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Case Report

Diffuse large B-cell lymphoma of the maxillary sinus in a patient with acquired immunodeficiency syndrome: a case report

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Abstract: Non-Hodgkin's lymphoma (NHL) involving the paranasal sinuses is rare in human immunodeficiency virus (HIV)-infected patients. We report a case of diffuse large B-cell lymphoma of the left maxillary sinus in a patient with acquired immunodeficiency syndrome (AIDS). A 58 year-old man presented with 30 years history of repeated nasal obstruction that worsened with a runny nose for a week, and his nasal mucus was off-flavor. Computed tomography (CT)imaging and Magnetic resonance imaging (MRI) revealed an infiltrating mass of the left maxillary sinus, which extended along the postero-medial-lateral-superior bone wall and invaded the left nasal cavity, the left infratemporal fossae and pterygomaxillary fossae. The patient was treated with chemotherapy which resulted in partial regression of the disease and alleviation of local symptoms.

Keywords: Acquired immunodeficiency syndrome, non-Hodgkin's lymphoma, maxillary sinus

Introduction

Non-Hodgkin's lymphoma (NHL) is one of the most common malignancies in patients infected with human immunodeficiency virus (HIV) [1]. HIV infection has been associated with a 60-fold increased risk of NHL when compared with the general population [2]. Lymphomas occurring in HIV-infected persons are almost exclusively of the B-cell type [3]. The AIDS-associated lymphoma tend to involve predominantly extra-nodal sites, such as the central nervous system, gastrointestinal tract, oral cavity, and bone marrow [4]. Extranodal lymphomas are found infrequently within the head and neck. While NHL occurring in the paranasal sinuses of HIV-infected patients are rar. This report describes a case of diffuse large B-cell lymphoma of the left maxillary sinus in a patient with AIDS. To the best of our knowledge, no published reports of diffuse large B-cell lymphoma of the maxillary sinus with AIDS in the English-language literature presenting as nasal cavity, infratemporal fossae and pterygomaxillary fossae lesions exists to date.

Case report

On November 28th 2014, a 58 year-old man was referred by the department of otolaryngology with 30-years history of repeated nasal obstruction that worsened with a runny nose for a week, and his nasal mucus was off-flavor. He denied head pain, diplopia, hyposmia, epistaxis and any impairment in his visual acuity. The patient's medical history was significant for HIV/acquired immunodeficiency syndrome (AIDS), rhinopolypus, deflection of nasal septum and two nasal polyp surgery history. He had a history of drug allergy, but concrete was unknown. His antiretroviral therapy medications included lamivudine, efavirenz and tenofovir. His personal history was significant 15 years history of smoking (20 cigarettes per day).

On physical examination, the patient's blood pressure and other vital signs were normal. Nasal passage for peering was not clear. His visual acuity, direct pupillary reflex and indirect pupillary reflexes were normal. Respiratory, oto-

