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Unsuspected Toxoplasmosis Uncovered Following Traumatic MVA

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Abstract

A 48-year-old male was hospitalized at Jackson Memorial Hospital in Miami, Florida for 2 months, after sustaining severe polytrauma following MVA. Due to current hospital practice that is supported by public and private partnerships, the patient was routinely screened for HIV on presentation to the ED, and found to be HIV positive with a CD4 count of 18.84 and an active toxoplasmosis infection. Due to the early detection, the patient was able to receive the imperative treatment he needed and his infection was not able to be hidden by the substantial traumas. This case report highlights the degree of HIV comorbidity within our community and demonstrates that current interventions such as routine screening and linkage to care lead to better outcomes.

Keywords: Toxoplasma • Immunologic deficiency syndromes • Mass screening • Early diagnosis

Introduction

In the U.S., approximately 1.1 million people live with HIV, and 38,700 new cases are reported yearly. 1 in 7 people are unaware of their condition [1]. HIV is a deadly virus that attacks immune cells, leaving the body defenseless. It is transmitted via percutaneous exposure to infected bodily fluids like blood and semen [2]. Acute infection presents as a mononucleosis type of syndrome, but if left untreated, it can progress to AIDS (CD4<200) and lead to death. There are up to 15,800 deaths due to HIV yearly in the US [1]. Miami-Dade has one of the highest rates of new HIV diagnoses in the country with 1,224 new cases per 100,000 people annually in 2018. This amounts to a population of 28,000 people currently living with HIV as of 2018 [3]. Treatment is highly effective in restoring the immune system and improving mortality, specifically if administered early on [4]. Available screening tests have high sensitivity/specificity, and have been proven to be cost-efficient when compared to the public health burden of untreated patient complications and new transmissions [5]. Jackson Memorial Hospital is one of several hospitals and clinics that participate in the Frontlines of Communities in the United States program, developed by Gilead Sciences, to provide routine HIV, Hepatitis B and C screening and linkage to care for all patients through the Florida Department of Health and the South Florida AIDS Network. It notable that current USPSTF guidelines recommend a one-time HIV screening test on patients 15-65 years old unless the patient is known to be at increased risk. This would warrant more frequent testing. Patients at increased risk are men who have sex with men, IV drug users, or those engaging in risky sexual behavior [6]. The clinical course of the patient below further supports the benefit of broader guidelines for HIV screenings. This case outlines a patient that was involved in multiple traumas, and due to a current hospital practice that is supported by public and private partnerships, he was routinely screened for HIV on presentation to the ED. Due to this practice, the medical team was able to hone in on an occult diagnosis of Toxoplasma gondii and prompt treatment was not delayed. This report supports the case that it is beneficial to routinely test for HIV in every patient that comes through the hospital doors, regardless of their history or presentation.

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Case Report

An unidentified middle aged male was brought to the Emergency Department (ED) by EMS after MVC with a tree, intubated and sedated by EMS, with severe multiple traumas and bleeding. On admission, the patient was unconscious with a Glasgow Coma Scale 5, in hemorrhagic shock, with a tension pneumothorax and trauma to the head, chest, pelvis, and knee. Initial CT without contrast showed a larger brain lesion (Figure 1) with both vasogenic and cytotoxic edema in the left frontal and parietal lobes, and a smaller lesion in the right parietal region thought to be secondary to acute-to-sub acute MCA infarcts bilaterally. Patient then underwent emergency surgery for multiple traumas. Neurology agreed with a working diagnosis but required an MRI to confirm. As per Jackson Hospital practice, the patient was tested for viral hepatitis and was found to be HIV1 positive. On day 3, MRI showed 2 ring enhancing masses (2.4 × 2.9 cm and 1.3 × 1.4 cm) with surrounding edema and trace rightward midline shift or 2 mm. Based on the HIV positivity screen, these lesions were likely secondary to opportunistic infection, but because of the diffuse restriction and hemorrhage, additional differentials at the time still included: fungal abscesses, septic emboli, and lymphoma. Labs confirmed an opportunistic infection with Toxoplasma IgG of 739, and negative IgM in the setting of an HIV1 positive patient (viral load: 225,777) with a low CD4

