# Giardiasis and subsequent diagnosis of HIV infection in a patient with persistent diarrhoea: a case report

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## SUMMARY

Although its prevalence in resource-rich countries is not precisely estimated, persistent diarrhoea is not a common event if extreme ages are excluded. Enteric pathogens, of various underlying aetiologies, often cause major diarrhoeal syndromes, especially in immunocompromised adults. While there is a rich medical literature regarding HIV-related infections, information about the diagnosis of HIV-infection from diarrhoea as a presenting complaint is scarce. Our case report focuses on a 29-year-old Italian male with persistent diarrhoea who was diagnosed with Giardiasis and subsequently tested for HIV infection, resulting positive. In approaching young adults with persistent diarrhoea, lowering the threshold of suspicion for HIV infection proves useful.

*Keywords*: *Giardia lamblia,* giardiasis, HIV, persistent diarrhoea.

## INTRODUCTION

Persistent diarrhoea is defined as ≥3 unformed stools in 24 hours for 14 to 30 days [1]. One can distinguish infectious and non-infectious aetiologies, with the former being more common. Persistent infectious diarrhoea is caused by protozoa, bacteria, viruses and helminths [2]. *Giardia lamblia*, a parasite transmitted via faecal-oral and anal-oral pathways, is a very common cause of infectious diarrhoea [3,4]. Patients may present with acute diarrhoea, chronic diarrhoea with malabsorption and consequent weight loss/developmental delay, or as an asymptomatic carrier state [5]. Mostly symptomatic in children, adults tend to remain asymptomatic. Patients with HIV infection do not seem to develop more severe disease but, as the immunosuppression progresses, the risk of symptomatic infection increases [6,7]. In fact, it is known that $CD4^+$ T cells play an essential role in the clearance of Giardia infections, with mechanisms yet to be explained [8].

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## CASE PRESENTATION

A 29-year-old Italian, heterosexual male, single, metal-worker presented to the emergency department (ED) complaining of up to six liquid and foul smelling stools per day for about 14 days with no fever, nausea or vomiting. He noticed no blood traces in the stools. He also complained of weakness and weight loss of about 5 kg since the onset of symptoms. He was prescribed rifaximin (200 mgx3/die for 5 days) and probiotics by his family physician, but without any improvement. He reported that in the past 5 months he had experienced short episodes of diarrhoea, which responded to loperamide. In the ED, a slight tachycardia (107 beats per minute) and mild alteration

of inflammation markers were observed (WBC =11500/mm$^3$, C-reactive protein =7 mg/L, n.v. <5 mg/L) and, because an infectious disease seemed less likely, thyroid stimulating hormone (TSH) levels were assessed.

With stable vital signs, the patient was admitted to the department of internal medicine. Physical examination revealed well-hydrated oral mucous membranes and normal skin turgor, no heart murmurs, normal vesicular breath sounds, slight tenderness in the upper right abdominal quadrant and hyperperistalsis, slight bilateral exophthalmos with no lid lag sign and normal lymph node stations.

Investigated in detail, the patient denied exposure to risk factors such as the ingestion of contaminated food or water, recent trips to developing countries (the last trip was approximately one year previously with his brother to Spain), recent prolonged antibiotic therapy, unprotected sexual activity and intravenous drug use. Family history was not significant for inflammatory bowel diseases, celiac disease or other autoimmune pathologies.

Blood tests showed a normal WBC differential count, serum creatinine and electrolytes, except for a mild normocytic anaemia with Hb =13 g/dL. TSH was also normal, and the patient tested negative for anti-transglutaminase antibodies (ATA) with normal immunoglobulin A (IgA) levels. Thorax and abdominal X-rays were requested but nothing pathological was detected. On abdominal ultrasound, an immune-reactive lymph node was seen posteriorly to the large gastric curvature.

Stool samples for microscopic evaluation and cultures were sent to the laboratory. Bacteria cultures were negative for *Salmonella*, *Shigella* and *Campylobacter*. A high number of *Giardia lamblia* trophozoites were identified on microscopic examination. Prompt treatment with metronidazole per os (250 mgx4/die) was initiated and patient consent was obtained for a HIV screening test, which was positive. Western blot confirmed the diagnosis. Serology for hepatitis virus and syphilis was also performed, delivering negative results.

