ACG CASE REPORTS JOURNAL

CASE REPORT | STOMACH

Gastric Pseudotumor due to *Fasciola hepatica*

Lesly Calixto-Aguilar, MD[1], George Vasquez-Rios, MD[2], Jheferson Contreras-Grande, MD[3], Wilder Ramos-Castillo, MD[4], and Edson Guzmán-Calderón, MD[1]

[1]*Department of Gastroenterology, Hospital Nacional Edgardo Rebagliati Martins, Lima, Peru*
[2]*Department of Internal Medicine, Saint Louis University School of Medicine, Saint Louis, MO*
[3]*Department of Radiology, Hospital Nacional Edgardo Rebagliati Martins, Lima, Peru*
[4]*Department of Pathology, Hospital Nacional Edgardo Rebagliati Martins, Lima, Peru*

ABSTRACT

A 71-year-old man presented with abdominal pain and weight loss. He had epigastric tenderness on examination. Basic studies revealed anemia and eosinophilia. A computed tomography scan showed a mass in the anterior wall of the stomach. Endoscopic studies revealed a subepithelial lesion in the same area. An exploratory laparotomy was conducted to rule out any malignancy, revealing a mass fixed to the transverse colon and stomach. Biopsy samples showed eosinophilic nodules and multiple cystic structures compatible with *Fasciola hepatica*. The patient was treated with triclabendazole with complete resolution. Gastric pseudotumor secondary to *F. hepatica* is a rare but treatable disease.

INTRODUCTION

Fasciola hepatica is a trematode acquired by eating raw water plants such as watercress or drinking water that is contaminated with the encysted form of the parasite.[1] This condition affects 2.6–17 million people worldwide, especially individuals who reside in subtropical areas.[2,3] Commonly, *F. hepatica* affects the hepatobiliary system. However, it can also compromise extrahepatic organs such as the brain, the lung, and, rarely, the gastrointestinal tract.[4–6] We present an elderly patient with constitutional symptoms, eosinophilia, and an atypical gastric mass.

CASE REPORT

A 71-year-old native male resident of Ancash in northern Peru (Andean heights) was admitted with slowly progressive epigastric abdominal pain, early satiety, and weight loss over the previous 12 months. On initial evaluation, he was emaciated and pale. Physical examination revealed mild epigastric and right upper quadrant tenderness. No jaundice or hepatomegaly was noted.

Laboratory studies showed mild anemia (10 g/dL) and eosinophilia (white blood cells 6,440 cells/L; eosinophils 14.8%). An abdominal computed tomography (CT) showed a 3.5 × 2.4 × 2.8 cm mass in the anterior wall of the gastric body surrounded by edema. In addition, there was a 2-cm nodule located in the left lobe of the liver (Figure 1). An upper endoscopy revealed a 4-cm subepithelial lesion in the gastric body. Endoscopic ultrasonography showed a lesion within the gastric submucosa with multiple cystic areas (Figure 2). Gastric and liver biopsies showed nonspecific signs of chronic inflammation without evidence of malignant cells. Immunohistochemical studies were inconclusive.

Laparoscopy was conducted because of the presence of an abnormal abdominal mass and unexplained constitutional symptoms. It revealed a 3 × 3 × 2 cm mass that was fixed to both the transverse colon and the distal aspect of the stomach (Figure 3). Biopsy revealed granulomas with eosinophilic walls and multiple cystic cavitating structures. This pattern suggested *F. hepatica* infection in its multi-life-cycle stages (Figure 4). IgG immunoblot studies were positive for *Fasciola*, whereas fecal studies revealed typical *Fasciola* eggs. The patient was treated with triclabendazole 10 mg/kg/d for 2 days, which effectively improved his clinical status over the following 6 months. On follow-up, eosinophilia resolved and both serology and stool studies were negative.

ACG Case Rep J 2019;6:e00173. doi:10.14309/crj.0000000000000173. Published online: September 5, 2019

Correspondence: Lesly Calixto Aguilar, MD, Department of Gastroenterology, Hospital Nacional Edgardo Rebagliati Martins, Lima, Peru (lesly.calixto.a@upch.pe).

