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Case Report

First reported case of clinical fascioliasis in Santa Catarina, Brazil

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Abstract

Fascioliasis is a food-borne anthropozoonotic disease caused by *Fasciola hepatica* that affects multiple hosts, including humans. We herein report the first case of human fascioliasis in the state of Santa Catarina, Brazil. A 57-year-old female patient complaining of abdominal pain was admitted to the hospital for a clinical investigation. The diagnosis of *F. hepatica* was confirmed by ultrasound and indirect enzyme-linked immunosorbent assay. Authorities of the Northern coast of Santa Catarina were notified to investigate other cases and risk factors for contamination. The disease is also prevalent in cattle, which could pose as a potential route for infection.

Keywords: *Fasciola hepatica*. Liver fluke. Neglected zoonosis.

INTRODUCTION

Human fascioliasis generally occurs after the ingestion of metacercaria, the encysted form of the trematode parasite *Fasciola* spp. This infective form can be found attached to plants or in water[1]. The incubation period starts after ingestion and is followed by acute and chronic clinical phases. The acute phase includes fluke migration to the bile ducts for about 2–4 months. During the chronic phase, adult worms attach themselves on the bile ducts, leading to months or years of persisting infection[2,3].

In Brazil, declaration of fascioliasis is not compulsory; therefore, only 48 cases of human infection have been reported in scientific papers between 1950 and 2016[4]. Combined with the challenges of an accurate diagnosis, this results in only a small number of reported cases leading to a considerable underestimation of the actual, putatively much larger number of subjective cases[4]. To the best of the authors' knowledge, the last case of fascioliasis in Brazil reported in the literature was from Amazonas state in 2018, where 36 (8.3%) human serum samples were reactive in enzyme-linked immunosorbent assays (ELISAs), 8 (1.8%) of which were also positive in Western Blot experiments, and only 1 fecal sample was positive in the *F. hepatica* coprological test[5].

The under-reporting of human fascioliasis cases stem from both the difficulty in performing a proper diagnosis and the lack of knowledge on fascioliasis by health care professionals[3,6]. Considering these challenges, frequent reporting of fascioliasis cases such as the present case will aid local authorities by allowing them to take necessary preventive measures. Thus, the availability of case reports is of importance for local healthcare providers, particularly when it comes to such a neglected disease. This work is the first human fascioliasis case to be reported in the state of Santa Catarina in the South of Brazil, an area where the occurrence of bovine fascioliasis is well established[7].

CASE REPORT

A 57-year-old woman from Balneário Piçarras, Santa Catarina, Brazil (**Figure 1**), was admitted to the local health unit with persistent abdominal pain. The patient had been admitted 15 days earlier to a hospital and had received stationary treatment for acute abdominal pain followed by fever and acute jaundice (yellowing of the skin) for 5 days. An ultrasound examination

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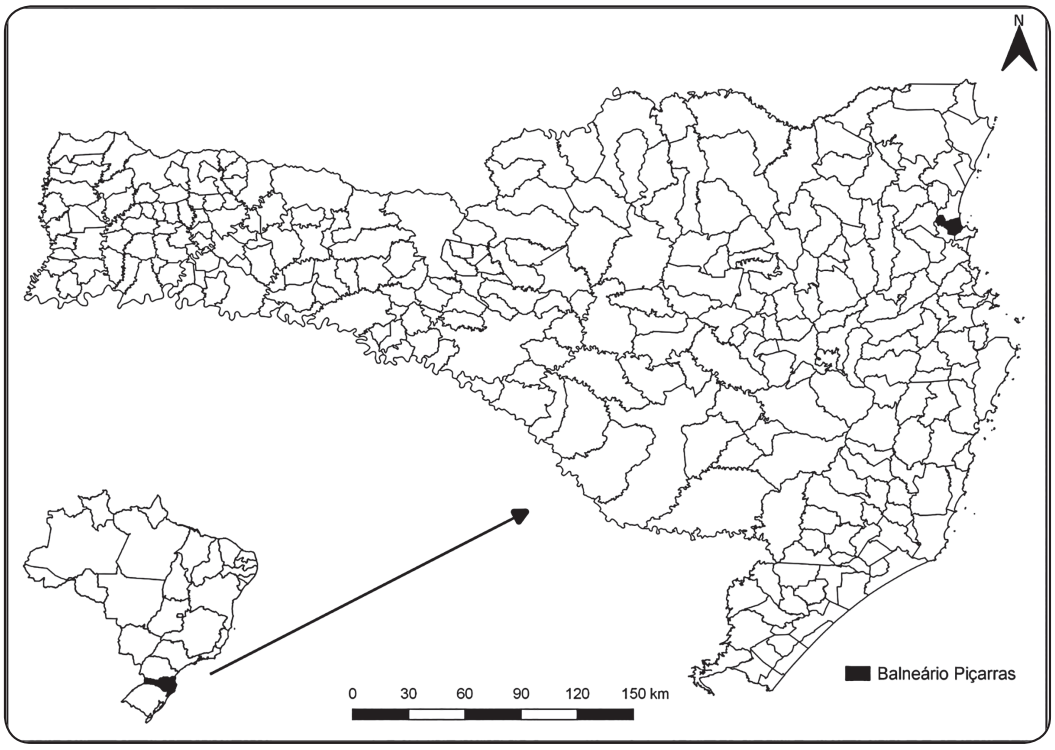

FIGURE 1: Map of the State of Santa Catarina, Brazil, indicating the location of the city of Balnéario Piçarras.

revealed a hepatic cyst and a small hemangioma nodule. She was treated with non-specific antibiotics and showed signs of clinical improvement. Nevertheless, the patient had recurring pain episodes after a few days and therefore sought another consultation where she was submitted to another ultrasound examination. Although the liver showed a normal parenchyma, a hepatic cyst of 2.6 cm in size was detected. The absence of lithiasis was also observed.

