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Case Report

Acute edematous pancreatitis caused by *Fasciola hepatica* infection: A rare case report ☆

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ABSTRACT

Acute edematous pancreatitis is a medical emergency characterized by a sudden pancreas inflammation. It can be caused by various factors, primarily gallstones, alcohol consumption, or medication. Acute edematous pancreatitis caused by *Fasciola hepatica* infection is exceptionally rare and could be overlooked. We report a case of a 24-year-old female patient who presented with onsets of clinical and paraclinical signs of acute pancreatitis (AP). The patient was diagnosed with *Fasciola hepatica*-induced edematous pancreatitis, a rare parasitic infection that can cause AP. This case highlights the importance of considering parasitic infections in the differential diagnosis of edematous pancreatitis, particularly in young patients with no significant medical history.

Introduction

Acute edematous pancreatitis is a medical emergency characterized by sudden pancreas inflammation, which can cause severe abdominal pain, nausea, vomiting, and fever [1]. It is typically associated with alcohol consumption, gallstones, or medications [2,3]. However, various other etiologies can lead to acute pancreatitis (AP), including parasitic infections. The most reported parasites causing AP are *Ascaris lumbricoides* and *Plasmodium falciparum* [4]. *Fasciola hepatica* is a trematode parasite that primarily affects livestock but can also infect humans who consume contaminated water or vegetables. It is an extremely rare cause of pancreatitis, and few cases have been reported in the literature [5,6]. Here, we report a case of *Fasciola hepatica*-induced edematous pancreatitis in a young female patient, with a review of the clinical features, diagnostic challenges, and management of this rare condition.

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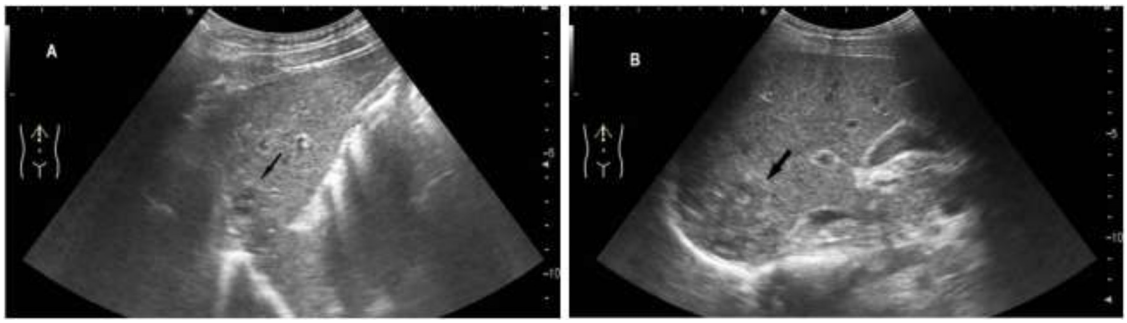

Fig. 1 – Sonograms show multiple small subcapsular, confluent, ill-defined hypoechoic nodules (arrow).

Case presentation

A 24-year-old female patient presented at the hospital 17 hours after the onset of acute upper abdominal pain. The pain was described as a persistent, gnawing, and stabbing sensation. Accompanying symptoms included episodes of nausea and vomiting. The patient denied any significant medical history, alcohol consumption, drug use, or a history of gallstone disease before this episode.

During the physical examination, her abdomen showed mild distension, tenderness, and discomfort upon palpation, particularly in the epigastric region. No guarding was observed. The patient was afebrile with normal heart rate and blood pressure. Admission laboratory results showed significantly elevated serum levels of lipase (6110 U/L; reference range: 0-67 U/L) and amylase (3060 U/L; reference: 0-90 U/L). The liver enzymes, electrolyte concentration, and lipid panel were within normal limits.

Complete blood count analysis showed a normal white blood cell count (6.12 G/L; reference range: 4-10 G/L) with 26.1% eosinophilia; the neutrophil and monocyte counts were within reference ranges. The patient exhibited mild normocytic anemia, with a hemoglobin level of 111 g/L.

Sonograms showed multiple small subcapsular, confluent, ill-defined hypoechoic nodules in the liver (Fig. 1). Abdominal computed tomography (CT) revealed slight dilation of the common and intrahepatic bile ducts and enlargement of the pancreatic head (Fig. 2). A diagnosis of edematous pancreatitis was established. However, the underlying cause initially remained unclear.

