INNSPUB

International Journal of Biosciences | IJB |
ISSN: 2220-6655 (Print); 2222-5234 (Online)
Website: https://www.innspub.net
Email contact: info@innspub.net
Vol. 28, Issue: 1, p. 155-160, 2026

RESEARCH PAPER OPEN ACCESS

A severe case of human hepatic fascioliasis mimicking an oncological disease in Azerbaijan

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Key words: Human fascioliasis, Hepatic fascioliasis, Eosinophilia, Liver necrosis, Differential diagnosis, Triclabendazole

Received Date: January 03, 2026 **Published Date:** January 17, 2026

DOI: https://dx.doi.org/10.12692/ijb/28.1.155-160

ABSTRACT

We report a severe case of human hepatic fascioliasis in a 60-year-old woman from Azerbaijan who had been misdiagnosed with liver cancer and treated oncologically for approximately two years without clinical improvement. The patient presented with complaints of pain in the right hypochondrium, intermittent fever, general weakness, anorexia, weight loss, and insomnia. Laboratory evaluation revealed marked eosinophilia. Imaging studies demonstrated heterogeneous hepatic lesions compatible with inflammatory and necrotic changes. Coprological examination confirmed the presence of *Fasciola* eggs. To our knowledge, this represents one of the first clinically documented cases of human hepatic fascioliasis reported from Azerbaijan. The patient was treated with triclabendazole administered in two courses of three days each, separated by a 10-day interval, along with supportive hepatoprotective therapy and B complex vitamins. Following treatment, clinical symptoms resolved completely, eosinophil levels normalized, and follow up stool examinations were negative. Two months after therapy, laboratory parameters approached normal physiological values. This case emphasizes the importance of including hepatic fascioliasis in the differential diagnosis of liver masses, particularly in patients with eosinophilia and relevant epidemiological exposure. Early recognition prevents unnecessary invasive procedures and prolonged oncological treatment.

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INTRODUCTION

Human hepatic fascioliasis, caused by *Fasciola hepatica* and *Fasciola gigantica*, is a zoonotic parasitic disease that primarily affects livestock but can also infect humans (Mas Coma *et al.*, 2005). According to the World Health Organization, more than 2.4 million people worldwide are infected, and over 180 million individuals are at risk (World Health Organization, 2020). The disease is endemic in several regions, including Latin America, the Middle East, North Africa, Southeast Asia, and the Caucasus (Ashrafi *et al.*, 2014; Haseeb *et al.*, 2002). Human infection occurs through the ingestion of edible aquatic plants contaminated with parasite larvae, as well as through consumption of contaminated water (Rondelaud, 2020). Migrating parasites can penetrate into blood vessels, causing large and sometimes life-threatening subcapsular hematomas of the liver (Bardsley, 2022). After ingestion, larvae migrate through the intestinal wall into the liver parenchyma, causing tissue destruction, inflammation, and necrosis (Rondelaud, 2020). Adult parasites later inhabit the bile ducts, leading to chronic disease. Usually the first symptom of the disease; 40–42°C (104–108°F) (Kabaalioglu, 2000). Clinical manifestations are often nonspecific, and hepatic fascioliasis is frequently misdiagnosed (Bardsley, 2022). Patients present with fever, right subcostal pain, weight loss, anorexia, allergic reactions, and especially pronounced eosinophilia (Kabaalioglu, 2000). Imaging may reveal mass-like or necrotic hepatic lesions that closely resemble malignant tumors (Kabaalioglu, 2000; Lim, 1990). Numerous reports describe fascioliasis mistaken for liver cancer (Lim, 1990; Fürst, 2012), emphasizing the importance of parasitic diseases in differential diagnosis (Mas Coma *et al.*, 2005; Keiser and Utzinger, 2009).

Worldwide, the increasing prevalence of fasciolosis in animals is associated with a rise in zoonotic infections in humans (Mehmood *et al.*, 2017; Khademvatan *et al.,* 2019; İnfastes *et al.,* 2023; Lan *et al.,* 2024). In recent years, an increase in the intensity of infection with *Fasciola* spp. trematodes among small ruminants has been observed in the Mountainous Shirvan and Guba–Khachmaz economic regions of Azerbaijan (Azizova, 2022; Azizova, 2024; Azizova *et al.*, 2025). This process is closely associated with an increase in the population density of freshwater mollusks that serve as intermediate hosts for these helminths. As a result, along with the elevated epizootological risk, sporadic and localized cases of zoonotic fasciolosis have also been recorded in humans.

MATERIALS AND METHODS

There is no “gold standard” for the diagnosis of fascioliasis. Microscopic examination of stool is probably the most commonly used method in endemic countries. Detection of eggs in the stool provides diagnostic confirmation (Caravedo and Cabada, 2020).

