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An Atypical Presentation of Disseminated CMV in an Immunocompromised Patient

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An Atypical Presentation of Tissue Invasive CMV in an Immunocompromised Patient

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Abstract

- Patients with HIV AIDS are at increased risk for opportunistic infections, and require prompt treatment.
- We present a case of a young male with HIV AIDS, CD4 < 50 cells/microL who had a febrile syndrome, encephalopathy in the setting of a largely negative infectious evaluation.
- Cerebrospinal fluid had negative virology, and MRI brain showed generalized cortical atrophy concerning for HIV encephalopathy.
- The patient also had a coccygeal ulcer that did not have purulence to it, but was found to be CMV positive. This prompted further evaluation of tissue invasive CMV diseases. He was found to be viremic, and also have retinitis.
- The patient had resolution of his fevers, and rapid improvement of his mental status when started on ganciclovir therapy. He was soon started on anti-retroviral therapy targeted at his HIV.
- This case demonstrates tissue invasive CMV causing a febrile syndrome, dermatologic manifestation, retinitis, and encephalopathy.
- CMV infection needs to be suspected in immunocompromised patients with ulcerations, and vesicles as it may be the only initial indication of tissue invasive CMV disease.

Introduction

- In the era of anti-retroviral therapy (ART), patients with HIV have improved mortality and morbidity, with less opportunistic infections.
- Patients with HIV infections are typically asymptomatic until they become severely immunocompromised, with AIDS being defined with a cell count of less than 200cells/microL or with an AIDS defining illness.
- HIV can manifest with lesions of the skin and mucous membranes, including candida infections, oral hairy leukoplakia, and seborrheic dermatitis.
- As patients become more immunosuppressed, viral infections become more prevalent, including with herpes simplex viruses (HSV), varicella zoster (VZV), and human papillomaviruses (HPV).
- Cytomegalovirus (CMV) is a common infection that results in lifelong latent infection. This refers to a positive CMV PCR test, and does not necessarily result in active symptoms.
- When patients are immunocompromised, it can cause a broad range of tissue invasive diseases. These can present as febrile syndromes, hepatitis, pneumonitis, retinitis, encephalitis, esophagitis, and/or colitis.

Case

- A 28 year-old man with a history of HIV AIDS, CD4 cell count of 24 cells/microL, presents to the hospital with acutely altered mental status.
- Physical exam shows an unresponsive male, with crackles throughout all lung fields, and a stage 3 coccygeal ulcer.
- Blood work is significant for bicytopenia (leukopenia, anemia). Chest x-ray shows a multifocal pneumonia with respiratory cultures growing *Proteus mirabilis*, and *Staphylococcus aureus*.
- The patient completes antibiotic therapy with improvement of his respiratory exam, but the patient continues to spike fevers, and does not have an improvement in his mental status.
- Further infectious evaluation includes a negative urinalysis, blood cultures, ß-D Glucan assay, galactomannan, and cerebrospinal fluid studies that include testing for bacteria, fungi, and viruses.
- Brain CT and MRI showed no masses or bleeding, but did show chronic changes of cortical atrophying with ex vacuo ventricular dilatation.
- Viral swab studies of the coccygeal ulcer returned from an outside lab are positive for CMV, herpes simplex virus (HSV)-1, and HSV-2. Ophthalmology performs a dilated eye exam that is significant for a band of left eye retinitis without macular involvement. CMV levels in the blood are 1,536 IU/mL.
- The patient was started on intravenous ganciclovir which resulted in resolution of his fevers and rapid improvement in mentation back to baseline. The patient confirmed pain related to his coccygeal ulcer, but reported no headaches, vision changes, trouble swallowing, or diarrhea.
- As the patient was asymptomatic, and did not have macular involvement in the ophthalmic exam, intra-vitreous ganciclovir was deferred.
- After two weeks of intra-venous ganciclovir, the patient was transitioned to oral valganciclovir, was started on ART, and was able to be discharged.