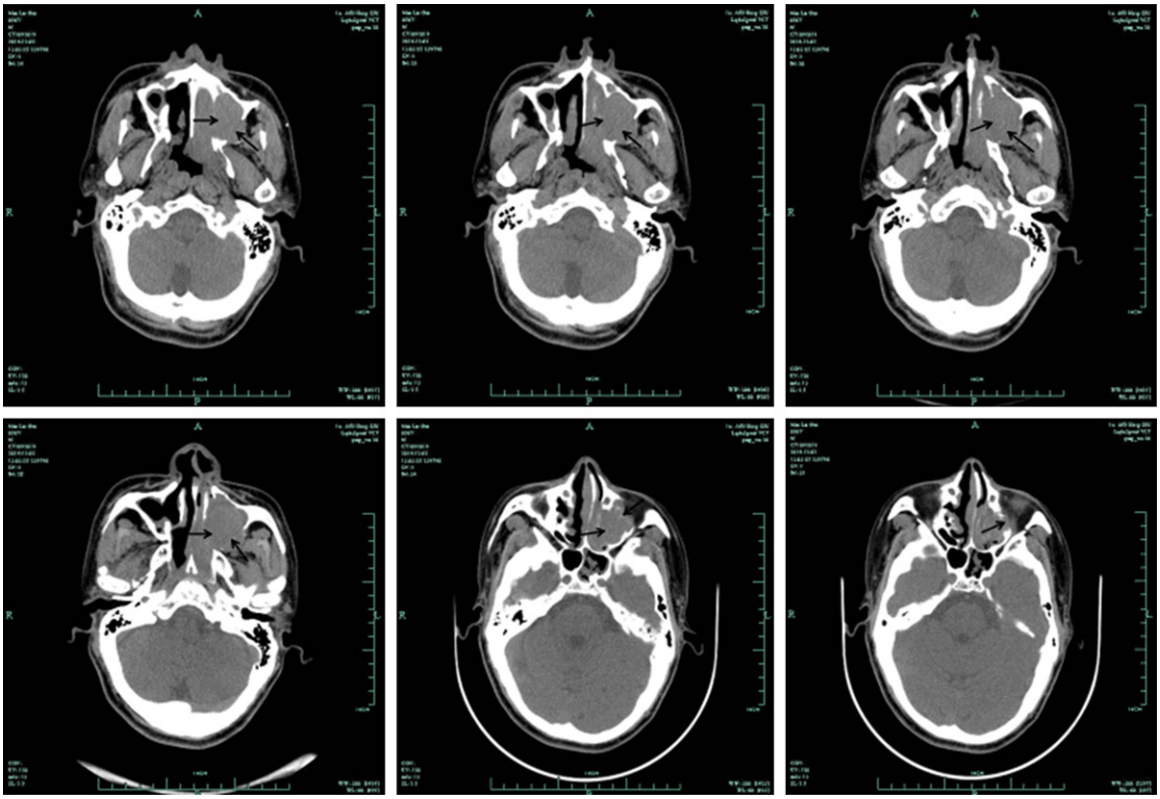

Figure 1. Computed tomography, axial view, demonstrating a large isodense softtissue mass occupying the entire left maxillary sinus and causing destruction of bone (arrow).

rhinolaryngological, cardiac and abdominal examination were normal. Leucocyte count and C-reactive protein were normal but erythrocyte sedimentation rate was elevated. CD-4 count at the time was 11 cells/mm^3.

On December 2th 2014, axial and coronal view of the computed tomographic scan of the paranasal sinuses demonstrated a large isodense soft tissue mass occupying the entire left maxillary sinus and sinus wall swelling bony destruction. There was bone destruction involving the orbital floor, medial, anterior and posterior maxillary walls. The mass penetrated into the left nasal cavity, the left infratemporal fossae and pterygomaxillary fossae (**Figures 1**, **2**). On December 3th 2014, magnetic resonance imaging (MRI) of the paranasal sinuses showed an infiltrating mass of the left maxillary sinus, which extended along the postero-medial-lateral-superior bone wall and invaded the left nasal cavity, the left infratemporal fossae and pterygomaxillary fossae. The mass showed isointensity on TI-weighted and slightly hyperintense signal on T2-weighted imaging with significantly heterogeneous enhancement after gadolinium injection (**Figures 3**, **4**).

On December 8th 2014, we performed a maxillofacial surgery by the Caldwell-Luc approach to obtain a biopsy specimen. The immunohistochemical stains was applied. The tumor cells were positive for B-cell–associated antigens. A moderate positivity for CD10, CD20, CD79a, Bcl-2, Bcl-6, MUM1 and PAX-5. Stainings for CD3, CD30 (Ki-1), CD5, ALK, CD21, CyclinD1, EBER and CK(pan) were negative. A high proliferation index with 80% of cells staining strong positivity for Ki-67 was noted. Based on the immunohistochemical results, a histopathology diagnosis of diffuse large-cell type, B-cell malignant lymphoma of the maxillary sinus was established.

On December 23th 2014, the patient was sent to the infections department where, after the haematology department consultation, six courses of cyclophosphamide, doxorubicin, vincristine and prednisolone chemotherapy (CHOP) were given and highly active antiretrovi-