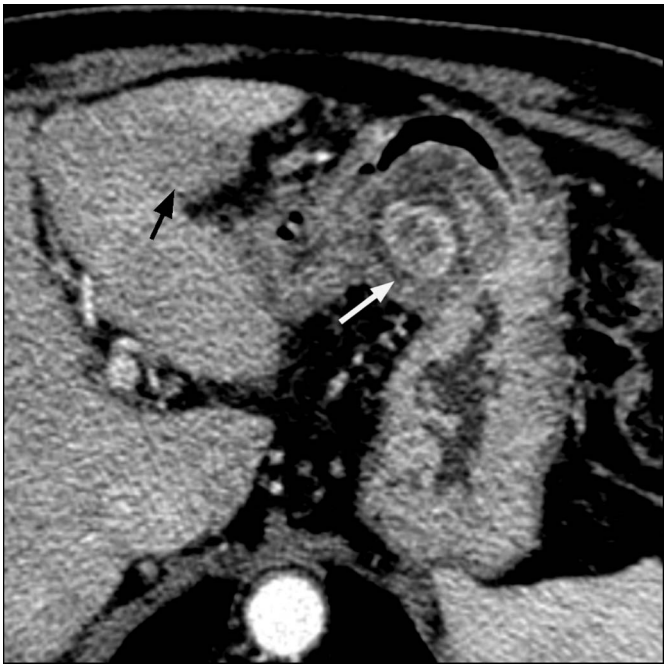

Figure 1. Contrast-enhanced computed tomography scan showing an heterogeneous gastric mass located in the lesser curvature of the stomach (white arrow) and ill-defined confluent hypodense nodules in the lateral segment of the left lobe of the liver (black arrow).

DISCUSSION

Fascioliasis is a zoonotic disease caused by the trematode *F. hepatica*. The prevalence of this parasite is high in North Africa, Western Europe, and South America, especially in the Andes of Peru and Bolivia. In Peru, the prevalence of this parasite ranges between 8% and 36%.[7,8]

The infection begins with the ingestion of food or water contaminated by *Fasciola* metacercariae, which then migrate through the stomach and duodenum. The excysted form of the parasite penetrates the intestinal wall, gaining access to the peritoneum where it adopts an inactive form for several days before migrating to the liver. This acute phase lasts 3–5 months and is characterized by fever, abdominal pain, hepatomegaly, and eosinophilia.[2,9] In the chronic phase, the parasite reaches the biliary tree where it can cause biliary colic and cholangitis. Rarely, larvae can migrate to ectopic locations such as the brain, epididymis, and stomach.[1,9] Previously, Acosta-Ferreira et al described 2 patients with gastric involvement due to *Fasciola*. In both cases, peptic ulcer-like lesions were found in the stomach with no evidence of overt mass.[10]

A high index of suspicion is important to diagnose fascioliasis. Patients may present with nonlocalized abdominal pain, eosinophilia, and characteristic abdominal CT findings. However, the diagnosis requires demonstrating parasites or eggs in feces, biliary samples, or duodenal aspirates.[11,12] Although stool studies have been shown to have high sensitivities in the chronic phase of infection, they may fail to detect *Fasciola* during the early stages.[1,11] Therefore, serologic studies may play a more prominent role in the diagnosis of both acute and chronic disease. For example, enzyme-linked immunosorbent assay (ELISA) is able to achieve high sensitivity (96.7%) and specificity (91.2%) in the diagnosis of this infection.[11,13] For this case, IgG immunoblot was used as a surrogate for ELISA because of a lack of ELISA availability in tertiary care centers while still achieving satisfactory sensitivity (71%–96%) and specificity (88%–100%).[11,14]

Abdominal ultrasonography is of little value during the acute phase because biliary dilation and tortuousness of the bile ducts appears approximately 12 weeks after the onset of infection.[1] Instead, contrast-enhanced CT scan can be useful in up to 90% of cases because it can demonstrate the presence of multiple, clustered hypodense lesions which tend to converge toward the hepatic hilum.[13,15] Endoscopy with cholangiopancreatography may be useful to detect bile duct abnormalities seen in chronic infection. Furthermore, they may play a role in the management of biliary obstruction.[16,17] Little is known about the use of endoscopic

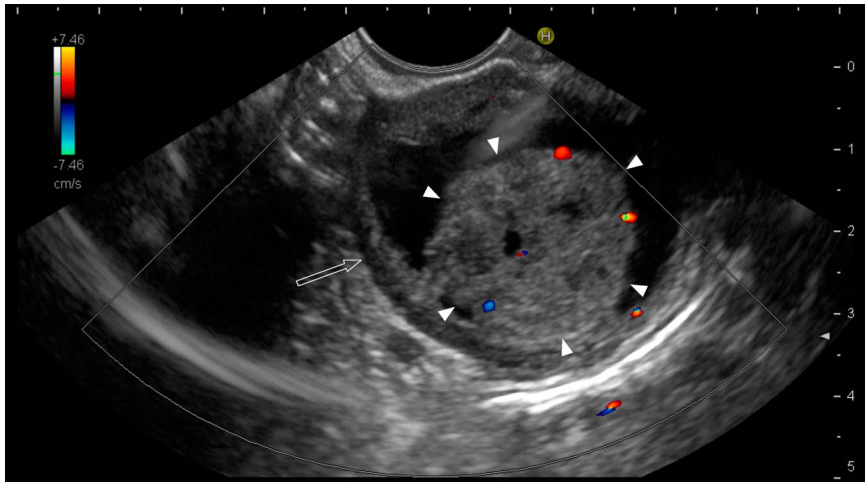

Figure 2. Endoscopic ultrasound shows a heterogeneous gastric lesion (arrowheads) with multiple cystic areas which appears mildly hyperechoic when compared with the muscular tissue of the stomach (arrow). Discrete vascular supply is seen on Doppler color.