This manuscript presents a retrospective analysis of a single clinical case. Clinical history, laboratory findings, imaging results, and parasitological examinations were reviewed.Clinical symptoms, laboratory data, imaging findings, and parasitological examinations were evaluated. Diagnosis was confirmed by coprological identification of *Fasciola* eggs.

Parasitological diagnosis was performed using coprological examination of stool samples. Stool specimens were examined by light microscopy using standard sedimentation techniques. The detection of characteristic oval, operculated eggs provided parasitological confirmation of fascioliasis.

RESULTS

A 60-year-old female patient, Sevindj Huseynova, presented with pain localized to the right hypochondrium, accompanied by intermittent fever, generalized weakness, anorexia, progressive weight loss, and insomnia. The patient reported a two year history of recurrent fever, and gradual clinical deterioration. The patient’s epidemiological history revealed previous agricultural exposure. She reported drinking untreated water from a village pond while collecting wild fruits in a rural area approximately two years before symptom onset.

Two years prior to presentation at our center, the patient had been evaluated at another medical institution, where imaging studies revealed hepatic lesions interpreted as malignant. Based on these findings and abnormal laboratory results, she was diagnosed with liver cancer and subsequently underwent prolonged oncological treatment without clinical improvement.

Due to the lack of therapeutic response, empirical antibiotic therapy was later initiated. During this period, a transient decrease in peripheral blood eosinophil counts was observed, leading to an erroneous clinical impression of recovery and remission. However, despite temporary laboratory changes, the patient experienced progressive worsening of her general condition, including increasing weakness and persistent symptoms. This prompted further evaluation and referral. On reassessment, marked eosinophilia and hepatic imaging findings raised suspicion of a parasitic etiology. Coprological examination of stool samples revealed *Fasciola* eggs (Fig. 1.), confirming the diagnosis of hepatic fascioliasis. These characteristic eggs were identified on repeated examination of stool samples, providing direct parasitological evidence of infection.

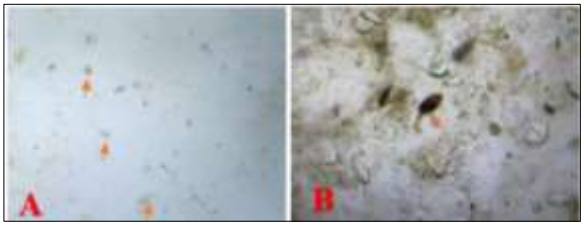

Fig. 1. Parasitological confirmation of hepatic fascioliasis
(A–B) Light microscopy of stool samples demonstrating oval, operculated eggs with morphological characteristics consistent with *Fasciola* species (original magnification ×100).

Ultrasonographic examination demonstrated heterogeneous hypoechoic lesions with irregular margins in the liver parenchyma, consistent with inflammatory and necrotic changes rather than primary hepatic malignancy (Fig. 2, 3).

Fig. 2. Abdominal ultrasonography showing heterogeneous hypoechoic necrotic lesions in the liver parenchyma mimicking malignant hepatic disease

Fig. 3. Ultrasonographic images of the liver demonstrating heterogeneous hypoechoic lesions with irregular margins, consistent with necrotic and inflammatory changes associated with hepatic fascioliasis

Ultrasonographic examination revealed heterogeneous hypoechoic lesions within the hepatic parenchyma, lacking the well-defined margins and vascular characteristics typically associated with primary or metastatic liver malignancies. Such imaging features are more consistent with inflammatory or parasitic processes. In parasitic liver diseases such as fascioliasis, migrating larvae induce focal inflammatory reactions, tissue destruction, and necrotic changes, which may appear as ill-defined lesions on ultrasonography and mimic malignant tumors.

These changes can mimic malignant liver disease, particularly when imaging findings are interpreted without consideration of epidemiological risk factors and hematological abnormalities.

The pronounced elevation of eosinophil levels observed in the patient's hematological parameters provided strong additional evidence supporting the diagnosis of hepatic fascioliasis, as eosinophilic responses are commonly associated with helminthic infections and are uncharacteristic of primary liver cancer.

Table 1. Hematological parameters before and after antiparasitic treatment

Parameter	Before treatment	Reference range	After treatment	Reference range
WBC (10^3/μL)	9.59	5.20–9.90	5.48	5.20–9.90
RBC (10^6/μL)	3.47	3.8–5.4	4.21	3.8–5.4
Hemoglobin (g/dL)	10.1	11.7–16.1	12.8	11.7–16.1
Hematocrit (%)	33.6	36.0–47.0	39.3	36.0–47.0
MCV (fL)	96.8	81.25–101.2	93.4	81.25–101.2
MCH (pg)	29.1	26.1–34.6	30.3	26.1–34.6
MCHC (g/dL)	30.1	31.1–36.6	32.6	31.1–36.6
RDW-CV (%)	18.6	11.2–14.0	14.4	11.2–14.0
Neutrophils (%)	37.3	42.9–74.3	50.0	42.9–74.3
Eosinophils (%)	29.9	0.2–5.3	1.2	0.2–5.3
Lymphocytes (%)	25.2	24.2–50.9	42.6	24.2–50.9
Monocytes (%)	7.3	4.2–11.8	6.1	4.2–11.8

Laboratory findings

Marked eosinophilia, reaching up to 29.9% at peak values, was a key laboratory finding supporting a helminthic infection. Following antiparasitic therapy, eosinophil counts normalized (Table 1).

