



Iron malabsorption and giardiasis in adults: about a case

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ABSTRACT

Malabsorption is an intestinal defect of nutrient absorption, it can be generalized affecting all nutrients, or selective for some nutrient. Iron deficiency due to malabsorption is generally seen if there is important alteration of the intestinal mucosa. However, some aetiologies are associated with minimal morphologic changes of the intestinal mucosa as is the case of our patient. We report a case of a young man having severe anaemic syndrome. The laboratory tests show iron deficiency, intestinal biopsy show *Giardia intestinalis* infection. Through this case, with review of the literature we will discuss what to do in front of an iron malabsorption syndrome.

Keywords : intestinal malabsorption – iron – *Giardia intestinalis*

INTRODUCTION

Iron deficiency is most often due to a lack of supply or excessive losses including bleeding [1]. Selective intestinal malabsorption of iron is rare. It frequently is within the scope of intestinal malabsorption generalized whose most frequent cause is celiac disease [1,2].

MATERIALS AND METHOD

Observation:

It is a 27 year old man without significant medical history looking for a severe anemic syndrome. The beginning dates back to 4 years by the gradual onset of asthenia, a dizziness, and palpitations. Clinical examination showed mucocutaneous pallor and tachycardia at 100 beats / min. Laboratory tests showed a hemoglobin 6 g / dl, MCV 55 fl not, MCHC 20 pg / dl, eosinophilia 600 éléments/mm³, erythrocyte sedimentation rate of 5 mm at the first hour, CRP 0.4 mg / l, serum iron at 40 g / dl and ferritin to 69 g / l, transferrin saturation levels of 10% and normal hemoglobin electrophoresis. The HIV serology was negative. Liver and lipid profile is normal.

The patient was put under martial treatment: Tardyferon ® 80 mg at 2 tablets per day for two months without improvement, her condition worsened even needed a blood transfusion.

The œsogastroduodéanal endoscopy shows a discrete sliding hiatal hernia, antral hyperemia, gastric body is normal. The duodenal mucosa showed no signs of atrophy. Fundic biopsies, antral and duodenal were produced and sent for histological examination.

Histological study shows fundic mucosa of normal appearance, antral gastritis of moderate intensity of light activity with the presence of *Helicobacter pylori* +. At the duodenal mucosa, the villi are preserved height. The chorion has a diffuse inflammatory infiltrate of small intensity makes lymphocytes, plasma cells and eosinophils (Figure 1). At the duodenal lumen and in contact with the apical pole of the cells, the presence of PAS positive binucleate keyhole structures are highlighted by diagnosing duodenitis *Giardia intestinalis* (Figure 2).

The patient was placed under metronidazole at a dose of 3 x 500 mg / day for 5 days, associated with oral iron at a dose of 160 mg / day for 3 months.

The evolution was marked by an improvement in clinical symptoms after one week. Laboratory tests carried out three months later shows a correction of anemia (hemoglobin 11 5 g / dl).

Parasitological examination of stools of three spaced five days apart are negative reflecting the eradication of the parasite.

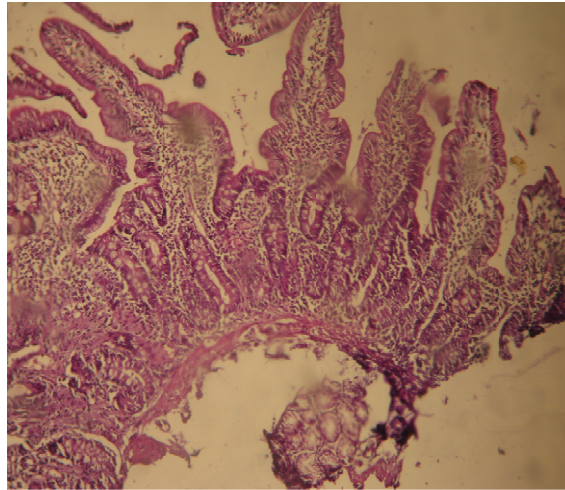


Figure 1 : Duodenal mucosa with villus height which kept the chorion has been an inflammatory infiltrate of lymphocytes and plasma cells - x 100