The liver function findings were as follows: 66 U/L aspartate transaminase [normal: <31 U/L], 150 U/L alanine transaminase [normal: <32 U/L], 159 U/L alkaline phosphatase [normal: 27-100 U/L], 106 U/L gamma-glutamyl transferase [normal: 5-32 U/L], a normal total bilirubin level, persistent eosinophilia, and elevated values in tests for inflammation.

She returned to the hospital after 4 months with a mild but recurrent abdominal pain. The possibility of *F. hepatica* infection was suspected after a hepatic capsule rupture was observed in magnetic resonance imaging (MRI) scans (**Figure 2A** and **2B**). For this reason, a blood sample (serum) was collected for screening with anti-*F. hepatica* antibodies using an indirect ELISA. The ELISA method presents a sensitivity and specificity of 99.9%, and employs a *F. hepatica* cathepsin L1 recombinant protein as an antigen[8]. The immunological test confirmed the presence of anti-*F. hepatica* IgG antibodies.

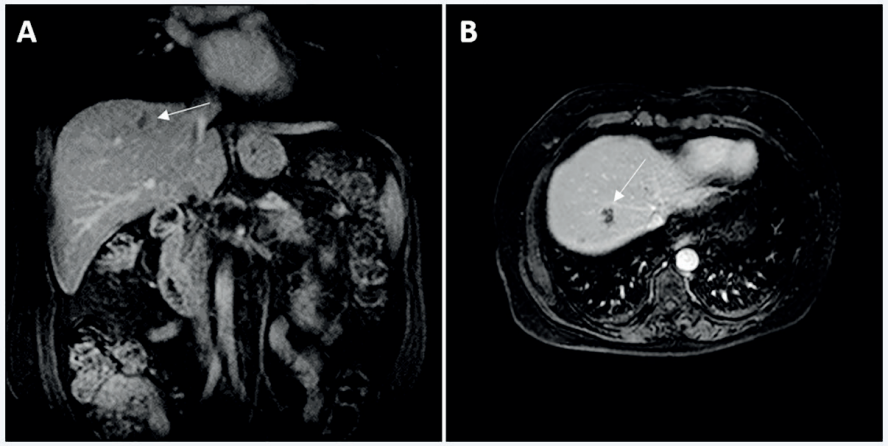

FIGURE 2: Nuclear magnetic resonance images of **(A)** the main coronal contrast and **(B)** the axial contrast. The arrows point to the lesions formed by the presence of the adult Fasciola hepatica parasite.

Unfortunately, despite multiple attempts to contact the patient, she did not return to receive the required follow-ups and treatment. This study was approved by the ethics committee of the Federal University of Parana (CAAE number 50984215.0.0000.0102).

DISCUSSION

The life cycle of *F. hepatica* is heteroxenous where hosts of different species are required for its entire life cycle to be completed. The intermediary hosts are snails that belong to the lymnaeidae family, while the most common definitive hosts are livestock animals and humans[3]. These multiple *F. hepatica* hosts make it almost impossible to eradicate fascioliasis infection[6].

The diagnosis of fascioliasis in humans is still a challenge, particularly in non-endemic regions, given that the disease is not recognized by health authorities and that there are numerous non-specific symptoms observed in infected people. In the acute phase of the disease, eosinophilia is the most common laboratory finding and was also observed in our case. Nonetheless, eosinophilia may not be detected in all human fascioliasis cases as it is only a general indication of parasitic infection[3,6]. Although diagnostic methods based on coprological exams to search for parasite eggs are routinely used, they are time-consuming and have a low accuracy. Furthermore, the immunodiagnostic analysis based on ELISA is rarely used even for the validation of fascioliasis in Brazil (M. Molento, personal observation).

Triclabendazole (TCBZ) that effectively kills early immature and adult *Fasciola* liver flukes, is the drug of choice to treat fascioliasis in humans and animals. Although fascioliasis treatment with TCBZ is tolerated well and easily administered, the patient reported in the present case did not return to the healthcare unit to receive it. This episode should serve as a warning to demonstrate that educational health programs are required to inform the community about the risks of this parasitic disease.

Certain factors need to be considered regarding the risk of human infection, such as areas with a high incidence of fascioliasis in ruminants[9]. Although there is no data confirming a correlation between human and animal fascioliasis in Brazil, there is a high prevalence of fascioliasis in cattle, in areas close to that of the present case (Joinville, Blumenau, Florianópolis, and Itajaí)[7].

This study reports the first case of human fascioliasis in Balneário Piçarras, an area with a high prevalence of animal fascioliasis[7]. The present case report highlights the need to alert the scientific and medical community, and local authorities to the occurrence of the disease in this region. As this hepatic infection is a food-borne disease, it is recommended that the community is provided with specific safety measures to ensure the proper sanitation of fresh vegetables (i.e., cress, arugula/rocket) and the consumption of clean potable water. These important preventive actions would considerably reduce the risk of disease transmission and improve the welfare of the population.

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Conflict of interest

The authors declare that there is no conflict of interest.

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