

Histoplasmosis and HSV-1 Co-infection following Alemtuzumab Treatment for T-PLL

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Introduction

Alemtuzumab based therapy is currently considered a first line treatment in patients with active T- Prolymphocytic Leukemia (T-PLL) to achieve initial complete remission¹. Alemtuzumab treatment has been associated with immunosuppression and the risk of developing bacterial, viral, and fungal infections². We present a rare case of concurrent disseminated HSV-1 and Histoplasmosis in a patient receiving Alemtuzumab for T-PLL.

Case Presentation

- Patient is a 55-year-old male with history of T-PLL on Alemtuzumab and acyclovir prophylaxis presenting with high-grade fever, chills, night sweats, and rash involving trunk, face, and proximal upper and lower extremities.
- On physical exam, the rash had different morphologies, follicular rash in addition to papules and early grouped vesicles.
- Biopsy from one of the vesicles tested positive for HSV-1 DNA consistent with cutaneous HSV-1 infection despite patient being on acyclovir prophylaxis.
- Histology of the same lesion showed a brisk dermal infiltrate of histiocytes containing intracellular yeast suggesting a concurrent fungal infection. Organisms were PAS-positive and diastase resistant.
- A fungal culture from a different lesion grew *Histoplasma* species.
- Both serum and urine *Histoplasma* Galactomannan were significantly elevated.
- CT scan of the chest, abdomen, and pelvis was significant for new right lower lobe pulmonary nodules consistent with possible fungal infiltrate suggestive of disseminated Histoplasmosis.
- Patient was started on Valacyclovir for cutaneous HSV-1 infection and Itraconazole for disseminated Histoplasmosis.
- Follow up visit two weeks following initiation of antibiotics showed significant improvement of rash.

Discussion

- Alemtuzumab is a humanized monoclonal antibody that targets CD52 on B and T lymphocytes, monocytes, and macrophages.
- Alemtuzumab has been associated with wide variety of opportunistic infections including CMV, Candidiasis, HSV, and Histoplasmosis²
- While pulmonary manifestations are the hallmark of histoplasmosis³. Cutaneous manifestations has been reported in 11-15% of infected patients causing wide variety of skin lesions⁴.
- Immunocompromised patients are at risk of developing recurrent and extensive HSV infections. In one study, Approximately 16% of all patients that took Alemtuzumab ended up with an HSV infection. Acyclovir prophylaxis is recommended in all patients on Alemtuzumab⁵.
- Two case reports were found in the literature of Histoplasmosis and HSV co-infection, both were in HIV positive patients^{6,7}.



Figure 1. Rash with different morphologies: follicular, papules, and early vesicles suggesting different processes



Figure 2. CT scan showing pulmonary nodules with largest in RLL measuring 7mm which suggest possible fungal pulmonary involvement.

Conclusion

Alemtuzumab has been associated with increased risk of developing opportunistic infections. Although rare, This case shows that patients on Alemtuzumab may develop co-infections of different organisms. Comprehensive physical exam and targeted workup for possible causes of rash in our case lead to the diagnosis and treatment of two different but co-existing infections.

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