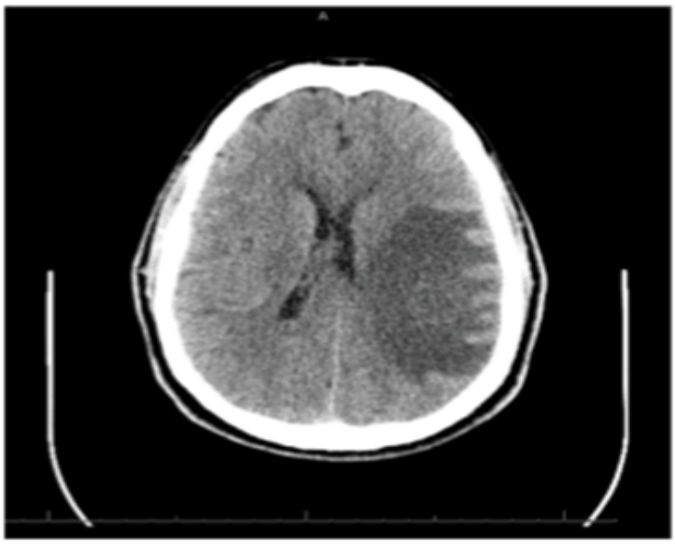

Figure 1. CT axial view, Day 1.

(CD4=18.84%, CD4=3.27%, CD4/CD8=0.04%) The patient was immediately started on empiric sulfamethoxazole/trimethoprim IV and switched to sulfadiazine 1500 mg, pyrimethamine 200 mg once, and leucovorin calcium 25 mg as soon as he was tolerating oral medications. Azithromycin prophylaxis for MAC was also started since the patient was not receiving ART (Figure 2). The patient's family presented to the hospital and was able to give the patient's medical history. It is important to note that the HIV status was never disclosed to the family. Following, the patient continued treatment for toxoplasmosis (sulfadiazine 1500 mg, pyrimethamine 75 mg daily and leucovorin calcium 25 mg for 6 weeks) and HAART (emtricitabine 200 mg, tenofovir 300 mg, and dolutegravir 50 mg) was quickly started. On day 19, MRI (Figure 3A) showed a slight decrease in the size of the ring enhancing lesions now measuring 2.1 × 2.4 cm and 1.1 × 1.1 cm (Figure 3B). After completion of 6 weeks aggressive therapy, maintenance therapy for toxoplasmosis was started with sulfadiazine 1500 mg, pyrimethamine 50 mg daily and leucovorin calcium 25 mg until CD4>200 for 6 months. Azithromycin prophylaxis was discontinued since the patient is now on HAART and also since PJP prophylaxis is covered by toxoplasmosis treatment. By day 53, the patient was slowly recovering, he was enjoying a regular diet, ambulating with assistance and looking forward to being transferred to inpatient rehab where he would work with a team of specialists to independently complete his ADLs.

Discussion

Review of the literature reveals no similar cases identified that demonstrate a severe trauma patient presenting with undiagnosed active Toxoplasmosis brain lesions due to HIV. The incidental finding of HIV within our community, however, is not uncommon [7,8]. Despite this, it is not routine protocol for hospitals to check patients' HIV status with each admission. Most hospitals will only check a patient's HIV status if sexual risk factors have been identified following USPSTF guidelines. This case report, however, highlights the benefits of testing patients beyond this narrow scope. There is a substantial body of literature advocating the notion that the existing test is sensitive/specific and cost-efficient enough to widen its application.

