A Complicated Case of Encephalopathy and Pancytopenia

Naomi Vather-Wu, M.D. and Katherine Harris, M.D.

University of Iowa Hospitals and Clinics, Iowa City, IA 52246

Case Presentation

A 60-year-old man with a past medical history of hypertension and hyperlipidemia presented with a 20-pound weight loss and fatigue for one month. Basic lab work by his PCP demonstrated pancytopenia with a peripheral smear showing 2+ tear drop cells and findings of lymphadenopathy and splenomegaly on physical exam, which was confirmed on CT CAP. Bone marrow biopsy was next obtained showing myelofibrosis vs other myeloproliferative neoplasm and aspirate showing JAK2 V617F mutation. A PET scan noted numerous hypermetabolic lymphoid tissues, splenomegaly, hypermetabolic bilateral adrenal glands, and mild diffuse hypermetabolic bone marrow (Figure 1). An axillary lymph node biopsy showed granulomatous lymphadenitis and no evidence of malignancy in the setting of recent steroid use. Throughout this work up, the patient developed encephalopathy and worsening pancytopenia. MRI brain showed multiple sub-centimeter foci and leptomeningeal enhancement concerning for possible lymphoma vs metastases vs embolic infarcts vs an infectious process (Figure 2). TTE did not demonstrate any abnormalities. Lumbar puncture was performed prior to transfer with WBC 36, RBC 20, total protein 219, glucose 9, pending cytology, and was without a meningitis/encephalitis panel.

On admission, patient was sedate but moving all extremities spontaneously. He had a right buccal mucosal ulcer and a right pupil larger than the left pupil by 1 mm. Labs were notable for WBC count 3.4k, Hgb 8.6, and platelets 24 after receiving 2 U of platelets. He was started on empiric treatment for meningitis. Hematology was consulted for concern for leptomeningeal carcinomatosis. Bone marrow biopsy was re-evaluated and concerning for myelofibrosis. CSF cytology returned negative. Due to severe thrombocytopenia in the setting of multiple platelet transfusions, lumbar puncture was unable to be obtained. Further infectious workup was ordered. Peripheral blood smear was reviewed again and demonstrated Histoplasmosis capsulatum (Figure 4). Serum and urine antigen later returned positive. He was started on IV liposomal amphotericin B 2 weeks after initial hospital presentation. On review of his social history, he worked in construction and had been cleaning bat guano for the past 10 years.

Clinical Images

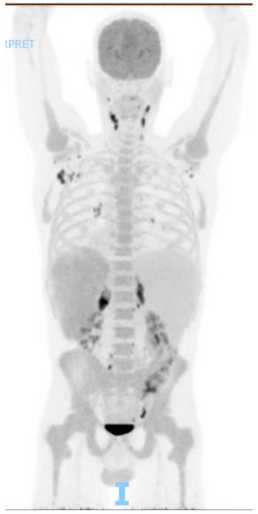

Figure 1. PET scan imaging demonstrating numerous hypermetabolic lymphoid tissues, splenomegaly, hypermetabolic bilateral adrenal glands, and mild diffuse hypermetabolic bone marrow involvement.

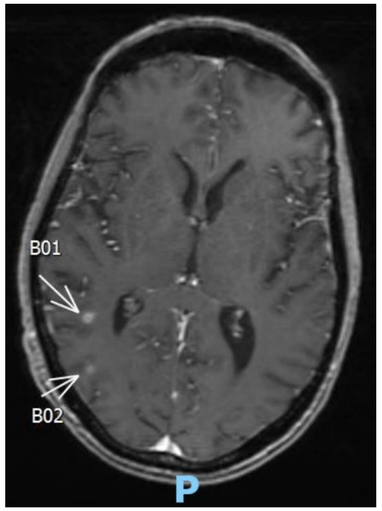

Figure 2. MRI brain noting multiple sub-centimeter foci.

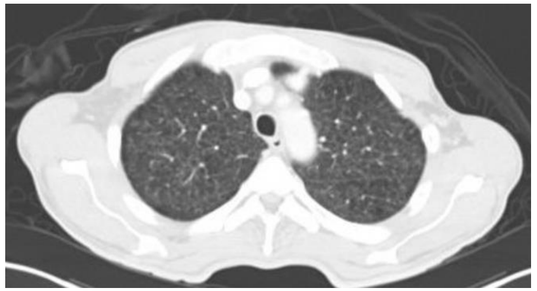

Figure 3. CT chest demonstrating diffuse ground glass nodules consistent with Histoplasmosis capsulatum infection.

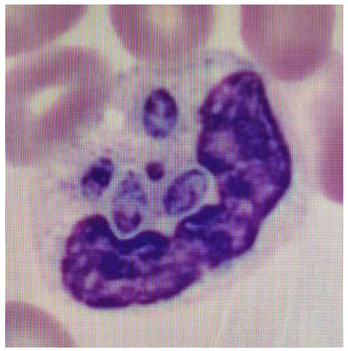

Figure 4. Histoplasmosis capsulatum pictured on peripheral blood smear.

Discussion

Encephalopathy is a common presenting complaint for hospitalization. In patients with encephalopathy and cytopenias, consider disseminated Histoplasmosis as they are predisposed to this infection and this infection is associated with pancytopenia. Buccal ulcers and pupillary dilation, if ocular involvement is present, can be appreciated on physical exam. This case was particularly challenging as patient was presenting with a new diagnosis of myelofibrosis and with disseminated Histoplasmosis.

Conclusions & Teaching Points

It is important to recognize that disseminated Histoplasmosis can present similarly to hematologic malignancies, such as myelofibrosis, with fatigue, hepatosplenomegaly, lymphadenopathy, and bone marrow infiltration resulting in tear drop cells.

-Histoplasmosis is most intensely endemic in the Ohio and Mississippi River Valleys

-Infection occurs by inhaling micronidia when disturbing environments harboring this organism; can be in bat and bird guano

-Disseminated disease occurs in approximately 1 in 2000 patients with acute infection.

-Risk factors include: Patients with a weakened immune system (HIV/AIDS, history of organ transplant, on corticosteroids or TNF-inhibitors, leukopenia such as in hematologic malignancies), infants, adults 55 years or older

-Most common sites of involvement of disseminated Histoplasmosis are the liver, spleen, gastrointestinal, and bone marrow

References

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