The infectious disease consultant prescribed additional tests and programmed a follow-up visit to decide on treatment options. The patient was discharged with normal stools in frequency and consistency at the end of a 7 day course of therapy, and prophylaxis with trimethoprim/sulphamethoxazole was recommended. The patient constantly denied at risk behaviours even after the diagnosis was confirmed. Further tests showed a CD4$^+$ T count of 350 cells/µL and HIV-RNA of 767800 copies/mL. In the outpatient setting, combination therapy with abacavir/dolutegravir/lamivudin was started. CD4$^+$ T count improved to 1159 cells/µL and HIV-RNA reduced to 7 copies/mL after six months therapy.

## DISCUSSION

The detection of the precise aetiology in most cases of non-severe acute diarrhoea is costly and not necessary [9]. On the contrary, investigating the aetiology of persistent diarrhoea is crucial. Parasites, such as Giardia, Cryptosporidium, and Microsporidia species, are usually encountered in patients with persistent diarrhoea [2]. Non-infectious causes range from the more common (celiac disease, inflammatory bowel disease, irritable bowel syndrome) to rare conditions like cancer.

The assumption of non-infectious causes of diarrhoea in our patient was not convincing. Coeliac disease in its classic form, as opposed to infectious diarrhoea, presents with steatorrhoea which is the emission of fatty and foul smelling stools. Atypical presentation, mostly with iron deficiency anaemia, seems to be less likely with almost perfect blood tests and healthy first grade family members [10, 11]. Nonetheless, screening for celiac disease with ATA is recommended even when clinical probability is low [13]. Inflammatory bowel disease should also be considered, if recurring episodes of abdominal pain, fever and bloody stools are reported [14]. Hyperthyroidism and Graves-Basedow disease is the most frequent underlying cause in iodine-sufficient areas, and is usually seen in women; in our experience, it does not qualify as an initial culprit to think of in the differential diagnosis [15].

The microscopic research for the presence of Giardia cysts or trophozoites in stool specimens still remains a diagnostic method of choice, keeping in mind that costly molecular techniques to detect the infection with higher sensitivity and specificity are available [16-18]. If the initial stool sample

is negative, morphological examination should be repeated on sequentially collected stool specimens [2, 9].

Diarrhoea associated with other signs and symptoms (oropharyngeal pain, fever, and lymphadenopathy) constitute the so called acute retroviral syndrome and cases have been reported such as by Kreft et al., where concomitant risk factors aroused suspect for HIV infection [19]. However, when the clinical scenario and family history do not point to other aetiologies, a precarious immune system should also be suspected as the basis for diarrhoea [20]. Patients do not always reveal reliable information as far as the exposure to risk factors is concerned [21]. The absence of risk factors should not discourage physicians from suspecting HIV infection in a young patient complaining of persistent diarrhoea. Although other parasites like *C. parvum* are mostly encountered in HIV-infected patients, as shown by Italian epidemiological studies, identification of *Giardia lamblia* reinforces the suspicion [22-24].

In our case, given the age of the patient and the prolonged course of diarrhoea, we considered our patient to be immunocompromised and the subsequent encounter of giardiasis confirmed our suspicion.

Once the diagnosis of HIV infection is confirmed, screening for sexually transmitted diseases (STDs) is required as co-infection with agents sharing the same route of transmission is very common; also, it has prognostic value because co-infected individuals have a tendency to develop serious complications [25].

In conclusion, young adults represent a vulnerable population to STDs. Strict attention should be paid to specific red flags such as a protracted diarrhoea itself in a clinical setting like ours, where almost no convincing risk factors emerged from clinical history and laboratory data. Describing this case, we might help our colleagues, especially family doctors or ED physicians, whom the patients address their first complaints. The early identification of HIV infection allows specific therapy, prevents serious life-threatening complications and lowers the disease burden to an impressive level.

**Conflict of interest**

None of the authors has any potential financial conflict of interest related to this manuscript.

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