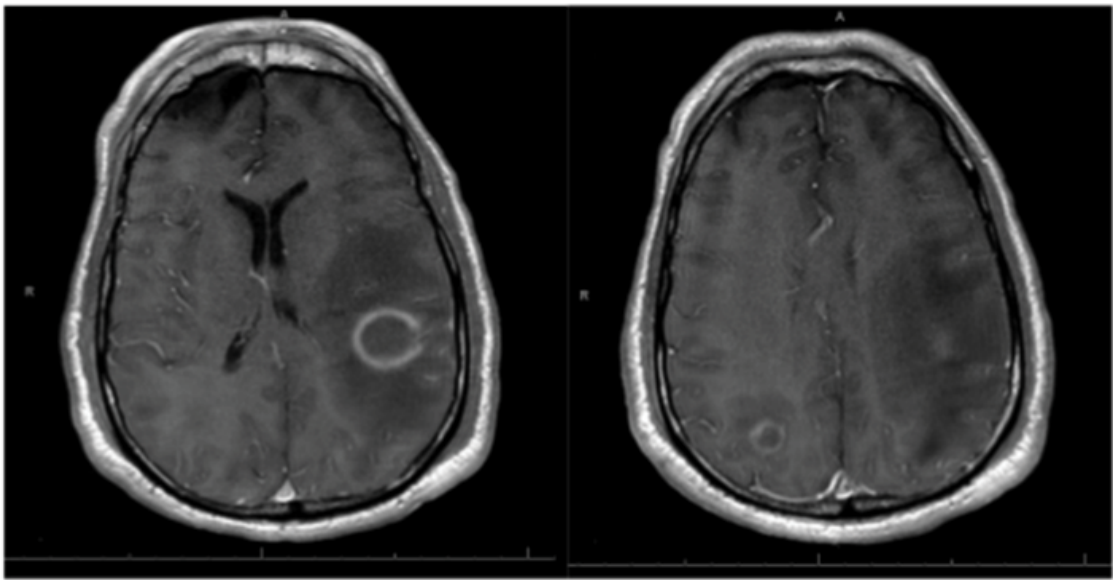

Figure 2. T1 MRI axial view, lesions 1 and 2, Day 3.