The patient was screened for common causes of pancreatitis, including gallstones, alcohol consumption, and medications, but all were negative. Considering rare causes, including hepatobiliary parasites, a stool test was performed. However, no parasite eggs, cysts, or larvae were detected. Enzyme-linked immunosorbent assays (ELISAs) were used to screen for antibodies against *Strongyloides stercoralis, Angiostrongylus cantonensis, Gnathostoma* spp., *Toxocara canis*, and *Fasciola hepatica*. All were negative except for *Fasciola hepatica*. The results strongly supported a diagnosis of *Fasciola hepatica*-induced acute edematous pancreatitis.

Treatment with albendazole and praziquantel was indicated, which significantly improved the patient's condition. The patient was also provided counseling on proper hygiene practices and advised to avoid consuming raw vegetables or drinking untreated water.

Discussion

AP is one of the most common gastrointestinal emergencies. Its clinical manifestations vary significantly, ranging from nonspecific symptoms to life-threatening conditions. The AP diagnosis adheres to the standardized criteria established by the Atlanta classification, which necessitates the presence of at least 2 out of the 3 criteria: characteristic abdominal pain for AP, serum lipase (and/or amylase) activity exceeding 3 times the upper limit of normal, and the specific abdominal imaging of AP [7]. The diagnosis also requires the exclusion of alternative etiologies that may simulate AP symptoms, such as cholecystitis, peptic ulcer disease, or gastrointestinal perforation [8]. In most cases, the AP diagnosis is not challenging, akin to our clinical case, which manifested typical AP symptoms.

AP has multiple causes. Its primary etiological factors are gallstones and alcohol abuse. These factors are easily identified through a comprehensive examination of the patient's medical history and conventional imaging modalities [9]. Less common factors may also contribute to AP development, including infections, hypertriglyceridemia, and autoimmune factors. In such cases, meticulous evaluation is necessary to archive an accurate diagnosis and eliminate other possible causes.

Infection etiologies are relatively rare in AP. They are thought to contribute to its development. Accurate identification of the exact infectious etiology is critical for effective management and targeted treatment. AP can be induced by diverse infectious agents [4]. Therefore, identifying the specific microorganism responsible for AP can sometimes be challenging. Clinical and distinctive paraclinical manifestations are crucial for determining the infective agent.

Despite their AP diagnosis, our patient had no biliary etiology or history of alcohol consumption. Furthermore, they exhibited unexpected eosinophilia, raising the possibility of a parasitic causative agent.

Fasciola hepatica, also known as the common liver fluke, is a parasitic flatworm that infects the liver and bile ducts of various mammals, including humans. Incidental human infection with *Fasciola hepatica*, known as human fascioliasis, occurs

