

Strongyloides Stercoralis: an unexpected visitor in gastric mucosa

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Summary: Strongyloides stercoralis a nematode parasite responsible of a protracted asymptomatic intestinal infection. The diagnosis by routine stool examination is very difficult since the larval output in stools is very low. In this article a case of gastric Strongyloidiasis in a 69-year-old man is reported.

Keywords: Strongyloides stercoralis, Gastric mucosa

Introduction

Strongyloidiasis is caused by an infection from Strongyloides stercoralis¹. This parasite infection is endemic in the rural areas of tropical regions² while it is infrequent in temperate continents and in immune competent hosts.

In Italy, Strongyloides stercoralis enteric infection has been described in immune compromised subjects. In a recent report fifteen cases between January 2000 and December 2005 have been reported³.

In a study made in Rome on immigrant children⁴, enteric parasitic infection was detected in a significant percentage of the tested subjects, in correlation with the poor nutritional status and social discomfort.

The diagnosis of strongyloidiasis is often difficult since stool examination is negative in up to 50–70% of the cases⁵. This is due to difficulties in correct coprologic examination for the presence of many techniques of detection, not always appropriate. Also the concentration of the parasite in the stool can be very low in some cases.

For these reasons, histopathologic diagnosis may play a significant role in the identification of parasitic infestation by Strongyloides Stercoralis in symptomatic subjects.

Case presentation

A 69-year-old man living in Piedmont, Northern part of Italy, has been presented in Casale Monferrato Hospital because of general malaise, with abdominal pain, lack of appetite, vomit and loss of weight, in absence of fever or intestinal disorders. Anamnestic history did not suggest any pathogenic factor explaining the poor man condition, without a previous history of recurrent colitis suggesting possible inflammatory bowel disease. There wasn't familiarity for gastric or colic cancer and the patient denies that he went abroad. During hospitalization, laboratory exams revealed eosinophilia, sometimes detectable in patients with infection by helminthes. There were no other blood chemistry values altered and faeces analysis performed for the detection of parasites were negative. Patient underwent to a gastric biopsy to exclude Helicobacter gastritis.

Four fragments were taken during endoscopic gastric examination. These histological specimens were examined on microscopic slides through routine Haematoxylin and eosin (H&E) (Figure 1) and PAS stain (Figure 2).

Strongyloides stercoralis was found in gastric biopsies in form of adult female worm in gastric foveolar mucosa, without an important inflammatory reaction.

This circumstance is very unusual because this organism is typical of Asia and Africa. Moreover, S. stercoralis, is detected in the intestinal tract, in case of human infection.

Discussion

Strongyloides stercoralis is a common parasite of the intestinal tract, characteristic of tropical and subtropical areas (Asia, Africa and Latin America)⁵. In Italy, it has a very low prevalence due to its temperate and mild climate. In the last ten years some Italian groups have reported S. stercoralis infection mainly in immunocompromised subjects^{6,7,8} and in immigrant people in poor nutrition and unsanitary conditions^{4,9}.

S. stercoralis can alternate between parasitic and free-living life cycles. In the free-living cycle, the rhabditi form larvae are shed in the stool into the soil where they grow into adult worms that produce eggs which will hatch to larvae. These larvae can grow to adult worms or penetrate the human skin to start the parasitic life cycle. Extraintestinal infection could involve lung, liver, spleen, pancreas, thyroid, brain, and meninges in hyperinfection. However, cases of gastric involvement are relatively rare, due to the acidity of gastric secretion.

Moreover, it has been discovered that the organisms can reach the stomach of patient through a retrograde migration from the proximal small intestine⁶. Most recently described cases of gastric strongyloidiasis have been detected in poor and overcrowded regions of the world, such as Korea¹⁰, Indonesia¹¹, Turkey¹² and in African states¹³. In almost all these cases, the diagnosis of *S. stercoralis* infection was unexpected, because signs and symptoms of the infection were extremely variable from case to case. *S. stercoralis* can be responsible of gastrointestinal bleeding¹³ or associated to megaduodenum¹⁴ and multiple gastric nodules².

Strongyloides stercoralis infections are usually asymptomatic. Unless patients became heavily infected, the clinical symptoms and signs reported in strongyloidiasis are generally not so severe and frequently nonspecific characteristic. In case of gastric strongyloidiasis the main complaint are: epigastric pain, nausea, vomiting, loss of appetite and weight. For this reason the infection is easily overlooked by patients and even by doctors.

The diagnosis of strongyloides is usually made by the finding of rhabditoid larvae in the fecal specimens. However, a routine stool examination may results negative because the output of the parasite in the stool is very low. Indeed the eosinophilic count is not a reliable indicator of parasitic infection. All this factors make *S. stercoralis* difficult to diagnose. Early diagnosis is very important especially in immune compromised patients or in the ones under steroids and chemotherapy where the fatality is really high due to hyper infection. In our case parasite larvae have been found in gastric biopsy specimens taken for other reasons than strongyloidiasis.

