A case of cryptosporidial gastroduodenitis and wasting syndrome in an adolescent with advanced AIDS

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May 14, 2022

Abstract

Cryptosporidium causes watery diarrhea, despite the normal population it might prolonged and life threatening in severely immunocompromised individuals. In the current study, we reported Cryptosporidium gastroduodenitis in 17 years old female with HIV (human immunodeficiency virus).

Introduction

Cryptosporidium causes watery diarrhea, despite the normal population it might prolonged and life threatening in severely immunocompromised individuals(1). The enterocytes of the small intestine are the main place of the parasite development followed by villus atrophy and crypt hyperplasia in immunocompromised patients(2). In the current study, we reported Cryptosporidium gastroduodenitis in 17 years old female with HIV (human immunodeficiency virus).

Case presentation

A 17-year-old female patient with HIV infection complaining of voluminous and watery diarrhea from 4-5 months ago without tenesmus and blood with occasional vomiting refers to the emergency room of Loghman Hakim Hospital. The patient has lost 20 kg in the last 4-5 months. The patient has no symptoms other than cachexia and malaise. The patient is born from the HIV-positive parents, whose disease is discovered in the sixth month of pregnancy. The patient's parents were expired due to HIV at a young age. The patient started treatment after this incident, but the patient's treatments were not complete, and she has used the treatment completely intermittently. The patient marries at a young age. In the last pregnancy, her HIV was diagnosed during work up to get pregnant again, the patient is enforced to use the treatments in the HIV center. Immediately after the discovery of the disease, she has been treated with Trovada, Dolutgravir, and trimethoprim/sulfamethoxazole. The patient has used therapies in a short period of pregnancy. But she stopped the treatments again. HIV in the patient's infant was negative at birth, but the last patient cd4 was 37 a year ago. The patient is alert and erect, but sometimes has memory impairment and sometimes she answers questions. The patient does not have accurate information about her disease and, the information we get is through patient health liaisons. The patient has oral candidiasis with reduced skin turgor and dry mucus. She has temporal atrophy. She has pale conjunctiva. It does not have systemic lymphadenopathy. Other examinations of the patient were normal. Stool exam is requested for the patient that the patient S/E was non inflammatory (rbc = 0, wbc = 0). Specific staining was performed for the patient including fast acid which was non-specific. Other stainings were not available. Patient tests include: wbc: 6.5, HB: 11.5, PIT: 509, AST: 61, AIT: 55, BILT: 0.4, VBG: HCO3: 19.4PCO2: 43.8, PH: 7.28, S/E: WATERY, RBC: 0, WBC: 0, PARASITE: NO. The patient became systemic work up due to weight loss, which was observed in CT (Computed tomography) scan of the abdomen and pelvis of the patient, hepatomegaly and hypo-density

infiltrative were observed in both lobes of the liver. In endoscopy, biopsy of the antrum, bulb of the antrum, and two parts of the duodenum were performed to determine the direction and pathology.

Section showed gastric and duodenal mucosa with moderate chronic active inflammation and small (2-5) spherical bodies. Protrude form apex of mucinous columnar cells of glandular epithelium. These microorganisms also present on the surface of partially flattened duodenal mucosa with evidence of chronic active inflammation. These microorganisms are giemsa and pas positive. Gastric antral and duodenal biopsies: moderate chronic active gasterodudonitis with cryptosporidiosis. No evidence of dysplasia or malignancy (Figure 1).

Based on histopathology and lab tests cryptosporidium gastroduodenitis was diagnosed.

Rapid rehydration treatment was performed for the patient. Paromomycin 500 tablets were administered every 6 hours and the patient underwent endoscopy.

Outcome:

The patient was discharged after reducing stool frequency and improving general condition with the prescription of paromomycin and continuing AIDS (acquired immunodeficiency syndrome) treatment.

Discussion:

There are two major Cryptosporidium spp. which cause human infections; C. hominis primarily infects humans and C. parvum infects humans as well as other animals(3).

Cryptosporidium parvum is a coccidian protozoon that causes diarrhea. Although, it is self-limiting in immunocompetent people but can be prolonged and life-threatening in severely immunocompromised such as those with HIV/AIDS may cause severe, chronic, and possibly fatal diarrhea and waste(4).

Cryptosporidium spp. infection caused by ingestion of oocysts which are in contaminated water or food or by direct person-to-person or animal-to-person contact(5, 6). The parasite mainly develops in the enterocytes of the small intestine, causing villous atrophy and crypt hyperplasia in patients with high-intensity infections(7).

The importance of CD4+ T-cell-mediated immune responses in the resolution of Cryptosporidium spp. infections have been clearly established. Following ART (antiretroviral therapy) treatment, AIDS-associated cryptosporidiosis resolves because of restoration of $CD4^+$ T cells (8-10).

In endoscopy, biopsy of the antrum, bulb of the antrum, and two parts of the duodenum were performed to determine the direction and pathology.

Section showed gastric and duodenal mucosa with moderate chronic active inflammation and small (2-5) spherical bodies. Protrude form apex of mucinous columnar cells of glandular epithelium. These microorganisms also present on the surface of partially flattened duodenal mucosa with evidence of chronic active inflammation. These microorganisms are giemsa and pas positive. Gastric antral and duodenal biopsies: moderate chronic active gasterodudonitis with cryptosporidiosis. No evidence of dysplasia or malignancy.

Although, with the widespread use of effective ART, cryptosporidiosis is no longer threatening as it once was in AIDS patients in developed countries, but it continues to pose a major threat to AIDS patients in resource-poor developing countries where ART is not widely available.

Declarations

Ethics approval and consent to participate: None.

Consent to publish: Written informed consents were obtained from patients for publishing this report according to the journal's patient consent policy.

Availability of data and materials: None.

Competing interests: The authors declare that they have no competing interests.

Funding: None.

Acknowledgements: None.

Refrances

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Figure Legends:

Figure 1: PAS positive round bodies in the luminal border of glands ,×1000(A), Giemsa staining reveals dark spherical bodies(B), Duodenal villous bunting, multiple blue bead cryptosporidium are attached to surface epithelium(C), Gastric antral mucosa with mild inflammation ,regenerative glandular epithelium and multiple round basophilic bodies in luminal surface(D)