

# Primary testicular non-Hodgkin's lymphoma with atrial mass as an initial presentation of acquired immunodeficiency syndrome

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## ABSTRACT

The association between human immunodeficiency virus (HIV) infection and the increased incidence of testicular tumors is a recent well-recognized phenomenon. Testicular tumors in the setting of HIV infection are most frequently of germ cell origin, less commonly lymphomas. We are presenting a unique case of testicular non-Hodgkin's B-cell lymphoma with associated atrial mass and mediastinal lymphadenopathy. The patient was not known to be HIV positive at the time of presentation. The initial clinical, radiological, and gross pathologic impression was that of seminoma. Discussion of the differential diagnosis and appropriate work up is presented.

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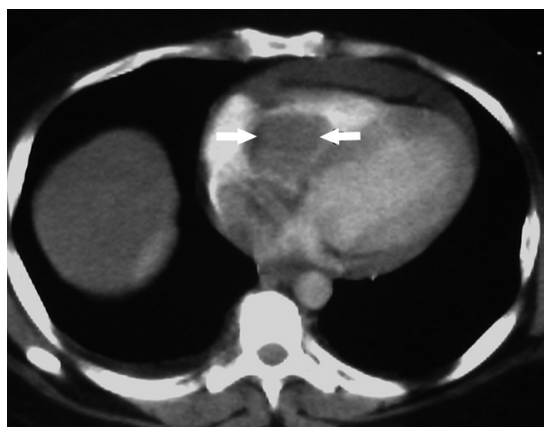
With a frequency of 3%, malignant lymphomas are second only to Kaposi's sarcoma in acquired immunodeficiency syndrome (AIDS) patients.<sup>1</sup> Their incidence has been increasing steadily and they are included in the case definition of AIDS by the Center of Disease Control.<sup>2</sup> They are usually associated with late disease and profound immunodeficiency; however, they can be the first manifestation of AIDS.<sup>1</sup> Most of the lymphomas seen in the setting of HIV positive patients are high grade non-Hodgkin's B-cell lymphoma, diffuse large cell type.<sup>3</sup> A characteristic feature of AIDS associated lymphoma is the extra-nodal growth, with the central nervous system as a favored location. Compared to lymphomas in non-AIDS patients, they tend to occur

in a younger age group, have a higher grade, and spread quickly, which explains their aggressive behavior and poor outcome.<sup>3</sup> The association between HIV infection and an increased incidence of testicular tumors is well recognized.<sup>4</sup> Testicular tumors in the setting of HIV infection are most frequently of germ cell origin, less commonly lymphomas.<sup>5</sup> The objective of presenting this case is to describe the usual features of testicular lymphoma, discuss the differential diagnosis, and the importance of performing immunohistochemical stains to confirm the diagnosis. This case, on clinical, radiological, and gross appearance was thought to be seminoma in a patient not known to be HIV positive. In addition to the testicular mass, the patient had an atrial mass that is presumably thought to represent the same pathology.

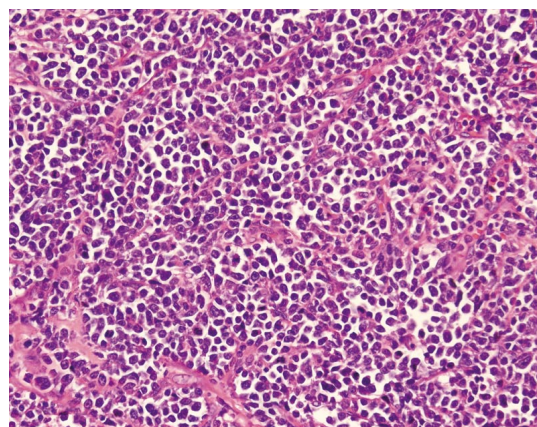
**Case report.** A 38-year-old male African American patient presented with chest pain, 45 kg unintentional weight loss, and enlarged, non-tender right testicle. Evaluation for cardiac ischemia as a source of chest pain was negative. Computed axial tomography of the thorax revealed a right atrial mass, with bilateral hilar adenopathy (**Figure 1**). The right atrial mass was studied by echocardiography during the cardiac cycle, the mass migrated back and forth across the tricuspid valve, causing obstruction of the valve orifice. Ultrasound of the testes showed an enlarged right testicle with abnormal echogenicity, suggestive of tumor replacement. Similar areas of abnormality were noted in the left testicle. Right orchiectomy was performed. The testis weighed 270 grams and measured 11 x 7 x 3.5 cm with a large, white, fleshy, soft, slightly tan mass replacing almost the entire cut surface with no evident necrosis or hemorrhage. Frozen section was not performed and the initial gross pathological impression was seminoma. However, permanent sections of the tumor revealed a monotonous cell population of atypical medium to large lymphoid cells. Microscopic examination showed obliteration of the testicular parenchyma in the involved areas by solid sheets of neoplastic cells, occasionally separated by thin

bands of fibrous tissue. At the periphery, the tumors exhibited a distinctive intertubular growth pattern with splaying of seminiferous tubules by irregular aggregates, clusters, and cords of tumor cells (Figure 2). Infiltration of the tubules was not seen. Single cell necrosis and occasional small foci of geographic necrosis were readily identified. Microscopic invasion of adjacent structures, including epididymis, spermatic cord, and peritesticular adipose tissue, was not seen. The lymphoma cells were predominantly large and contained variable amounts of non-vacuolated cytoplasm with ill-defined cell

