



## Intestinal Leishmaniasis in a Patient with AIDS

Olga Kostiuk MD<sup>1</sup>, Izik Levi MD<sup>2</sup>, Michal Krieger MD<sup>2</sup>, Yehudith Assouline-Dayan MD<sup>3</sup> and Iris Barshack MD<sup>1</sup>

Departments of <sup>1</sup>Pathology, <sup>2</sup>Infectious Diseases and <sup>3</sup>Gastroenterology, Sheba Medical Center, Tel Hashomer, Israel  
Affiliated to Sackler Faculty of Medicine, Tel Aviv University, Ramat Aviv, Israel

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Of great importance in AIDS is the increased susceptibility to infection by various infectious agents. Pathogens that rarely cause severe disease in those with a normal immune system induce unique clinical syndromes in patients with AIDS. Among the more common infectious organisms in AIDS are a number of protozoa, including *Toxoplasma gondii*, *Cryptosporidium*, and *Plasmodium* species.

In this report we describe a *Leishmania* infection in a patient with human immunodeficiency virus. The present protozoan infection presented as diarrhea without typical signs of either visceral or cutaneous leishmaniasis and with non-specific colonoscopic findings. Although rare, the clinician and pathologist should be aware of the possibility of gastrointestinal *Leishmania* infection in HIV patients.

### Patient Description

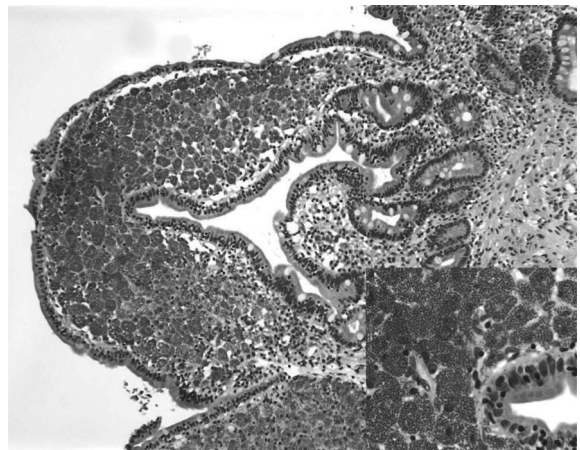
Our patient is a 44 year old HIV-infected man who had emigrated from Ethiopia to Israel about 8 months prior to admission. His CD4 T (helper) count was 23 (N-436-1394) cells/mm<sup>3</sup>, and viral load 2100 copies/ml. He underwent treatment, but irregularly. His medical history was characterized by opportunistic infections including pulmonary tuberculosis, Herpes zoster infection, and infective bronchiectasis with *Pseudomonas* bacteremia. Six months prior to admission he developed severe intractable diarrhea with wasting. He was admitted for further evaluation.

HIV = human immunodeficiency virus

The patient was afebrile and without vomiting.

Laboratory tests showed hypokalemia, hypoalbuminemia and pancytopenia. Stool samples were negative for *Cryptosporidium*, *Shigella*, *Salmonella* and *Clostridium difficile* toxin. Abdominal computed tomography scan revealed small intestinal loop distension with moderate splenomegaly. Colonoscopy demonstrated a mild, local rectal mucosal hyperemia. On upper endoscopy the esophagus, stomach and duodenal bulb appeared normal. The mucosa of the distal part of the duodenum looked white, but otherwise normal. Biopsies were taken from the rectum and the lower part of the duodenum.

The histologic examination of the rectal biopsy demonstrated a large number of enlarged macrophages, and *Leishmania* within the lamina propria. The duodenal biopsy [Figure] specimen showed an altered mucosal architecture with shortening and widening of the intestinal villi mainly due to massive infiltrate predominantly made up of histiocytes stuffed with *Leishmania* amastigote parasites. The duodenal villi were distended due to the large number of macrophages. Giemsa-staining demonstrated macrophages packed with *Leishmania* amastigotes. Immunohistochemistry showed numerous



Low-power view showing distended duodenal villi. Inset: Higher magnification demonstrating numerous parasitized histiocytes and a few infiltrating lymphocytes.

CD68-positive macrophages filled with the amastigotes.

### Comment

Most of the reported cases of visceral leishmaniasis in individuals with AIDS were in southern Europe and were caused by *Leishmania infantum* infections [1]. After initial multiplication in the skin, *Leishmania* amastigotes migrate within monocytes in the bloodstream to the spleen, liver and bone marrow, and may also be found in the lungs, gastrointestinal tract, kidneys, pancreas and testes where they continue to multiply [2].

In visceral leishmaniasis the *Leishmania* parasites invade macrophages throughout the mononuclear phagocyte system and cause severe systemic disease marked by

hepatosplenomegaly, lymphadenopathy, pancytopenia, fever and weight loss. Diarrhea and cough may also be present [3]. The clinical manifestations of visceral leishmaniasis in individuals with AIDS are characterized by an atypical course, negative serology and high relapse rate after therapy. Gastrointestinal tract involvement is rare but has been documented. Lesions have been seen from the esophagus to the rectum; the duodenum and jejunum may show severe villous atrophy with resultant malabsorption [1], and the rectum may exhibit an enlarging mass that protrudes through the anus [1].

Leishmaniasis produces clinical and histologic manifestations that depend on host response. Of importance in the host response are T cells [4]. Dominant Th2 response and Th2 cytokines such as interleukins 4, 13 and 10 prevent effective killing of *Leishmania* by inhibiting activation of macrophages. CD4+ helper

T lymphocytes of the Th1 subset producing interferon gamma, which activates macrophages to kill intracellular parasites through toxic metabolites of oxygen and nitric oxide. Just before lysis, the macrophage comes into contact with plasma cells and is then engulfed by other granular macrophages [5]. *Leishmania amastigotes* are round to ovoid and can be identified after routine hematoxylin-eosin or Giemsa staining. Since host response to *Leishmania* is mediated by T cells and T cell-derived substances directed at infected macrophages, the absence of these mechanisms may promote chronicity and, when untreated, result in death.

In conclusion, when confronting immigrants from endemic areas, the medical approach is crucial.

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**Correspondence:** Dr. O. Kostiuk, Dept. of General Pathology Sheba Medical Center, Tel Hashomer 52621, Israel.

Phone: (972-3) 530-2354

Fax: (972-3) 530-2381

email: olga\_kostuk@yahoo.com