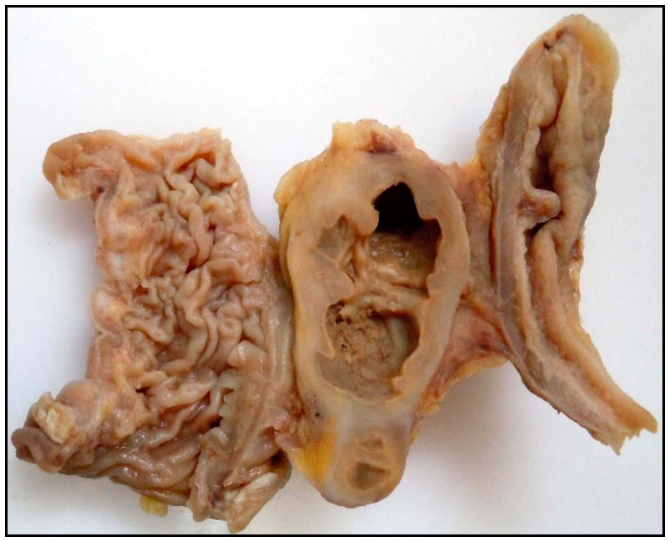

Figure 3. Surgical specimen cystic tumor adhered to the omentum between the distal portion of stomach and the colon. Turbid liquid was noted during surgical incision of the tumor.

ultrasonography in cases of *Fasciola* in the gastrointestinal tract. However, it is possible that nonspecific cystic structures in the submucosal layer of the stomach are associated with *Fasciola*-induced pseudotumor. On histopathology, most findings reported in the literature are nonspecific such as granulomas and Charcot-Leyden crystals surrounded by an eosinophilic infiltrate.[16,18] However, eggs have been found in specimens from the liver, biliary system, and bowels.[9,19] In this patient, biopsy samples revealed multiple fragments of this parasite and ovoid formations covered by an eosinophilic spiny cuticle (Figure 4).

The patient was treated with triclabendazole 10 mg/kg for 2 days, which has been associated with the elimination of immature and mature forms of the parasite.[18,19] On follow-up, the patient's positive response to therapy was reflected in his weight gain and increased oral intake. Repeat laboratory studies demonstrated resolution of eosinophilia, decreased antibody titers, and negative fecal studies. Repeat abdominal CT showed a benign focal lesion in the minor curvature of the stomach in line with benign disease sequela.[16]

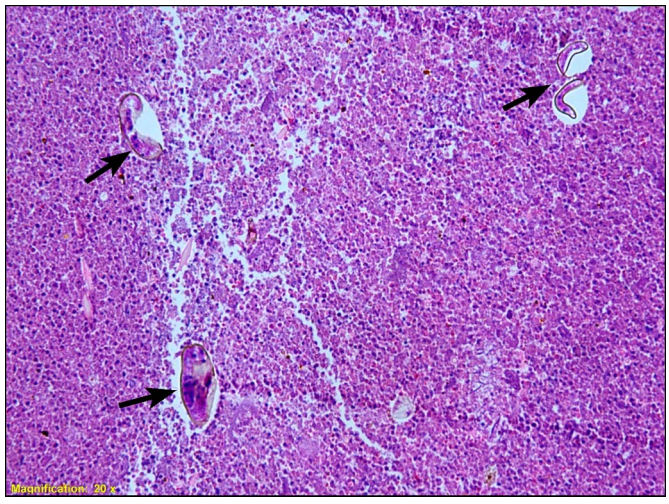

Figure 4. Hematoxylin and eosin stain of tumor biopsy showing multiple ovoid formations, compatible with parasitic structures (evolutionary forms of *F. hepatica*).

Diagnosis of *F. hepatica* is challenging. Although abdominal pain and jaundice are prominent signs of chronic stages, unspecific symptoms, weight loss, eosinophilia, and endoscopic findings could be initial diagnostic clues. Routine screening with a primary provider can be considered, especially in endemic areas. This is a novel case of *F. hepatica* presenting as a gastric pseudotumor.

DISCLOSURES

Author contributions: L. Calixto-Aguilar wrote the manuscript. L. Calixto-Aguilar and G. Vasquez-Rios reviewed the literature. G. Vasquez-Rios, J. Contreras-Grande, W. Ramos-Castillo, and E. Guzmán-Calderón edited the manuscript. E. Guzmán-Calderón is the article guarantor.

