

# GASTRIC CRYPTOSPORIDIOSIS AS A CLUE FOR THE DIAGNOSIS OF THE ACQUIRED IMMUNODEFICIENCY SYNDROME

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**ABSTRACT** - *Cryptosporidium parvum* has been detected with increasing frequency in the gastrointestinal tract, but involvement of the stomach is rarely reported. Whenever found in the histologic examination of the gastrointestinal mucosa, it should raise the suspicion of an immunocompromised host. We report a case of *Cryptosporidium*-associated erosive gastritis in a 64-year-old woman, who was found later to have the acquired immunodeficiency syndrome. Gastroduodenoendoscopy and biopsy of the gastric mucosa played an invaluable role in the diagnosis of cryptosporidiosis and to disclose the underlying immunodeficiency state.

**HEADINGS** - *Cryptosporidiosis. Gastritis. Acquired immunodeficiency syndrome. AIDS-related opportunistic infections.*

## INTRODUCTION

*Cryptosporidium parvum* is a common protozoan that has been found as an emerging infectious threat, especially in immunocompromised hosts<sup>(14, 15, 18, 22)</sup>. It can cause acute or chronic, self limited watery diarrhea in immunocompetent hosts, but severe and prolonged diarrhea, often ending in death in AIDS patients<sup>(8, 9, 11)</sup>. The ileal mucosa is the center of *cryptosporidium* colonization<sup>(18, 22)</sup> but it may spread throughout the gastrointestinal tract, especially in immunocompromised hosts<sup>(6, 12, 15)</sup>. Involvement of the upper gastrointestinal tract has been detected with increasing frequency<sup>(2, 5, 10, 16)</sup>.

The aim of this paper is to present the clinicopathologic and endoscopic features of a case of *Cryptosporidium*-associated erosive gastritis and to highlight the importance of upper endoscopy and biopsy for the diagnosis of opportunistic infections which was in this case the clue for the diagnosis of AIDS.

## CASE REPORT

A 64-year-old white woman was hospitalized for evaluation of watery diarrhea, abdominal pain and 10 kg weight loss during the preceding one month. Physical examination was remarkable for dried mucous membranes and weight loss.

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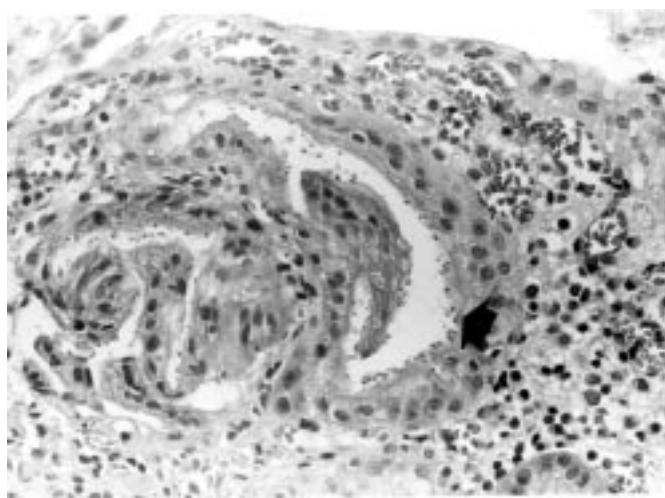
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Laboratory studies showed normal complete blood counts, electrolytes and liver enzymes. Stool examinations were negative for ova and parasites, cultures were negative for bacteria and fungi. An upper gastrointestinal endoscopy performed at the second day of hospitalization, showed thickened antral folds, with erythematous, friable and granular appearance extending through the pylorus and duodenum. Biopsies were taken from these sites and the histopathological examination revealed an erosive inflammation with many small, basophilic and spheric structures, cryptosporidia, clustered on the surface of the epithelial cells. There was also coinfection with *Helicobacter pylori*. Special stains for fungi, acid-fast bacilli and viral inclusions were negative. The patient was treated with rovamycin, with partial improvement of the symptoms. Another upper gastrointestinal endoscopy performed two weeks later, still showed the stomach with erythematous and exudative aspect. The duodenum had the same appearance. *Cryptosporidia* and *Helicobacter pylori* still were present at the histopathological examination, together with inflammation and regeneration. No further detailed investigation was performed to establish the extent of involvement of other parts of the gastrointestinal tract, since the patient was transferred to another ward. Investigation of the immune status revealed serum anti-HIV antibodies positive by ELISA and antiretroviral agents were introduced. The only risk factor assessed was a prior blood transfusion 10 years ago. The patient died in another city few months later and no post mortem examination was performed.