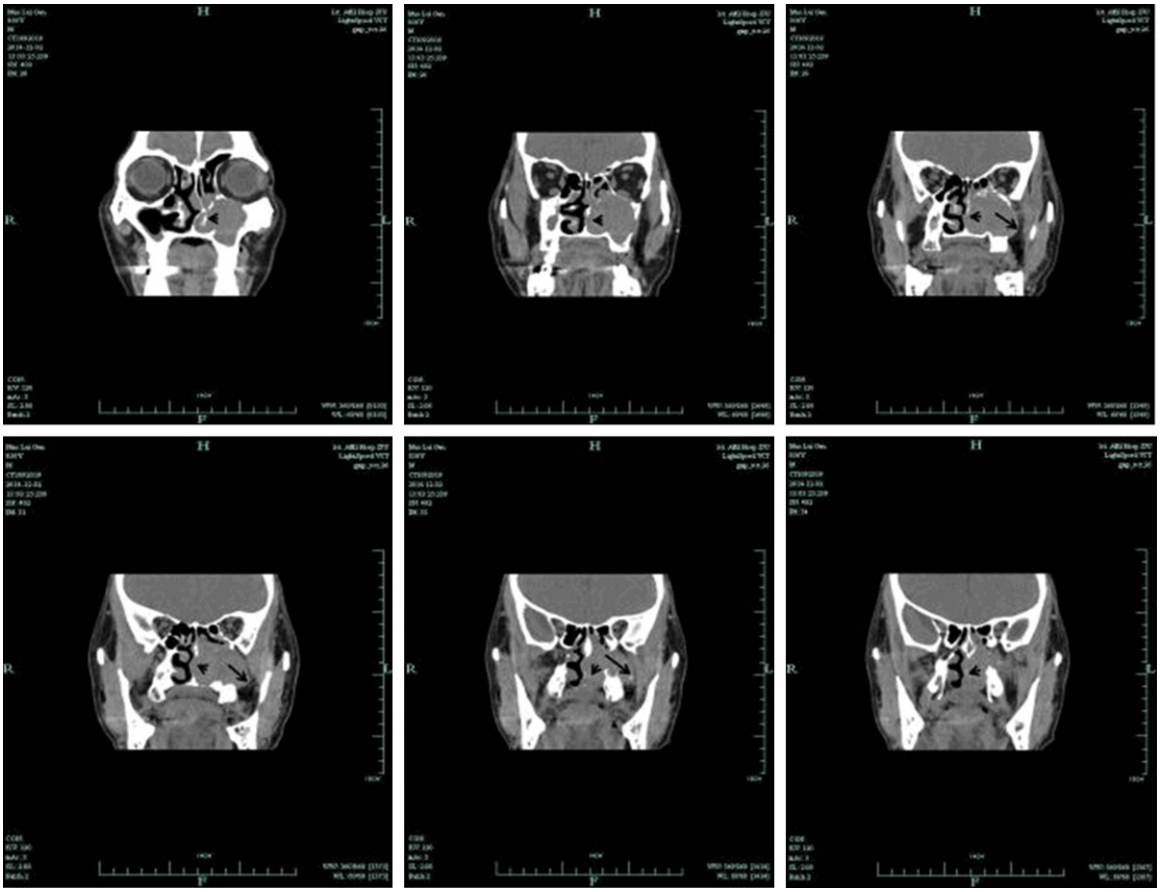

Figure 2. Computed tomography, coronal view, showing a large isodense soft tissue mass filling the entire left maxillary sinus and penetrating into the left nasal cavity (arrow head), the left infratemporal fossae and pterygomaxillary fossae (arrow).

ral therapy consisting of lamivudine, efavirenz and tenofovir was continued. Following chemotherapy, the patient became neutropenic (February 2th 2015) and developed cryptococcal pneumonia (February 23th 2015). The patient had partial regression of the tumor following chemotherapy. He was observed as an outpatient by the medical service, his prognosis remains poor, but losted follow-up from April 13th 2015.

Discussion

NHL was first recognized as an AIDS associated disease in 1985 [5], which has been widely reported AIDS-defining cancer, and the survival rate is dismal [6]. As NHL is the cause of death in 12-16% of patients with AIDS [7].

NHL in AIDS patients is a highly aggressive tumor with a poor prognosis and most cases are extranodal, such as the central nervous system, digestive tract and bone marrow [8]. However, paranasal sinus lymphoma is a very rare manifestation of AIDS. The majority of AIDS-associated NHLs are B-cell neoplasms. As in our case, the histopathology diagnosis is diffuse large B-cell lymphoma of the left maxillary sinus.

