

# Dysenteric syndrome due to *Balantidium coli*: a case report

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## SUMMARY

A 28-year-old man was hospitalized for a dysenteric syndrome that had developed during the previous days. Physical examination revealed abdominal pains, fever, vomiting and more than ten liquid stools per day. Fresh stool examination showed numerous mobile ciliated trophozoites of *Balantidium coli*. The patient reported having been on a hike the previous weekend during which he had drunk water through a hydration pouch bladder. Complete resolution was observed after intravenous rehydration and ten days of oral treatment with metronidazole (Flagyl®). *Balantidium coli* is the largest ciliate protozoan able to infect humans. This parasite is common in pigs and has a worldwide distribution. Human infections, a rare event in industrialised countries, are usually acquired by ingestion of food or water contaminated by mammal faeces. Human *B. coli* infections are easily treated but may be severe and even fatal if neglected.

**KEY WORDS:** *Balantidium coli*, Dysenteric syndrome.

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## INTRODUCTION

*Balantidium coli* is the largest ciliate protozoan able to infect humans. This parasite is common in pigs and has a worldwide distribution. The parasites can be observed in two stages: the mobile trophozoite stage, sensitive to desiccation, and the cyst stage, that can remain viable up to two weeks in the environment. Human infections, a rare event in industrialised countries, are usually acquired by ingestion of food or water contaminated by mammal faeces. Human *B. coli* infections are easily treated but may be severe and even fatal if neglected.

## CASE REPORT

A 28-year-old man was hospitalized for a dysenteric syndrome that had developed during the

previous four days. He had consulted his family physician who had successively prescribed symptomatic and antibiotic treatments (Loperamide®, Bactrim Forte® and Cefpodoxime®) but without any improvement.

On admission to the Emergency Unit, abdominal pains, fever, vomiting and more than ten liquid greenish stools per day were still present. The pulmonary and neurologic examinations were normal.

The abdomen was painful and distended but it remained soft with moderate tenderness and active intestinal peristalsis was present. The patient presented a slight hypotension (114/77 mm Hg) and a slightly increased heart rate (85 beating/min). Laboratory tests showed a biologic inflammatory syndrome (C-Reactive Protein 111 mg/L), an extracellular dehydration with severe hypokalaemia (Na 118 mmol/L, K 2.9 mmol/L, Cl 79 mmol/L) and an initial functional renal deficiency (Urea 10.3 mmol/L, Creatinine 122 mmol/L).

There was nothing remarkable in his medical history. He was not taking any medications, was not immunocompromised and there was no history of travel or chronic inflammatory bowel disease.

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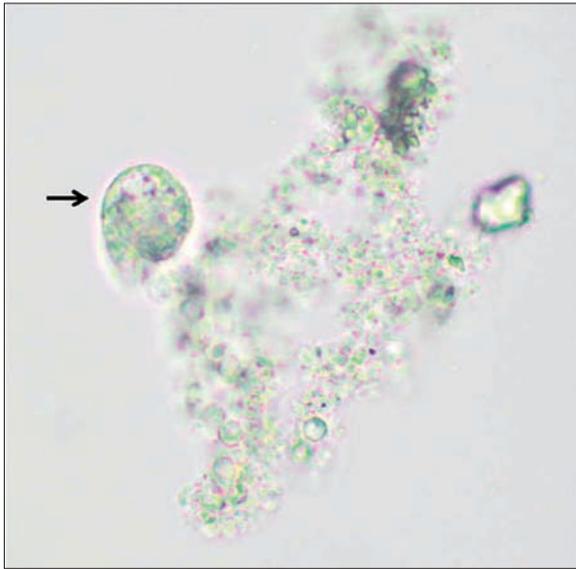


FIGURE 1 - Trophozoite stage of *Balantidium coli* in fresh stool examination, obj x25.

The patient lived alone and was not working in contact with animals. He reported having been on a hike the previous weekend during which he had drunk water through a polyurethane hydration pouch bladder. The patient insisted that he did not refill the hydration system during the hike.



