

Atypical Meningioma in a Young HIV Patient

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Abstract

Although intracranial lymphoma is the most common primary intracranial tumor among AIDS patients, we report a 25 years old HIV positive patient with a recent onset of seizures for which he was evaluated with brain scan and was found to have a left frontal lesion with cystic necrotic appearance. Pathological examination confirmed an atypical meningioma WHO grade II. This would be the seventh case in the literature of a meningioma in an HIV positive patient.

Keywords: HIV; Meningioma

Introduction

The Centers for Disease Control and Prevention (CDC) estimates that more than one million people are living with HIV infection in the United States [1]. Although HIV patients are twenty times more likely to develop intracranial lymphoma [2], they may rarely grow other types of intracranial tumors such as meningiomas and gliomas [3, 4].

Meningiomas represent 33.4% of all primary brain tumors, making them the most common primary brain tumors [5]. The prevalence of meningioma is estimated at approximately 97.5 in 100,000 in the United States with over 138,000 individuals currently diagnosed with this tumor [6]. Meningiomas are more common in women (1:1.4 to 1:2.8

men to women ratio) and reportedly more common in African Americans [7]. Approximately 90% of meningiomas are benign, 5-10% atypical [World Health organization (WHO) grade II] and less than 2% classified as malignant (WHO grade III, also termed anaplastic) [8]. About 3% of benign meningiomas and 78% of atypical tumors recur in five years [9]. The median time to recurrence for benign lesions is 7.5 and for malignant 3.5 years [9].

The current case, to our knowledge, would be the seventh case in the literature of a meningioma in an HIV positive patient [4, 10, 11].

Case Report

A 25-year-old African-American male was admitted because of a recent onset of seizures. He had been HIV positive for seven years and he was not on antiretroviral therapy. His past medical history was insignificant. The neurological exam was normal. On admission, the patient had leukocytosis of 16,000 but no fever. His body mass index (BMI) was 16 (weight 106 pounds). Brain MRI showed a 2.2 x 1.7 x 2.0 cm irregular enhancing mass in the inferior aspect of the left frontal lobe with surrounding large amount of vasogenic edema. The radiologist suggested a differential diagnosis including anaplastic astrocytoma/glioma, lymphoma,

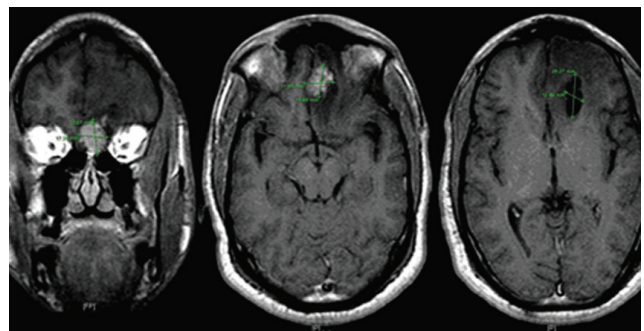


Figure 1. MRI of the brain with contrast showing a necrotic mass with irregular enhancement.

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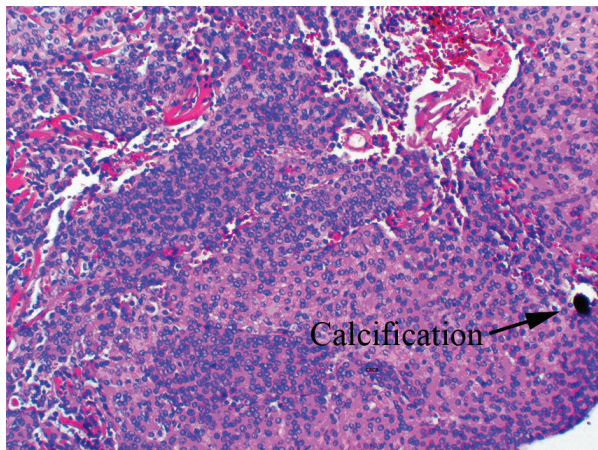


Figure 2. Hematoxylin and eosin (H&E) showing calcification, 40x.

