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## REPORT ON A BALANTIDIASIS CASE IN A PERSON LIVING WITH HIV/AIDS (PLWHA)

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### ABSTRACT

*Balantidium coli* is a parasitic ciliate protozoan that affects pigs and nonhuman primates. It rarely affect humans, however it might become an opportunistic parasite in immunosuppressed hosts. Balantidiasis is the disease caused by ingestion of *B. coli* cysts. Infected individuals may present abdominal pain, headaches, asthenia, tenesmus, meteorism and diarrhea characterized by five or six bowel movements per day. This paper is the first to report the presence of *B. coli* in a person living with HIV/AIDS (PLWHA) in Brazil.

KEY WORDS: Balantidiasis. AIDS. Diarrhea.

### RESUMO

Relato de caso: balantidíase em pessoa vivendo com HIV/AIDS (PVHA)

*Balantidium coli* é um protozoário parasito ciliado que afeta os porcos e primatas não-humanos. Sua presença em seres humanos é rara e pode se tornar um parasito oportunista em hospedeiros imunodeprimidos. Balantidíase é uma doença causada pela ingestão de cistos de *B. coli*. Os indivíduos infectados podem apresentar dor abdominal, cefaléia, astenia, tenesmo, meteorismo e

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diarréia caracterizada por cinco ou seis evacuações por dia. Este trabalho é o primeiro no Brasil a relatar a presença de *B. coli* em um paciente HIV-positivo.

DESCRITORES: Balantídiase. AIDS. Diarréia.

## INTRODUCTION

*Balantidium coli* is the only ciliate protozoan known to infect humans and its principal host is the pig (Ismail et al., 2010; Pérez-Molina et al., 2010). Its distribution is worldwide. However, in Brazil, reports of its presence in humans are rare, although high prevalence rates have been reported in other Latin American countries (Schuster & Ramirez-Avila, 2008). Direct contact with animals and ingestion of contaminated water are important risk factors for the infection in humans, but infection may also occur by fecal-oral contact and through the ingestion of salad vegetables (Schuster & Ramirez-Avila, 2008; Hassana et al., 2012). Balantidiasis is the disease caused by ingestion of *B. coli* cysts. Infected individuals may present with abdominal pain, headaches, asthenia, tenesmus, meteorism and diarrhea consisting of five or six bowel movements per day (Cermeño et al., 2003). In the majority of cases, the infections are asymptomatic; however, in more severe cases such as in immunosuppressed individuals, perforation of the bowel and lesions to the lungs and kidneys may occur (Anargyrou et al., 2003; Ferry et al., 2004; Koopowitz et al., 2010; Maino et al., 2010). *B. coli* can become an opportunistic parasite in immunosuppressed hosts and is a frequently neglected pathogen. There have been two reports of balantidiasis in HIV-positive individuals worldwide, one in Venezuela and the other in French Guiana (Clyti et al., 1998; Cermeño et al., 2003).

The objective of this work was to study a case of balantidiasis in an individual submitted to an antiretroviral therapy (ART) combination and to report on the influence of a specific diet on the treatment results.

## MATERIAL AND METHODS

The patient, a 48-year old male who worked as a bank's employee, was HIV-infected, and in use of combination antiretroviral therapy (ART). He had a CD4+ count of 440 cells/ $\mu$ L and an undetectable viral load. He had consulted a nutritionist with the objective of reducing the side effects caused by combination ART. During his nutritional evaluation, the patient reported taking all his meals at the same establishment, close to both his home and work, where he would consume large quantities of fruit, juices, raw salads, whole meal cereals and bread. His clinical symptoms consisted of two to three episodes of explosive diarrhea every morning after breakfast, with brownish, strong-smelling feces. During the day, he was always hungry. A specific questionnaire on hygiene habits and socioeconomic level revealed that the patient had good hygiene habits, university education level, owned

