A Rare Case of Hemophagocytic Lymphohistiocytosis Occurring in an Adult with Severe Immunodeficiency and Hodgkin Lymphoma.

Alison Koransky MD, Jill Allenbaugh MD

Department of Medicine, Lewis Katz School of Medicine, Temple University Hospital, Philadelphia

Introduction:

Hemophagocytic lymphohistiocytosis (HLH) is a life-threatening condition of immune dysregulation occurring as either a primary syndrome from familial genetic aberrations or as a result of inflammatory, infectious or malignant processes. [1] Primarily a disease of childhood, the etiology and pathogenesis of HLH in adult patients is poorly understood. Here, we present a rare case of fatal HLH occurring in the context of Hodgkin lymphoma (HL) and advanced AIDS.

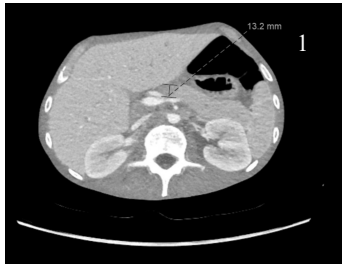
Case:

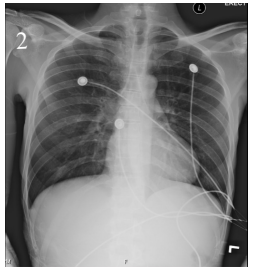
A 38-year-old male with AIDS (CD4 count, 7), presented for failure to thrive. He had months of weight loss with poor intake, diarrhea and altered mental status. Admission labs had significant abnormalities. Shortly after admission, he became febrile to >102 F and was started on broad spectrum antibiotics. He underwent an infectious workup. A CT abdomen had evidence of numerous sub-centimeter hypodense lesions throughout liver and spleen.

He underwent a bone marrow biopsy but was unable to undergo a lumbar puncture given his coagulopathy. Within one week, his condition deteriorated, he was intubated, and suffered a fatal cardiac arrest. Postmortem, his bone marrow biopsy resulted showed extensive necrosis and involvement by classical Hodgkin lymphoma (HL). His Epstein-Barr virus (EBV) DNA resulted as 112,200 copies/mL with a soluble cd25 of 12,167 U/mL, confirming the diagnosis of HLH.

1. George, Melissa R. "Hemophagocytic lymphohistiocytosis: review of etiologies and management." *Journal of blood medicine* vol. 5 69-86. 12 Jun. 2014
2. Cattaneo C, Oberti M, Skert C, *et al*. Adult onset hemophagocytic lymphohistiocytosis prognosis is affected by underlying disease and coexisting viral infection: analysis of a single institution series of 35 patients. *Hematol Oncol* 2017;35:828–34.
3. Mousa, Somaia. "Hodgkin lymphoma presenting as Hemophagocytic Lymphohistiocytosis: A case report and review of published cases." *Research in Oncology* 12.1 (2016): 28-30.
4. Ménard F, Besson C, Rincé P, et al. Hodgkin lymphoma associated hemophagocytic syndrome: a disorder strongly correlated with Epstein-Barr virus. Clin Infect Dis. 2008; 47: 531-534.
5. Filipovich AH. Hemophagocytic lymphohistiocytosis (HLH) and related disorders. Hematology Am Soc Hematol Educ Program. 2009:127-31. doi: 10.1182/asheducation-2009.1.127. PMID: 20008190.

1. CT abdomen demonstrating hypodensities in spleen
2. Admission chest x-ray without signs of infection
3. Fever curve over first 48 hours





Admission Labs and Initial Work Up

10.8	4.9 / 15	52
125	86	32
4.2	22	0.94
		146

MCV 78.7

Ca: 7.2
Mag: 2.5
Phos: 3.4
Albumin: 1.9
Total protein: 5.9
Tbili: 3.2
AST: 62
ALT: 31
Alk phos: 306

Anemia work up:
Iron: 76, TIBC: 149, Iron sat: 51
Ferritin: 14,888
Folate: 8.35; B12: 798
LDH: 404
Retic Count: 3
Haptoglobin: 282
Fibrinogen: 649

PT:29.5
INR: 2.4
Lactate: 3.5

Altered mental status workup:
Ammonia: negative
TSH: 0.882
UDS: +amphetamine

Other:
Lipid panel: cholesterol <50; TAG: 61; LDL: 30, HDL: 8
A1c: 5.7

Infectious workup:
Blood cultures: NGTD
UA: Negative
Acute hepatitis panel: negative
Cryptococcal antigen: negative
CMV PCR: negative
Histoplasma antigen: negative
Parvovirus b19: IgG +, IgM-
EBV antibody: IgG +, IgM –

Impact and Discussion:

This case demonstrates a rare and fatal case of HLH occurring in the context of AIDS and advanced HL. Given the fatality of HLH, this case underscores the importance of prompt diagnosis of HLH by recognizing the diagnostic criteria. Malignancy, particularly hematological, is the most common cause of secondary HLH [2]. Additionally, malignancy associated HLH has been shown to have the worst prognosis among acquired HLH cases. Case reports demonstrate that HL and HLH have a EBV infection as a commonality marking the importance of that lab [3,4].

In immunocompromised adults meeting severe sepsis criteria, it is important to have a broad differential that expands beyond infection and includes HLH. Some of our diagnostic tests resulted postmortem, demonstrating the importance of beginning the workup for HLH early in the hospital course. While we were unable to reverse the disease process in this patient given his rapid decline, a broader recognition of possible HLH at presentation is essential in treating future patients.