The detection of *Fasciola* eggs confirmed the diagnosis of hepatic fascioliasis and correlated with the patient's clinical presentation, laboratory findings, and imaging features suggestive of a parasitic and inflammatory hepatic process.

Treatment and follow-up

The patient received triclabendazole for three consecutive days in two treatment courses separated by a 10-day interval. Supportive therapy included B-complex vitamins and hepatoprotective agents. Following treatment, all clinical symptoms resolved completely, including insomnia. Repeated stool examinations were negative for Fasciola eggs. Two months after therapy, eosinophil counts and other hematological parameters returned to near-normal physiological ranges.

DISCUSSION

Hepatic fascioliasis is a well-recognized but frequently underdiagnosed parasitic disease that can closely mimic malignant liver pathology in both clinical presentation and radiological appearance. In the present case, the patient exhibited prolonged constitutional symptoms, necrotic hepatic lesions on imaging, and progressive clinical deterioration, which led to an initial misdiagnosis of liver cancer and unnecessary oncological treatment. Similar diagnostic challenges have been widely reported, particularly in endemic and emerging regions, where fascioliasis may not be routinely considered in differential diagnoses of hepatic masses (Lim, 1990; Kabaalioglu *et al.*, 2000; Fürst *et al.*, 2012).

One of the most important diagnostic clues in this case was marked eosinophilia, a hallmark laboratory finding commonly associated with helminthic infections but uncommon in primary hepatic malignancies. Previous studies have emphasized that persistent eosinophilia in combination with liver lesions should raise strong suspicion for parasitic diseases, including fascioliasis (Mas-Coma *et al.*, 2005; Keiser and Utzinger, 2009). In this patient, a temporary reduction in eosinophil counts following empirical antibiotic therapy likely reflected nonspecific suppression of inflammatory responses rather than resolution of the underlying parasitic infection, which has also been described in earlier reports (Caravedo and Cabada, 2020).

Radiological findings played a critical role in the diagnostic confusion. Ultrasonographic features such as heterogeneous hypoechoic lesions with irregular margins are well documented in hepatic fascioliasis and are often indistinguishable from malignant tumors when epidemiological and hematological data are overlooked (Lim, 1990; Kabaalioglu *et al.*, 2000). Migrating Fasciola larvae induce focal necrosis, hemorrhage, and inflammatory infiltrates within the liver parenchyma, producing mass-like lesions that can persist for prolonged periods if untreated (Rondelaud *et al.*, 2020; Bardsley, 2021).

Parasitological confirmation through stool examination remains a cornerstone of diagnosis in endemic areas, despite limitations related to intermittent egg shedding. The detection of characteristic Fasciola eggs in this patient provided definitive confirmation and correlated well with clinical, laboratory, and imaging findings. Although serological and molecular methods are increasingly used, coprological examination continues to be a practical and accessible diagnostic tool in resource-limited settings (Caravedo and Cabada, 2020).

Triclabendazole is widely recognized as the treatment of choice for fascioliasis and demonstrates high efficacy against both immature and adult stages of *Fasciola* spp. (Keiser and Utzinger, 2009). In the present case, administration of triclabendazole resulted in complete clinical recovery, normalization of eosinophil counts, and resolution of parasitological findings, consistent with outcomes reported in previous studies (Mas-Coma *et al.*, 2005; Fürst *et al.*, 2012).

The identification of an additional suspected human fascioliasis case currently under investigation further suggests that human infection may be underrecognized in Azerbaijan. Increasing prevalence of fasciolosis in livestock and expansion of suitable ecological conditions for intermediate snail hosts have been associated with rising zoonotic transmission in several regions worldwide (Mehmood *et al.*, 2017; Khademvatan *et al.*, 2019; Infantes *et al.*, 2023; Lan *et al.*, 2024). These findings highlight the need for heightened clinical awareness, improved surveillance, and interdisciplinary collaboration between medical and veterinary sectors in the region.

CONCLUSION

Human hepatic fascioliasis should be considered in the differential diagnosis of hepatic masses, especially in patients with eosinophilia and relevant exposure history. Early diagnosis and appropriate antiparasitic therapy can prevent unnecessary invasive procedures and prolonged oncological treatments.

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