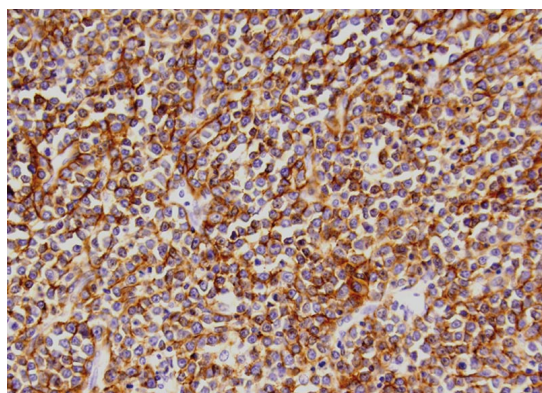
membranes. They exhibited pleomorphic nuclei, often with irregular or twisted nuclear borders having fine or condensed chromatin, and small, often poorly evident nucleoli. Mitotic figures were easily identified. Small collections of lymphocytes, plasma cells, eosinophils and histiocytes were seen, mainly at the periphery of the tumor. Intratubular germ cell neoplasia was not identified. Standard well-controlled immunohistochemical stains were used, and the list of the diagnostic antibodies is shown in Table 1. Immunohistochemistry evaluation revealed strong



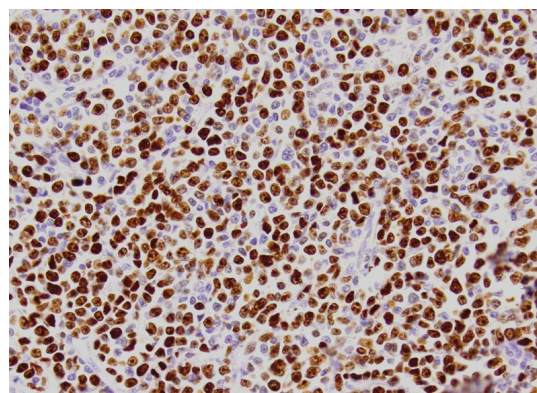
**Figure 1** - Computed tomography scan of chest demonstrating the atrial mass (arrows).



**Figure 2** - High power view of the tumor with medium to large size lymphoma cells infiltrating the testicular tissue with intersecting fibrous bands (Hematoxylin and Eosin x 200).



**Figure 3** - The tumor cells were all positive for CD 20 (Immunostain x 200).



**Figure 4** - Immunohistochemical staining for Ki-67 revealed >70% positivity by tumor cells nuclei (x 400).

**Table 1** - Diagnostic antibody list.

Antibody	Clone	Company	Primary incubation method	Concentration
CD20	L 265	Ventana Medical Systems, Inc., Tuscon, AZ	Benchmark for 16 minutes	RTU
KI-67 (Mib 1 equivalent)	K-2	Ventana Medical Systems, Inc., Tuscon, AZ	Benchmark for 16 minutes	RTU

RTU - ready to use

diffuse membranous immunoreactivity for the B-cell marker CD 20 (Figure 3). Cytokeratin and placental alkaline phosphatase (PLAP) were negative. More than 70% of the cells showed strong nuclear immunoreactivity for proliferative cell marker Ki-67 (Figure 4). These features were diagnostic of diffuse large B-cell non-Hodgkin's lymphoma (DLBCL). Based on this diagnosis in conjunction with more detailed history, which revealed high-risk behavior, an HIV test was carried out that turned out to be positive. He received one course of chemotherapy and then was lost to follow up, to be admitted to a nearby hospital where he succumbed to severe gram-negative sepsis. No autopsy was performed.

**Discussion.** Primary testicular lymphoma is generally rare. Before the era of HIV infections it was estimated to comprise 5% of all testicular tumors, with a tendency to occur in the elderly. However, more reports are being published emphasizing a more frequent incidence.<sup>4-7</sup> These lymphomas are usually aggressive and mostly of B cell immunophenotype. Similar to ours, cases have been reported with testicular lymphoma as the initial presentation of HIV infection.<sup>8</sup> In this setting, these lymphomas tend to occur at a younger age, with higher histologic grade, and apparent worse prognosis.<sup>5</sup> For these aforementioned factors, modifications of usual treatment protocols have been suggested.<sup>9</sup>

Assuming that the atrial mass represents the same pathology is extremely unusual. Cardiac involvement by lymphomas is uncommon, and metastasis from a primary testicular site has not been reported.<sup>10,11</sup> Further imaging and pathologic studies would have been useful in identifying the nature of the atrial mass. However, in the absence of a definitive pathologic diagnosis, the differential diagnosis includes thrombus, metastasis, atrial myxoma, or any other primary cardiac tumor.

Although the diagnosis of testicular lymphoma is usually not difficult, attention has to be made to the possibility of lymphoma. Seminoma in particular, may grossly have a similar fleshy white appearance. Microscopically, both tumors occasionally can share some features and misdiagnosis has been reported.<sup>12,13</sup>

Immunohistochemical stains, including cytokeratin, PLAP, CD20, and CD45 are recommended to confirm the diagnosis. In addition, the diagnosis of testicular lymphoma in young adults should elicit the possibility of HIV infection and trigger appropriate testing.

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