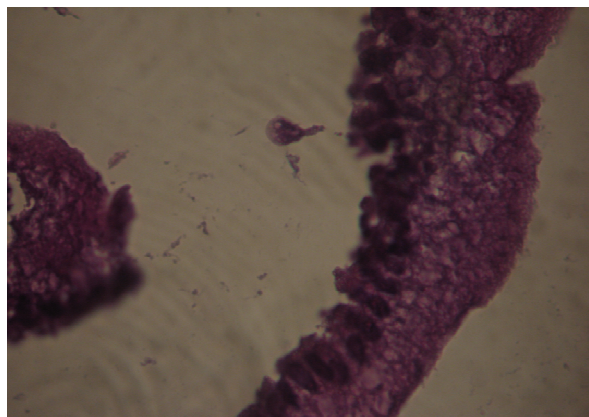


Figure 2 : trophozoite of *Giardia intestinalis*- x100

RESULTS AND DISCUSSION

Intestinal parasitic infections are extremely common in humans especially in developing countries. They most often result in diarrhea of varying severity, they rarely cause intestinal malabsorption. [3]

Accountability of malabsorption parasitic infection is difficult to establish, partly because these infections are endemic in countries where malnutrition Sevie and secondly because parasitic infections are often multiple and therefore causality each in malabsorption is impossible to establish [3,4].

Giardiasis is one of the parasites of the small intestine more frequently, it is caused by a flagellate protozoan *Giardia intestinalis* called. The latter comes in two forms: Trophozoites are pyriform 10 to 20 microns long. They have two nuclei, median axostyle and four pairs of flagella giving their high mobility. Islands live on the surface of the intestinal mucosa without entering inside the cell of [5,6].

Cysts are ovoid, still are 8 to 12µm long, contain two or four cores and four internal flagella resistant, they can survive for several weeks in the environment [5]. Man is infected by ingesting cysts walls with drinking water, raw food or for dirty hands. [6]

Giardiasis the remains asymptomatic, it can cause various digestive disorders, most often involving anorexia, nausea, abdominal discomfort, watery diarrhea, normal temperature. It may rarely cause an intestinal malabsorption syndrome [5,6].

Selective intestinal malabsorption of iron related *Giardia intestinalis* infection has been reported in the literature. It can occur outside the transit disorders, the exact mechanism is not well understood [3,7, 8].

In our case, some arguments show the involvement of *Giardia intestinalis* in iron deficiency due to malabsorption:

- the absence of the correction of anemia after iron supplementation orally.
- the dramatic improvement of anemia after antiparasitic treatment coupled with iron supplementation.

The possibility of iron deficiency before dating *Giardia intestinalis* can not be formally excluded because we do not have information on the iron status before infection. The possibility of iron deficiency due to occult gastrointestinal bleeding may have a contribution. These last two hypotheses do not explain why the martial initial treatment isolated did not correct iron deficiency anemia.

The spectrum of histologic abnormalities observed during *Giardia intestinalis* is a wide range of normal mucosa to complete villous atrophy [9,10]. In our case, the anomalies are minimal reducing to a minimal inflammatory infiltrate in the lamina propria without villous atrophy, which may explain the selective malabsorption overlooked iron.

Ultimately, the iron part poorly absorbed nutrients in giardiasis. Therefore, the Giardiasis be included to the list of treatable causes of iron deficiency. The exact mechanism of this malabsorption remains unclear.

The treatment of giardiasis based on imidazole: metronidazole (Flagyl ®) 1 g / day in adults for 7 days (10 mg / kg in children) or tinidazole (Fasigyn ®) 1g single cure (70 mg / kg in children) for 5 days. The outcome was favorable with correction of clinical and biological signs. The prognosis is excellent [6].

CONCLUSIONS

A stool examination should be part of the assessment conducted in first-line during iron deficiency before intestinal biopsy, because this has the advantage of being fast, simple, non-invasive and can costly.

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