Acknowledgments: The authors express their gratitude to the medical personnel at Hospital Nacional Edgardo Rebagliati Martins and Tropical Medicine Institute "Alexander von Humboldt" for their technical support. Furthermore, they would like to thank Dr Neil Evans and Dr Christian Caceres from the Department of Internal Medicine at Saint Louis University School of Medicine for their valuable criticism to this manuscript.

Financial disclosures: None to report.

Informed consent was obtained for this case report.

Previous presentation: This case was presented in part at ACG Annual Scientific Meeting; October 5-10, 2018; Philadelphia, Pennsylvania.

Received February 22, 2019; Accepted June 17, 2019

REFERENCES

1. Lin D, Wang X, Wang Z, Li W, Zang Y, Li N. Diagnosis and management of hepatic fascioliasis mimicking intrahepatic cholangiocarcinoma: A case report. *Int J Clin Exp Med*. 2017;10(1):1385–92.
2. Beltran M, Tantalean M, Meza H, Lozano M. Fasciolosis errática. *Rev Peru Med Exp Salud Publica*. 2004;21(4):276–9.
3. Yalav O, Yagmur O, Ulku A, Akcam A, Sonmez H. A rare cause of obstructive jaundice: *Fasciola hepatica* mimicking cholangiocarcinoma. *Turk J Gastroenterol*. 2012;23(5):604–7.
4. Aguirre C, Merino A, Flores M, de los Rios A. Formas aberrantes de Fasciola hepatica. Estudio de dos casos. *Med Clin (Barc)*. 1981;76:125–8.
5. Ruggieri F, Correa AJ, Martinez E. Cerebral distomiasis: Case report. *J Neurosurg*. 1967;27:268–71.
6. Couraud L, Raynal J, Meunier JM, Champell A, Vergnolle M. Un cas de distomatose pulmonaire autochtone. *Rev Fr Mal Resp*. 1975;3:579–88.
7. Cabada M, Castellanos-Gonzalez A, Lopez M, Caravedo MA, Arque E, Clinton A. Fasciola infection in an Indigenous Community of the Peruvian Jungle. *Am J Trop Med Hyg*. 2016;94(6):1309–12.

8. Astencio G, Pérez R, González A, Ramos J. Diagnóstico de Fasciola hepática por colangiopancreatografía retrógrada endoscópica. *Revista Cubana de Medicina*. 2016;55(3):257–63.
9. Makay O, Gurcu B, Caliskan C, Nart D, Tuncyurek M, Korkut M. Ectopic fascioliasis mimicking a colon tumor. *World J Gastroenterol*. 2007;13(18): 2633–5.
10. Acosta-Ferreira W, Vercelli-Retta J, Falconi LM. Fasciola hepatica Human Infection- Histopathological study of sixteen cases. *Virchows Arch A Path Anat Histol*.1979;383:319–27.
11. Maco V, Marcos L, Terashima A, et al. Fas2-ELISA y la técnica de sedimentación rápida modificada por lumbreras en el diagnóstico de la infección por *Fasciola hepatica*. *Rev Med Hered*. 2002; 13:49–57.
12. Kaya M, Beştaş R, Cetin S. Clinical presentation and management of Fasciola hepatica infection: Single-center experience. *World J Gastroenterol*. 2011;17(44):4899–904.
13. Reza M, Ghaziani T, Shahraz S, Hekmatdoost A, Radmehr A. Liver, spleen, pancreas and kidney involvement by human fascioliasis: Imaging findings. *BMC Gastroenterol*. 2004;4:15.
14. Davelois K, Escalante H, Jara C. Rendimiento diagnóstico del Western Blot para detectar simultáneamente anticuerpos en pacientes con cisticercosis, hidatidosis y fasciolasis humana. *Revista Peruana de Medicina Exp y Salud Pública*. 2016;33:616–24.
15. Bachler P, Baladron M, Menias C, et al. Multimodality imaging of liver infections: Differential diagnosis and potential pitfalls. *RadioGraphics*. 2016;36(4):1001–23.
16. 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.
17. Ö Birol, Ender S, Yüksel G, Gürden G, Uğur Y, Sedat B. Endoscopic extraction of living *Fasciola hepatica*: Case report and literature review. *Turk J Gastroenterol*. 2003;14(1):74–7.
18. Blancas G, Terashima A, Maguiña C, Vera L, Alvarez H, Tello R. Fasciolosis humana y compromiso gastrointestinal: Estudio de 277 pacientes en el Hospital Nacional Cayetano Heredia. *Rev Gastroenterol Perú*. 2004;24(2):143–57.
19. Carrada-Bravo T. Fasciola hepática: Investigación clínico-epidemiológica. *Rev Gastroenterol Mex*. 2006;71(2):169–73.