Images

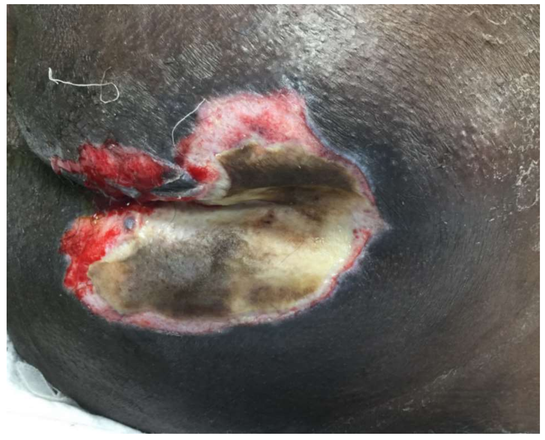

Figure 1. Stage 3 coccygeal ulcer, CMV positive.

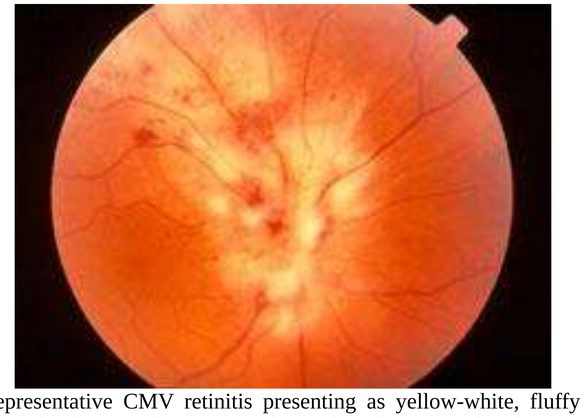

Figure 2. Representative CMV retinitis presenting as yellow-white, fluffy retinal lesions that are often located close to retinal vessels and associated with hemorrhage.

Discussion

- We present a case of tissue invasive CMV presenting with cutaneous eruption, retinitis, and causing encephalopathy in an AIDS patient.
- This patient was admitted with altered mental status, and was found to have a pneumonia. He competed treatment, however continued to spike fevers, and continued to be encephalopathic. There was concern that his fevers and encephalopathy could be secondary to HIV, and whether ART could be initiated.
- CSF viral studies were negative, and MRI brain imaging was concerning for HIV encephalopathy. CMV blood titers are not typically attained as viremia is not an indication for tissue invasive disease.
- The patient had rapid improvement of his fevers, and mental status improved rapidly upon initiation of ganciclovir therapy.
- CMV typically does not present with cutaneous eruptions, though it has been reported in anogenital ulcerations in non-AIDS patients as being a co-infection with HSV. [1]
- Other reports of CMV cutaneous infection include vesicles similar to that of varicella zoster virus, but without improvement on acyclovir. [2] It can also present with papulopustules, and vesiculobullous eruptions. [3]
- Cutaneous CMV lesions are rare, but is associated with increased mortality of 85% in 6 months in transplant patients. [4]
- Encephalopathic AIDS patients get routine MRI brain to rule out toxoplasmosis, and lymphoma. In setting of CMV, there may be peri-ventricular enhancement, but this is not a sensitive or specific finding. [5] CMV neurologic disease is diagnosed with a positive CSF PCR study with high sensitivity and specificity. [6]
- This is a case of tissue invasive CMV with dermatologic and ophthalmic disease causing fevers and infection related encephalopathy.

Conclusions

- Patients with AIDS are severely immunocompromised, and need a comprehensive infectious evaluation to rule out atypical infectious presentations.
- CMV needs to be suspected in both AIDS and transplant recipient patients as a possible cause for febrile syndromes.
- CMV can cause dermatologic manifestation with ulcerations which can be co-infected with HSV. These have been seen previously in the anogenital regions.
- Tissue invasive CMV can be the underlying cause of encephalopathy without meningitis or encephalitis.
- Ganciclovir therapy results in rapid response in tissue invasive CMV.

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