## DISCUSSION

*Cryptosporidium* gastropathy was first described in 1984 with cytomegalovirus coinfection<sup>(1)</sup> and in 1992 as the unique pathogen<sup>(4)</sup>.



**FIGURE 1** – Histology of the gastric mucosa showing inflammation and many small, dark and spheric structures (*cryptosporidia*) attached to the border of the epithelial cells (arrow) H-E 400x.

In Brazil involvement of the gastric mucosa with *Cryptosporidium parvum* is seldom reported<sup>(7, 19)</sup>. COELHO et al.<sup>(7)</sup> detected gastric cryptosporidiosis in two out of 60 patients with AIDS systematically submitted to biopsies of the gastric mucosa. Their endoscopic findings were similar to ours, but they did not mention coinfection with *Helicobacter pylori*.

In an autopsy-based study of 45 cases of AIDS-associated opportunistic infections of the gastrointestinal tract, CARVALHO et al.<sup>(3)</sup> did not find any case of involvement of the gastric mucosa by *cryptosporidium* among three cases of intestinal cryptosporidiosis, two at the small bowel, affecting the ileal mucosa and one in the colon.

In the present report the diagnosis of cryptosporidiosis was achieved by endoscopy and biopsy of the gastric mucosa, performed due to upper abdominal pain. Stool analysis failed to demonstrate *C. parvum*, despite the symptomatic diarrhea. In a recent review of the literature on gastric cryptosporidiosis, VENTURA et al.<sup>(23)</sup> reported that in 14 out of 16 patients, the diagnosis was made based on biopsy of the gastric mucosa, rather than by examination of the stools. Although it has been advised that the detection of *cryptosporidium* should be performed in fecal tests, without invasive procedures<sup>(17)</sup>, this does not seem to be true in the clinical practice. GREENBERG et al.<sup>(12)</sup> compared the sensitivity of stool analysis and endoscopic biopsies of the gastrointestinal tract in the diagnosis of cryptosporidiosis in 30 patients with severe diarrhea and AIDS. They have found *C. parvum* in 53% of individual stool samples and stressed that stool analysis was not sensitive in the diagnosis of intestinal cryptosporidiosis.

In the present case the histopathologic analysis of the gastric mucosa demonstrated epithelial cell damage and significant acute inflammation. This might be related in part to coinfection with *H. pylori*, which elicits an influx of neutrophils into the mucosa. On the other hand, in vitro studies have indicated that *cryptosporidium* infection induces an apical defect in the host cell that causes epithelial cell death<sup>(13)</sup>. Histopathological studies of the gastric mucosa associated with the presence of *C. parvum* as the unique pathogen have shown nonspecific inflammation together with epithelial reactive changes<sup>(20, 21)</sup>. RIVASI et al.<sup>(20)</sup> demonstrated a close relationship between the intensity of *C. parvum* infection and the degree of histological alterations. They did not find a clear correlation between the endoscopic and histologic picture.

In conclusion, the histopathologic finding of *cryptosporidium* infection in the gastric mucosa in our case was the clue for the diagnosis of AIDS, which might be associated with a prior blood transfusion as the unique risk factor in the clinical history of the patient. The upper gastrointestinal endoscopy with biopsy was invaluable for the diagnosis of the opportunistic infection and to disclose the underlying disease.

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**RESUMO** - Infecções oportunistas do trato gastrointestinal constituem ameaça à população crescente de portadores de imunossupressão. O comprometimento do estômago por *Cryptosporidium* é incomum. Quando identificado no exame histopatológico da mucosa gástrica, é mandatória a investigação do estado imunológico do hospedeiro. São apresentados os dados clinicopatológicos e endoscópicos de uma paciente de 64 anos com gastrite erosiva associada à infecção por *Cryptosporidium*. O encontro deste agente oportunista no exame histopatológico da mucosa gástrica foi fundamental para esclarecer a doença de base da paciente, que era a síndrome da imunodeficiência adquirida.

**DESCRITORES** - *Criptosporidiose. Gastrite. Síndrome de imunodeficiência adquirida. Infecções oportunistas relacionadas com a AIDS.*

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