Conclusion

It is meaningful underline the peculiarity of this case. First of all the detection of *S. stercoralis* in the gastric mucosa, than in the small intestine, is unusual due to the gastric acid background. Moreover this nematode is endemic in tropical and subtropical areas but, because of recent immigration trends, *S. stercoralis* can be identified in different habitat, like continental one. For this reason it becomes extremely important that our generalists keep up-to-date about this barely spread infection in order to address patients to the right specialist. In addition the lack of specificity of symptoms, the insufficient output of the parasite in the stool and the uncertain reliability of the eosinophilia make Strongyloidias difficult to diagnose. Therefore an early and correct diagnosis is fundamental, both for immune compromised patients than for subjects in good health that contract this infection.

In view of the above, the exponential increase of immigration from poor countries and of the strict social and cultural precarious conditions of these people, Strongyloidiasis can still consider an important problem as little spread in relation to the large amount of immigrants. *Strongyloides stercoralis* infection, however, can be a wake-up call to shoddy and dangerous sanitary conditions for Western companies.

In this light, a careful diagnosis even in the absence of symptoms becomes important to activate an alert and functional health surveillance aimed at preventing the spread of this and other infections.

For these considered reasons, histopathological diagnosis on endoscopically removed fragments plays a major role in cases of unexplained malaise, when gastroenterologists can suspect a neoplastic involvement of gastric or enteric mucosa. In this context, in fact, a careful and experienced pathologist can make the difference in hospitals where the patient management is based on interdisciplinary collaboration.

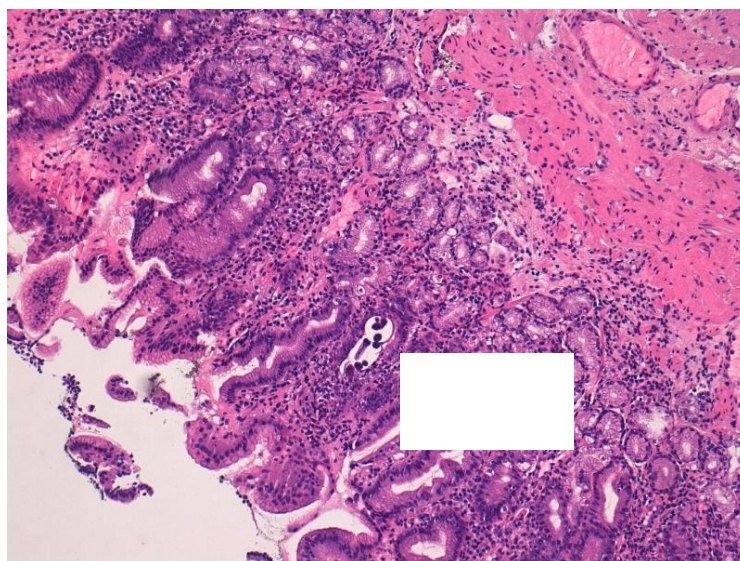


Fig 1: H&E routine stain detecting parts of parasitic body in gastric mucosa between normal glands

(black arrow in figure).

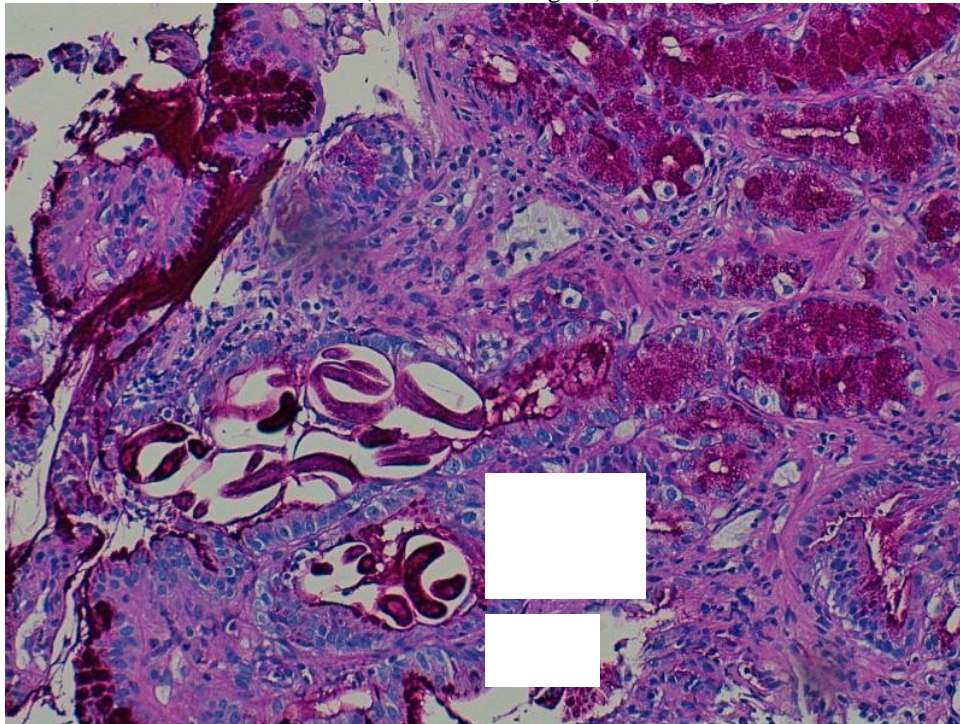


Fig 2: PAS stain details of nematode body (see black arrow) in gastric mucosa (20X).

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