FIGURE 2 - Example of a hydration pouch bladder system.

Stool examination was negative for bacteriological pathogens (*Salmonella*, *Shigella*, *Campylobacter*, *Yersinia* and *Clostridium difficile*) but revealed numerous mobile ciliated trophozoites of *Balantidium coli* (Figure 1.) Complete resolution was observed after intravenous rehydration and ten days of treatment with metronidazole (Flagyl®).

## DISCUSSION

*Balantidium coli* is a parasite that commonly infects domestic and wild mammals, particularly pigs (Radford, 1973; Ismail *et al.*, 2010). Human infections have been reported worldwide but remain a rare occurrence in industrialised countries (Ferry *et al.*, 2004). The infection is usually acquired by ingesting infective cysts present in food or water contaminated by mammal faeces. Following ingestion, excystation releases trophozoites that invade the colonic mucosa, multiply and set up colonies. Within the tissue, *B. coli* propagate, produce ulcers and form abscesses that may extend to the muscular layer (Ladas *et al.*, 1989; Garcia, 1999).

Three clinical presentations from *B. coli* infection have been described: an asymptomatic form, a chronic symptomatic form (generally with diarrhea alternating with constipation and nonspecific abdominal pains) and an acute form with severe dehydration and weight loss (Arean and Koppish, 1956). Favorable conditions such as poor environmental sanitation, close contact with pigs (Radford, 1973; Daudal *et al.*, 1986; Sharma and Harding, 2003; Oberhuber *et al.*, 2003; Ferry *et al.*, 2004) or immunodepression (Vasilakopoulou *et al.*, 2003; Anargyrou K *et al.*, 2003; Yazar *et al.*, 2004; Maino *et al.*, 2010) are associated with a higher incidence.

The symptoms of *B. coli*-induced colitis may be confused with an amoebic colitis. In industrialised countries, protozoans commonly isolated in stools are *Giardia intestinalis* and pathogenic and nonpathogenic amoeba such as *Entamoeba histolytica*, *E. coli* and *E. hartmanni*. *B. coli* is exceptionally isolated in human dysenteric syndrome in France. The diagnosis is usually established by identifying trophozoites of *B. coli* in stool or tissues. The trophozoites of *B. coli* are easy to distinguish from trophozoites of

*Entoamoeba histolytica*. First, trophozoites of *B. coli* are covered by longitudinal cilia that propel the body forward in a spiral and rapid motion while trophozoites of *E. histolytica* move slowly using pseudopods. The two parasites also differ in size (50-100 µm for trophozoite of *B. coli* and 25µm for trophozoite of *E. histolytica*). Moreover, trophozoites of *E. histolytica* phagocytose blood cells which are observed in the cytoplasm of the trophozoite stage.

In our opinion, the persistence of residual water in the patient's hydration pouch bladder was the source of the contamination. This hypothesis is supported by the fact that the patient lived alone, did not work in contact with animals or with the environment.

Patients keen on sports and outdoor activities should be aware of this disadvantage and consider precautions such as repeated rinsing out and decontamination of the system (available commercial kit) and even regular replacement of the whole system.

Before 1950, the lack of effective antibiotics resulted in up to a 30% mortality rate in acute forms of *B. coli* infections (Knight, 1978). *B. coli* infections are easily treated with antibiotic therapy, cyclins and metronidazole being the recommended drugs, provided that the correct diagnosis is made in time. In the present case, a delay of four days was needed to make the diagnosis: physicians should suspect parasitological etiologies more regularly in case of persistent diarrhea in patients having recently used hydration bladder systems.

## CONCLUSION

Patients keen on sports should be aware that persistent residual water in hydration pouch bladders may be source of microbial (parasitological and bacterial) contamination and hence, regularly decontaminate or even change their hydration system.

*B. coli* infections are easily treated providing that the correct diagnosis is made in time: physicians should suspect parasitological etiologies more

regularly in case of persistent diarrhea in patients having recently used hydration bladder systems.

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