Clinical symptoms in AIDS patients are similar to that reported in the general population affected by lymphoma involving the paranasal sinuses. The common signs and symptoms of lymphoma of the paranasal sinuses are local facial swelling, pain, nasal discharge, nasal obstruction, proptosis, and epistaxis [9, 10]. Unilateral facial swelling and nasal discharge are the two most common presenting symptoms [11]. While, systemic symptoms such as fever and weight loss are uncommon. Our patient just presented with nasal obstruction and rhinorrhea. Because the symptoms of

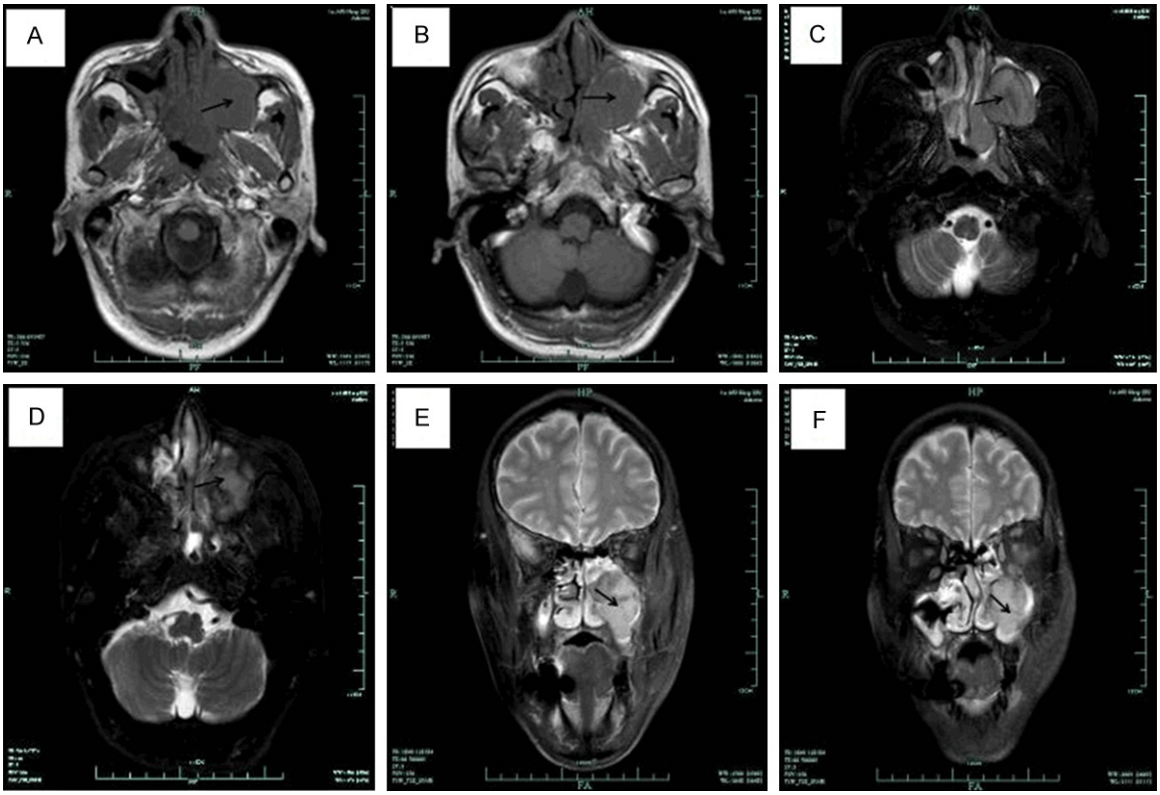

Figure 3. Magnetic resonance imaging (MRI) of the paranasal sinuses showed isointensity on Tl-weighted (A, B) (arrow) and slightly hyperintense signal on T2-weighted imaging (C-F) (arrow).

