

Diseases associated with HIV infection: study of biopsies and surgical resection specimens at a large general hospital in Mexico City

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Abstract

The objective of this study was to analyze the type of diseases associated with HIV infection from a survey of the surgical pathology material accessioned at a large general hospital in Mexico City. From the archives of the pathology unit of the General Hospital of Mexico (Ministry of Health), we compiled data on biopsies and surgical specimen from different organs and tissues of HIV-infected patients (HIV/AIDS) received in the period from January 2005 to July 2008. We found a total of 52 cases, 41 men and 11 women. The main affected anatomical organ was the lymphatic nodes in 33 cases (63.4%), 7 corresponded to the digestive tract (13.46%), 3 corresponded to bone marrow (5.76%), 3 corresponded to the perianal region (5.76%), 2 cases corresponded to the hard palate (3.84%), and 1 case each corresponded to the following regions: peritoneum, breast, and lung. The most frequent diagnoses were non-Hodgkin's large B-cell lymphoma in 11 cases (21.12%) and its morphological variants, 8 reactive lymphadenopathy cases (15.38%), 5 atypical mycobacterioses (9.61%), 2 nonspecific granulomatous lesions (3.84%), 2 Burkitt's lymphoma (3.84%), 3 Kaposi sarcoma (5.76%), 1 mixed cellularity Hodgkin's lymphoma (1.92%), 1 Kaposiform hemangioendothelioma (1.92%), and 1 with infection by cytomegalovirus + cryptosporidiosis in the duodenum (1.92%). In this series, the most affected organ in patients with HIV/AIDS was the lymphatic nodes. The most common neoplasm was the non-Hodgkin's lymphoma followed by Kaposi sarcoma. Mycobacterioses were the main infectious diseases, followed by mycotic and viral infections.

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1. Introduction

The first case of HIV infection was reported in 1981 (HIV-1) [1-2], and HIV-2 was discovered in 1985; both belong to the group of lentiviruses and to the subgroup of RNA retroviruses. The virus induces diverse immunologic defects, of which the most devastating one is the suppression of cellular immunity [3]. HIV infection is associated with numerous neoplasms, among which are the Kaposi sarcoma (KS), non-Hodgkin's lymphoma (NHL), myelomas, leukemias, leiomyosarcomas, and cervix and anal carcinomas. Both in adults and children, alteration in the synthesis of

cytokines together with immunosuppression explain the coexistence of infections by opportunistic parasites, such as lymphotropic viruses (herpes group, human papilloma virus), fungi, and protozoa [4,5].

Before the use of the highly active antiretroviral therapy (HAART), infections by opportunistic pathogens occupied the first places as responsible for the mortality of patients with HIV/AIDS. In a study of 29 autopsies of deceased patients with AIDS, performed in this hospital, in 1986, infectious diseases predominated over neoplasms; the opportunistic infections were caused in descending order of frequency by cytomegalovirus (CMV), toxoplasma, tuberculosis bacilli, and *Pneumocystis carinii* [6]. Starting in 1996 with HAART, development of neoplasms has been increasing considerably, and infections have shifted to second place. Incidence of Hodgkin's lymphoma and of carcinomas has increased, both in children and in adults with HIV/AIDS infection. For example, in a study based on the

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Table 1
Distribution of lesions associated with HIV infection (n = 52 cases)

Location	
Cervical lymph node	28 (53.84%)
Retroperitoneal lymph node	2 (3.84%)
Inguinal lymph node	1 (1.92%)
Axillary lymph node	2 (3.84%)
Bone marrow	3 (5.76%)
Perianal region	3 (5.76%)
Digestive tract	7 (13.46%)
Hard palate	2 (3.84%)
Skin	1 (1.92%)
Lung	1 (1.92%)
Breast	1 (1.92%)
Peritoneum	1 (1.92%)
Total	52 (99.94%)

cancer registry of the San Diego county, Calif, and the records of patients with HIV/AIDS, an increase from 19% incidence of immunoblastic diffuse B lymphoma of large cells (pre-HAART era) to 38% (post-HAART era) was observed [7]. In a similar study performed in Africa, in the sub-Saharan region, it was reported that lymphomas associated with AIDS are the cause of the increased morbidity and mortality in patients with HIV/AIDS in the last years in that country [8].