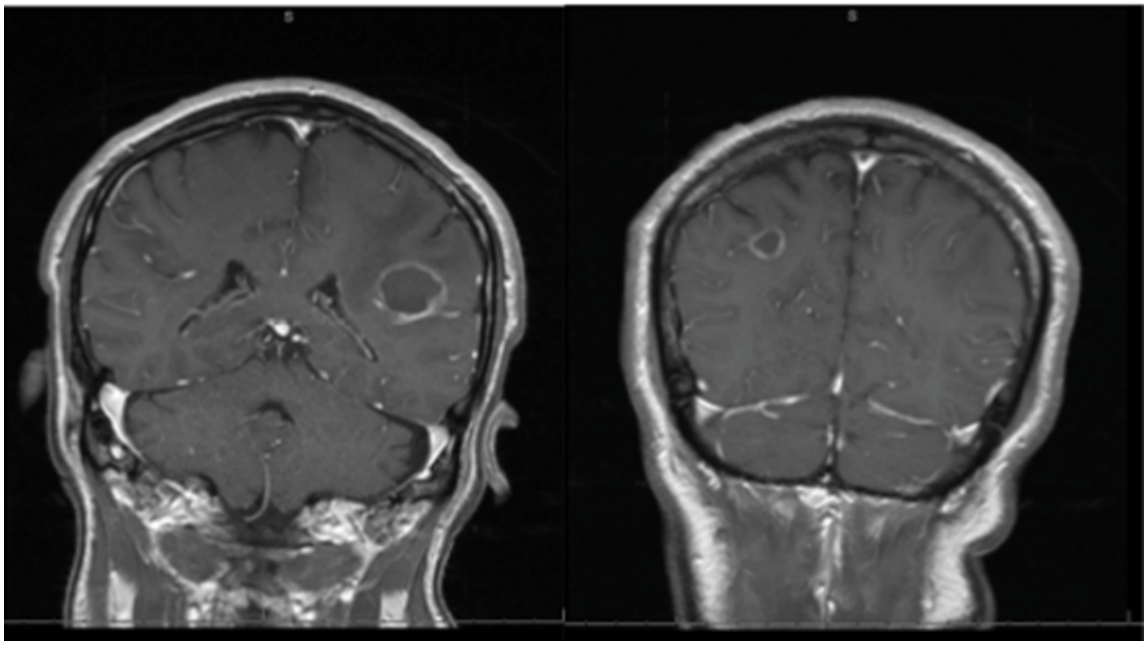

Figure 3A. T1 MRI w/contrast coronal view lesions 1 and 2, Day 19.

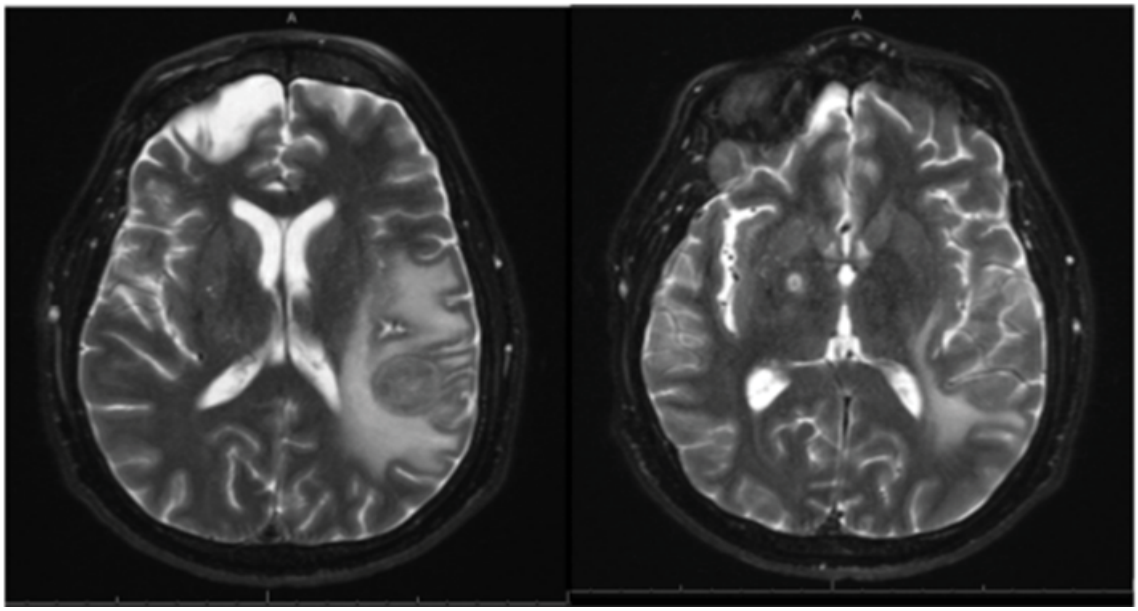

Figure 3B. T2 MRI w/contrast axial view lesions 1 and 2, Day 19.

Conclusion

This case report highlights the degree of HIV comorbidity within our local community in Miami, Florida, and demonstrates that current interventions such as routine screening and linkage to care lead to better outcomes. Our patient suffered severe trauma, which could have overshadowed his diagnosis of HIV and delayed treatment for the underlying opportunistic infection. The hospital's participation in the FOCUS program was instrumental in this case, allowing early detection and treatment. Otherwise, the patient's HIV status possibly would not have been known until targeted testing was conducted after his mental status improved. Further large-scale implementation of routine screening protocols and research on the outcomes of this intervention are currently in process by the Miami-Dade County HIV/AIDS Getting to Zero Task Force, formed by local experts in 2016, amongst others. This information can provide a stronger platform so that evidence-based guidelines may be refined to reflect the best interest of all patients.

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