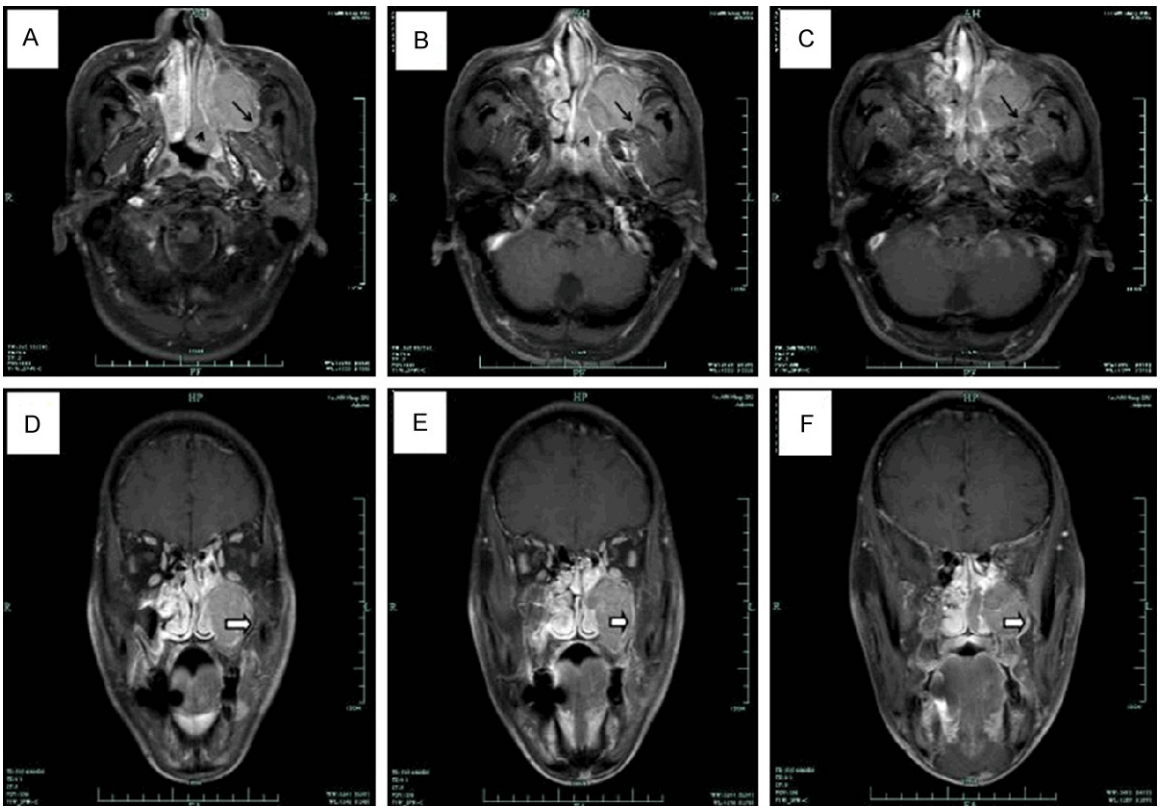

Figure 4. Magnetic resonance imaging (MRI), axial (A-C) and coronal (D-F), showed an infiltrating mass of the left maxillary sinus which invaded the left nasal cavity (arrow head), the left infratemporal fossae (white arrow) and pterygomaxillary fossae (black arrow) with significantly heterogeneous enhancement after gadolinium injection.

paranasal sinus lymphoma are similar to chronic sinusitis, so the diagnosis is frequently delayed.

Radiologic examination is very important in the diagnosis of patients with paranasal sinus lymphoma. CT and MRI usually show opacification of the sinus, bone destruction, and invasion of adjacent structures [8, 12]. In patients with AIDS, paranasal sinus lymphoma is usually more aggressive than in patients without AIDS. In our case, CT and MRI of the paranasal sinuses showed an infiltrating mass of the left maxillary sinus, which extended along the posteromedial-lateral-superior bone wall and invaded the left nasal cavity, the left infratemporal fossae and pterygomaxillary fossae, which showed significantly heterogeneous enhancement after gadolinium injection.

Clinical symptoms and radiographical findings of paranasal NHL in AIDS patients are indistinguishable from those seen in patients with infectious process, a disease that occurs more frequently in AIDS patients; therefore, an underestimation, delay or error in diagnosis of paranasal NHL patients is possible [1]. A high degree of suspicion must be considered in order to make a timely diagnosis.

NHL in AIDS patients tends to be of high grade malignancy, being very aggressive mostly, with an average survival time of about 8 months [13]. At 8 months after diagnosis, our patient is still alive, but his prognosis remains poor.

The best treatment for NHL of the paranasal sinuses in AIDS patients is uncertain. Common therapeutic approaches include radiotherapy and chemotherapy. Some doctors have used only chemotherapy, others only radiotherapy, while still others used a combination of both chemotherapy and radiotherapy [1]. The purposes of radiotherapy are local control of the tumor and alleviation of symptoms. Although the optimal chemotherapeutic regimen for NHL of the paranasal sinuses remains undefined, the most frequently used Chemotherapy regimen is CHOP [1]. However, radiotherapy and chemotherapy are often complicated by local and/or systemic side effects such as bone marrow suppression and intercurrent opportunistic infections [14].

In conclusion, NHL of the paranasal sinuses is rarely associated with HIV. Since the signs and symptoms are similar to chronic sinusitis, the diagnosis is frequently delayed in the course of the disease. A high degree of suspicion must be considered in order to make an early diagnosis. We hold opinion that treatment should be individualized based on the patient's general clinical condition, histochemical results, size of tumor, and response to therapy.

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Disclosure of conflict of interest

None.

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