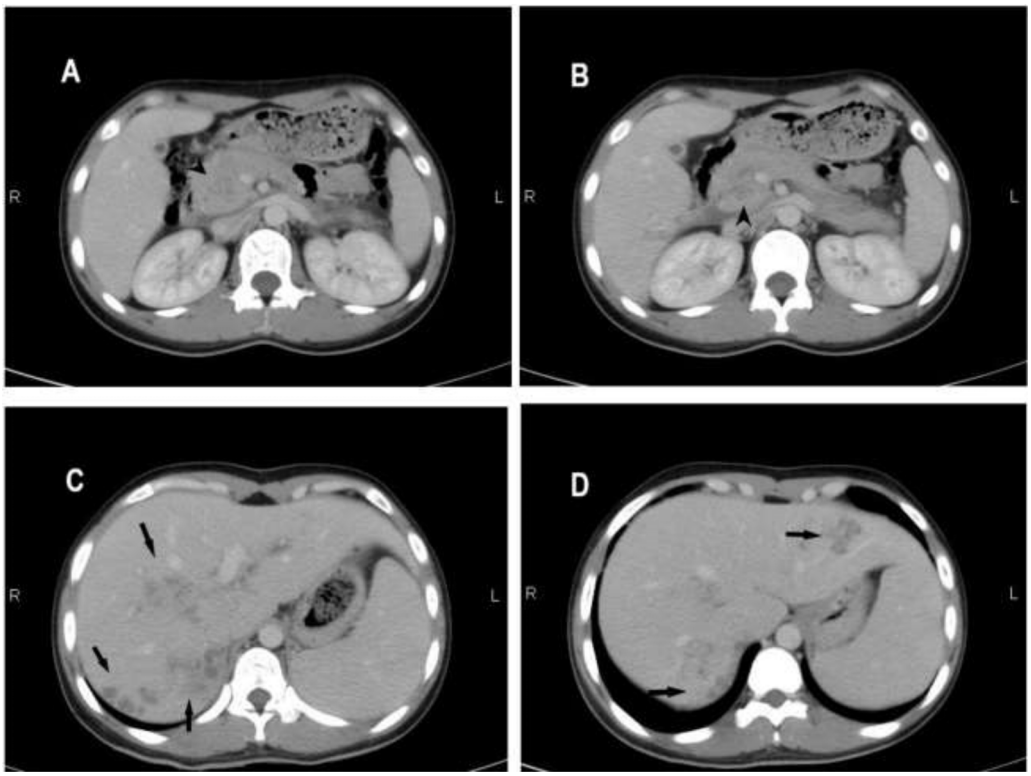

Fig. 2 – (A–D) The portal venous phase of a CT scan shows multiple, round, clustered, hypodense lesions in the subcapsular liver (arrow) and the head of the pancreas (arrowhead).

when humans accidentally consume contaminated water or plants with metacercariae, the parasite's infective stage. Once ingested, the metacercariae undergo excystation within the human intestines and migrate through the abdominal cavity and liver tissues before reaching the bile ducts, where they mature into adult flukes [10]. The symptoms of human fascioliasis are nonspecific and can range in severity, including abdominal pain, fever, jaundice, digestive disturbances, and eosinophilia. Individuals may sometimes be asymptomatic [11,12]. Cases of fascioliasis with AP are very rare [5,6,13].

Thefascioliasis diagnosis can pose challenges due to its nonspecific clinical manifestations. CT scans may reveal multiple hypodense liver lesions with peripheral contrast enhancement and bile duct dilation [14]. Enlarged lesions can be mistaken for necrotic metastases and hepatic abscesses. Specific tests, such as stool examination and serological assays, are required to archive a definitive diagnosis. While stool examination under a microscope can reveal the presence of ova, this test lacks sensitivity [15]. A more effective test, such as ELISA-based specific serology, helps establish a definitive fascioliasis diagnosis, particularly in its early phase. This test proves valuable in differentiating fascioliasis from other parasitic infections when the stool examination is negative. In this case, the patient exhibited serologic evidence of *Fasciola hepatica* and tested negative for other common parasites. It is essential to note that serology tests, including ELISA, serve as supportive diagnostic tools and should be interpreted jointly with clinical evaluation, patient history, and imaging studies to establish a definitive fascioliasis diagnosis.

Overall, this case report emphasizes the importance of considering parasitic infections, such as *Fasciola hepatica*, in the differential diagnosis of AP in patients with unexplained abdominal symptoms. Clinicians must familiarize themselves with this rare condition's clinical manifestations, laboratory findings, and imaging characteristics to facilitate early diagnosis and management.

Conclusion

Fasciola hepatica-induced edematous pancreatitis is a rare parasitic infection that should be considered in the differential diagnosis of AP, particularly in young patients with no significant medical history or known risk factors. While rare, the increasing incidence of *Fasciola hepatica* infections worldwide highlights the importance of awareness, diagnosis, and management of this parasitic infection.

Authors' contribution

Duong Quang Huy and Nguyen Minh Duc contributed to write original draft. Duong Quang Huy, Nguyen Xuan Khai, Ngo Tuan Minh, Truong Dinh Tien, Tran Hai Yen and Nguyen Minh Duc contributed to undergo diagnostic procedure, collect, and interpret the imaging. Duong Quang Huy, Nguyen Xuan Khai,

and Nguyen Minh Duc made substantial contributions to collect patient data and clinical data analysis. All authors have read, revised, and approved the final published version of the manuscript. All authors were responsible for submission of our study for publication.

Statement of ethics

Ethical approval was not necessary for the preparation of this article.

Data availability statement

All data generated or analyzed during this study are included in this article and/or its online supplementary material files. Further enquiries can be directed to the corresponding author.

Patient consent

Informed consent for patient information to be published in this article was obtained.

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