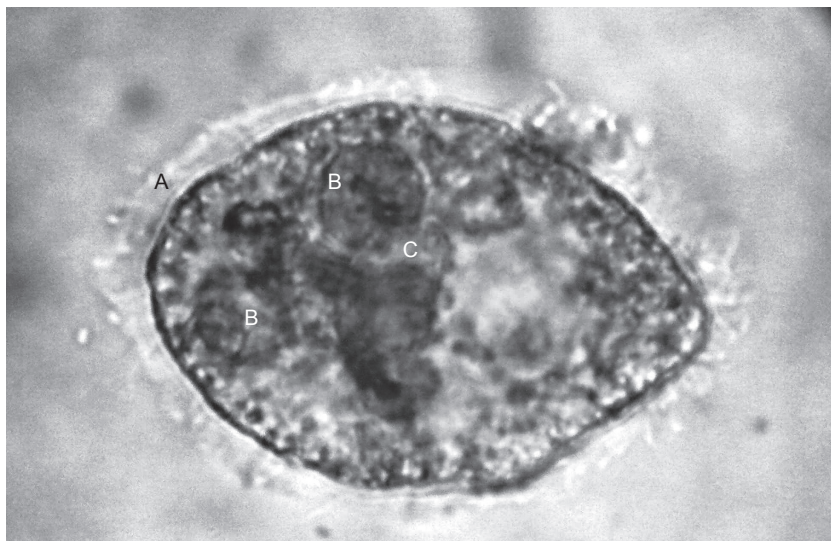
his own home, had no pets, drank only mineral water at home, lived in an urban area with piped-in water and sewage system, and had no contact with rural areas.

The patient reported that he had used antihelminthic medication one month previously, following which his symptoms improved slightly. He expressed a desire to abandon the antiretroviral therapy (ART) that was being used (Zidovudine/Lamivudine<sup>®</sup>, Nevirapine<sup>®</sup> and Lopinavir/ritonavir<sup>®</sup>), particularly because the latter drug is often associated with side effects that include episodes of diarrhea.

A fecal parasitological exam was requested at the Parasitology Laboratory of the Universidade de Belo Horizonte (UNI-BH) with the objective of evaluating if the diarrhea was being caused by the use of ARTs. The feces were collected without any preservative agents and then processed by spontaneous sedimentation method Hoffman, Pons and Janer (HPJ) (Hoffman et al., 1934).

## RESULTS AND DISCUSSION

The HPJ method is easy to perform, has low cost, and shows good sensitivity for diagnosing both helminthes and protozoa using fresh or preserved feces (Hoffman et al., 1934; Ribeiro & Furst, 2012). The fresh stool examination using this method revealed abundant ciliated trophozoites of *B. coli* moving rapidly throughout the field. The trophozoites had a large, visible macronucleus, in addition to contractile vacuoles and a cystostome in the anterior extremity (Figure 1).



*Figure 1.* Photography of *Balantidium coli* trophozoite found in feces of a HIV-positive patient, with cilia (A), macronucleus (C) and contractile vacuoles (B).

With the objective of preventing further infections, the patient was counseled with respect to hygiene and sanitation, and referred for treatment to his attending physician. After using the anti-parasite medication, the patient improved significantly with respect to the diarrhea and associated clinical symptoms. A new parasitological examination was conducted, and his symptoms were reevaluated in order to be able to exclude the effect of the antiretroviral medication as the principal cause of his gastrointestinal symptoms.

Through the answers of a questionnaire it was possible to conclude that the infection probably occurred through ingestion of contaminated salad vegetables that the patient ate daily in the restaurant, since he always used mineral water at home, had all his meals at the same establishment, lived in an urban region and had no contact with rural areas.

In infections caused by *B. coli*, ulcerative lesions may occur in the mucosa of the large bowel. These lesions are generally clearly outlined and with intact walls, justifying the unfavorable evolution of the patient's clinical condition (Clyti et al., 1998; Coimbra & Santos, 1991).

Antiretroviral therapy may cause side effects quite similar to the symptoms presented by patients with *B. coli* (diarrhea, weakness, nausea and headache), which significantly reduce compliance with treatment (Clyti et al., 1998; Coimbra & Santos, 1991; Rees & Shelley, 1977; Van Wyk et al., 2012). Lopinavir® (LPV) is an HIV protease inhibitor (PI) that is co-formulated with ritonavir (r), which functions as a pharmacokinetic enhancer. Gastrointestinal events were the most common adverse events, with a higher rate of diarrhea in the once-daily patients (Van Wyk et al., 2012). Treatment for opportunistic parasites often eliminates these complaints, resulting in better compliance with antiretroviral treatment. Our results suggest that presence of severe gastrointestinal disturbances should be carefully investigated. When associated with the side effects of ART, or even when these side effects are not present, gastrointestinal disorders affect the quality of life of HIV/AIDS patients (Van Wyk et al., 2012). The treatment and resolution of these symptoms result in better patient compliance and continuity of care, as in the case reported here. These factors are the basis for the patients' satisfaction and may be the source of positive repercussions for the therapy adherence (Clyti et al., 1998).

## CONCLUSION

In Brazil, according to our knowledge, this is the first reported case of balantidiasis in a person living with HIV/AIDS (PLWHA).

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