A Case of EBV Hepatitis Complicated by Hemolytic Anemia

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Introduction

Epstein-Barr virus (EBV) infection is highly prevalent in the first 2 decades of life and approximately 90% of the US population is seropositive for the infection before the age of 25. EBV infection usually manifests as the clinical syndrome of infectious mononucleosis, which presents as headaches, malaise and low-grade fevers with symptom resolution in 1-2 weeks.[1] Other manifestations of EBV infections include evidence of mild hepatocellular damage and rarely hemolytic anemia. However, jaundice, symptomatic hepatitis and hospital admission is uncommon, specifically in the absence of infectious mononucleosis symptoms.[2]

Case Presentation

- A 23-year-old woman presented with one week history of generalized malaise, right upper quadrant abdominal pain, jaundice and dark urine.
- Initial laboratory studies were notable for WBC 16.3 K/uL, Hb 8.8 gm/dL, haptoglobin <30 mg/dL, LDH 845 U/L, reticulocyte count 11.8 %, INR 1.0, AST 127 U/L, ALT 118 U/L, ALP 176 U/L, total bilirubin 9.3 mg/dL (direct 4.3 mg/dL, indirect 3.5 mg/dL).
- CT scan of the abdomen and pelvis showed hepatomegaly with a normal biliary tree. The EBV viral capsid antigen (VCA) IgM was positive at >160 u/ML.
- Patient underwent a liver biopsy on hospital day 3 which showed sinusoidal patterns of inflammation and an in-situ hybridization study confirmed the diagnosis of EBV hepatitis (Figure 1). Patient was started on Solumedrol 1 mg/kg with improvement of symptoms and resolution of hepatic and hemolytic anemia lab abnormalities.

References

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Images

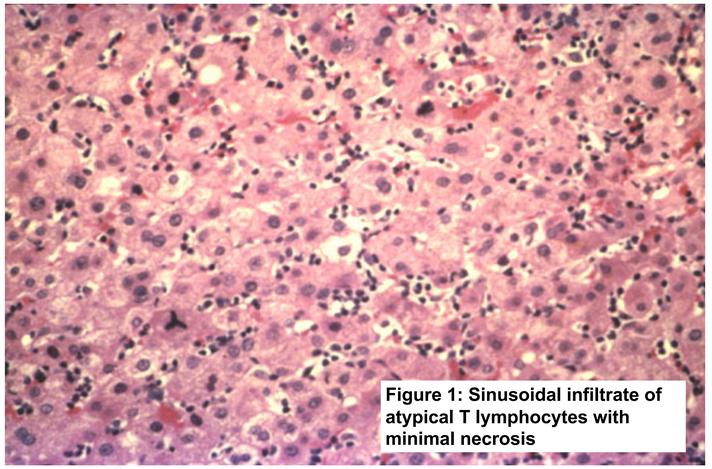

Figure 1: Sinusoidal infiltrate of atypical T lymphocytes with minimal necrosis

	HD 1	HD 2	HD 3	HD 4	HD 5	HD 6	HD 7
AST (U/L)	127	133	159	142	95	60	35
ALT (U/L)	118	134	170	213	186	173	142
Alk Phos (U/L)	176	136	131	131	115	106	94
T. Bilirubin (mg/dL)	9.3	6.4	3.6	2.3	1.6	1.4	1.3

Table 1: Pertinent lab value trends through hospital course

Discussion

- Hepatic involvement due to Epstein-Barr virus infection can be common but is typically subclinical or mild in presentation with only 5% of patients presenting with jaundice.[3]
- Isolated EBV hepatitis and cholestasis without IM syndrome is a very rare manifestation of primary EBV infection
- The pathological manifestation can be extensive, as patients can also present with hemolytic anemia, specifically cold agglutinin autoimmune hemolytic anemia.
- Histologic characteristics include sinusoidal inflammation of atypical T lymphocytes, presence of Downey cells in peripheral blood and usually no bile duct injury or venuiltis. [4]
- The pathogenesis is believed to be due to EBV IgM antibodies cross reacting with RBC antigens.[4] The pathogenesis of cholestasis in EBV hepatitis involves direct damage of hepatic cells by autoantibody free radical activation and inflammation of bile ducts.[5]
- Many cases are self-resolving; however, antivirals such as ganciclovir with or without corticosteroids can provide benefit in severe cases.[6]
- Due to the high global prevalence and immense pathological manifestations of Epstein-Barr virus, healthcare professionals should be aware of the hepatic presentation, accompanying complications including hemolytic anemia, diagnosis, and treatment.