayene, laboratuvar ve radyolojik incelemeler normale döndü. Fasciola hepatica akut kolanjit ve hepatitin nadir bir nedenidir. Karaciğere olan özel ilgisinden dolayı karın ağrısı, hepatomegali ve yapısal semptomlar sıktır. Eosinofili en sık görülen laboratuvar bozukluğudur. BT tanısız incelemede en kullanışlı tekniktir. Kesin tanı parazit yumurtalarının dışkı veya duodenal aspiratta görülmesiyle konur. Ancak çoğu vakada tanı serolojik yöntemlerle konur. Triklabendazol ve bithionol hastalık tedavisinde etkili ilaçlardır.*

**Anahtar kelimeler:** *Fasciola hepatica, karaciğer enfeksiyonu, triklabendazol*

### **References**

1. Marsden PD, Warren KS. Fascioliasis. In: Warren KS, Mahmoud AAF, eds. Tropical and Geographical Medicine. New York: McGraw-Hill 1984; 458-460
2. Mahmoud AAF Schistosomiasis and other trematode infections, In: Harrison's Principles of Internal Medicine, 17th Edition. (Edited by) Fauci A.S. New York: MacGraw-Hill 2008; 1335
3. Mas-Coma S. Epidemiology of fascioliasis in human endemic areas. J Helminthol 2005; 79: 207.
4. Tefferi A. Blood eosinophilia: a new paradigm in disease classification, diagnosis, and treatment. Mayo Clin Proc 2005; 80:75.
5. Brito-Babapulle F. The eosinophilias, including the idiopathic hypereosinophilic syndrome. Br J Haematol 2003; 121:203.
6. Lombardi C, Passalacqua G. Eosinophilia and diseases: clinical revision of 1862 cases. Arch Intern Med 2003; 163:1371.
7. Yamazaki K, Nakadate I, Suzuki K et al. Eosinophilia in primary biliary cirrhosis. Am J Gastroenterol. 1996; 91:516.
8. Kaplan M, Kuk S, Kalkan A, Demirdag K, Ozdarendeli A. *Fasciola hepatica* seroprevalence in the Elazığ region. Mikrobiyol Bul 2002; 36:337-342

9. Chan CW, Lam SK. Diseases caused by liver flukes and cholangiocarcinoma. *Baillieres Clin Gastroenterol* 1987; 1:297.
10. Arjona R, Riancho JA, Aguado JM, et al. Fascioliasis in developed countries: a review of classic and aberrant forms of the disease. *Medicine (Baltimore)* 1995; 74:13.
11. Harinasuta T, Pungpak S, Keystone JS. Trematode infections. Opisthorchiasis, clonorchiasis, fascioliasis, and paragonimiasis (published erratum appears in *Infect Dis Clin North Am* 1994 Mar; 8(1):following table of contents). *Infect Dis Clin North Am* 1993; 7:699.
12. Maclean JD, Cross J, Mahanty S. Liver, lung, and intestinal fluke infections. In: *Tropical Infectious Diseases: Principles, Pathogens and Practice*, 2nd ed. Guerrant RL, Walker DH, Weller PF (Ed), Philadelphia, Churchill Livingstone 2006:1349
13. el-Shabrawi M, el-Karakasy H, Okasha S, el-Hennawy A. Human fascioliasis: clinical features and diagnostic difficulties in Egyptian children. *J Trop Pediatr* 1997; 43: 162.
14. Xuan le T, Hung NT, Waikagul J. Cutaneous fascioliasis: a case report in Vietnam. *Am J Trop Med Hyg* 2005; 72:508.
15. Espino AM, Diaz A, Perez A, Finlay CM. Dynamics of antigenemia and coproantigens during a human *Fasciola hepatica* outbreak. *J Clin Microbiol* 1998; 36:2723.
16. Hillyer GV, Soler de Galanes M, Rodriguez-Perez J, et al. Use of the Falcon assay screening test-enzyme-linked immunosorbent assay (FAST-ELISA) and the enzyme-linked immunoelectrotransfer blot (EITB) to determine the prevalence of human fascioliasis in the Bolivian Altiplano. *Am J Trop Med Hyg* 1992; 46:603.
17. Santiago N, Hillyer GV. Antibody profiles by EITB and ELISA of cattle and sheep infected with *Fasciola hepatica*. *J Parasitol.*1988; 74: 810.
18. Van Beers B, Pringot J, Geubel A, et al. Hepatobiliary fascioliasis: noninvasive imaging findings. *Radiology* 1990; 174:809.
19. Sezgin O, Altintas E, Disibeyaz S, et al. Hepatobiliary fascioliasis: clinical and radiologic features and endoscopic management. *J Clin Gastroenterol* 2004; 38: 285.
20. Price TA, Tuazon CU, Simon GL. Fascioliasis: case reports and review. *Clin Infect Dis.*1993;17:426.
21. Gomez Cerezo J, Rios Blanco JJ, de Guevara CL, Barbado Hernandez FJ, Vazquez Rodriguez JJ. Biliary aspiration after administration of intravenous cholecystokinin for the diagnosis of hepatobiliary fascioliasis. *Clin Infect Dis.*1998; 26:1009-1010.
22. Keiser J, Utzinger J. Chemotherapy for major food-borne trematodes: a review. *Expert Opin Pharmacother.*2004; 5:1711.
23. Bacq Y, Besnier JM, Duong TH, et al. Successful treatment of acute fascioliasis with bithionol. *Hepatology.*1991; 14:1066.
24. Apt W, Aguilera X, Vega F, et al. Treatment of human chronic fascioliasis with triclabendazole: drug efficacy and serologic response. *Am J Trop Med Hyg.*1995; 52:532.