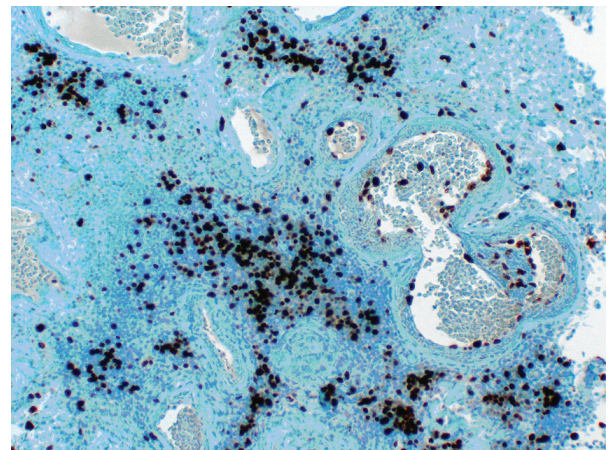


Figure 4. Ki-67 immunostain showing increased proliferation rate (grade II tumor), 200x.

metastatic disease and less likely squamous cell carcinoma arising from the adjacent ethmoid sinus. There was also an adjacent 1.3 x 2.6 cm cystic structure in the left frontal lobe which appeared to communicate with the left lateral ventricle frontal horn (Fig. 1). This, according to the radiologist, more likely represented an incidental porencephalic cyst rather than a component of the mass.

An infectious disease specialist was consulted for suspected microbiologic etiology. Baseline viral load was less than 50 copies/ μ l and laboratory tests for toxoplasmosis, cryptococcus and syphilis were negative. Craniotomy was performed and pathology report came with atypical meningioma WHO grade II (Fig. 2 - 4).

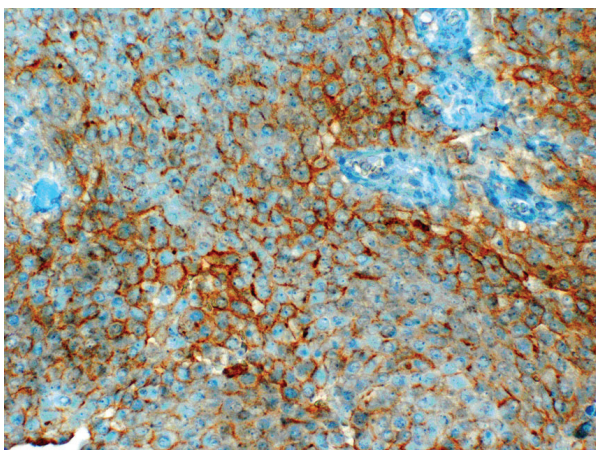


Figure 3. Epithelial membrane antigen (EMA) immunostain showing membrane and cytoplasmic positivity, 200x.

Discussion

Meningiomas are generally solid tumors but may rarely be associated with cysts resulting in diagnostic difficulties on imaging [12]. In HIV positive patients, not all intracranial cysto-necrotic brain lesions are indicative of an infectious process. They may be a tumor manifestation, including meningiomas. Viral antigens, like HIV tat protein, have been implicated in the pathogenesis of such tumors [13, 14]. These proteins are transcriptional activators that regulate one or more genes by increasing the rate of transcription. It may be that the HIV virus plays an oncogenic role through the occurrence of mutations and especially loss of chromosome 22 on a background of immune deficiency [9]. This case suggests that HIV positive patients may develop higher malignancy meningiomas at an earlier age than in the general population where it occurs usually at age 55 years for atypical meningioma [15]. A previous report by Khurshid et al. 1999 described four HIV patients with meningiomas in which the mean age at diagnosis was 40 [4]. All four patients had solid tumors (meningiomas) and three of them were in advanced HIV stage (AIDS) contrary to our patient. The true prevalence of such cases may be higher than initially thought due to lack of extensive autopsy data on AIDS patients. Larger case series will be required to make more solid conclusions.

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