We observed that the incidence of neoplasms (lymphomas and KS) has increased, displacing opportunistic infections to a second place.

2. Materials and methods

This is an observational, descriptive, retrospective case series study. We compiled the data from biopsies and surgical specimens sent to the Pathological Anatomy Unit at the General Hospital of Mexico City (Ministry of Health) from patients with HIV/AIDS diagnosis in a 31-month period, from January 2005 to July 2008. In all cases, histologic

Table 2
HIV-associated infections

Cervical lymphatic node	Mycobacterioses	6 cases
Cervical lymphatic node	Nonspecific granulomatous lymphadenitis	3 cases
Cervical lymphatic node	Cryptococcosis	2 cases
Cervical lymphatic node	Aspergillosis	1 case
Duodenum	Cryptosporidiosis + CMV	1 case
Lung	Pneumonia by <i>P jirovecii</i>	1 case
Perianal region	Nonspecific granulomatous inflammation	1 case
Total		15 cases

sections were made and stained with hematoxylin-eosin. Granulomatous or necroinflammatory lesions were stained with Ziehl-Neelsen, periodic acid-Schiff, Grocott, and/or Warthin-Starry. We used the classification proposed by the World Health Organization in 2008 for lymphomas, and, in these cases, diverse immunohistochemical markers were used.

3. Results

From the total of 52 cases corresponding to biopsies and surgical specimens from different anatomical sites, 41 corresponded to men (78.84%) and 11 to women (21.15%).

Age ranged from 6 to 63 years, with an average of 37 years. Lesions affected the lymph nodes in 33 (63.46%), digestive tract in 7 (13.46%), bone marrow in 3 (5.76%), perianal region in 3 (5.76%), and the hard palate in 2 (3.84%) cases (Table 1).

There were 21 cases of malignant neoplasms (40.38%): 17 cases of lymphoid origin (32.69%) and 4 cases of vascular origin (7.69%). Seventeen cases (32.69%) corresponded to reactive lesions in hematopoietic organs and 14 cases (26.92%) to infections in diverse organs: mycobacteria with 6 cases (11.53%) and granulomatous nonspecific lymphadenitis with 3 cases (5.76%). Fungal infections

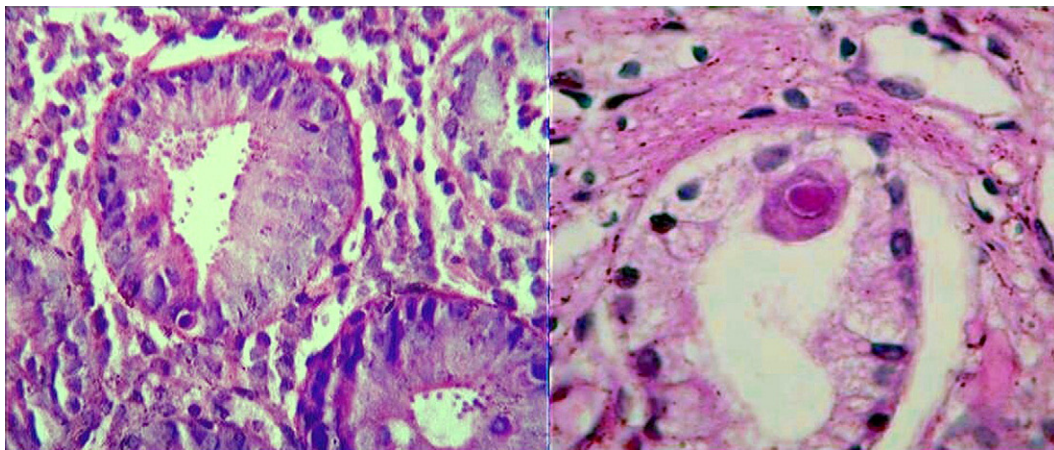


Fig. 1. Cytomegalovirus gastric: CMV inclusion intranuclear are present in the epithelium gastric. Cryptosporidiosis duodenal localized line along the mucosal brush border of gland. There are organisms of uniform rounded shapes.

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