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Author
Soza, Jose

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CLINICAL VIGNETTE

A Clinical Case of Epstein-Barr Virus Hepatitis

Jose Soza, DO, MS

Case Presentation

A 20-year-old female with history notable for heavy menstrual bleeding, presented to primary care for elevated liver enzymes incidentally discovered by her OB-GYN. Outside lab abnormalities included: Ferritin of 234 ng/mL, ALP 183 U/L, ALT 441, AST 648 U/L, and Glucose 125 mg/dL. WBC K/uL of 6.33, neutrophils to 38%, 9%, HgA1c 5.6, remaining labs were within normal limits.

She reported some cramping associated with menstruation, but initially did not note any abdominal discomfort or gastrointestinal symptoms. She also mentioned 2-weeks of upper respiratory symptoms including swollen throat, fatigue, nasal congestion with facial discomfort that were lingering at the time of the visit. She tested negative for COVID-19, and Strep throat, and denied any fevers, or chest symptoms. She had completed 10-days of Amoxicillin-Clavulanate without improvement and used over the counter nasal sprays and cough drops. She was not taking any other medications, or supplements other than oral contraceptive pills which her OB-GYN recently stopped.

She acknowledged binge drinking during spring break 2 weeks prior but has not had any alcohol since. She is very physically active, on the college volleyball team and reports that some of her teammates with similar upper respiratory symptoms in recent weeks. Family history was notable for liver cancer in her paternal grandfather and uncle, however this was attributed to alcohol abuse. Vitals signs were normal and physical exam was normal aside from nasal congestion, enlarged anterior cervical lymph nodes and diffuse throat erythema.

After the visit, repeat labs were remarkable for persistent elevation of liver enzymes, as well as positive EBV DNA of 11,125 copies/mL and positive EBV-VCA IGM suggestive of EBV Hepatitis. Abdominal ultrasound revealed mild hepatomegaly and borderline splenomegaly.

In the following days she developed right upper quadrant abdominal discomfort and presented to the ED. Labs showed elevation of AST/ALP with persistent elevation in ALT/ Bilirubin prompting consultation with MR venogram and MRCP which did not show signs of cholestatic disease. Infectious disease was consulted who advised to continue with symptomatic management and continued monitoring of her liver enzymes.

Liver enzymes were obtained every 2 weeks for 8 weeks after symptom onset. Her fatigue and sore throat gradually improved. Repeat abdominal ultrasound at 8-weeks showed mild improvement in hepatosplenomegaly and liver enzymes normalized at the 8-weeks. She was instructed to return to a gradual return sports given splenomegaly.

Discussion

Epstein-Barr virus (EBV) is a gamma herpesvirus. Prior seroepidemiologic surveys estimate over 90% of adults worldwide are infected with the virus.[1] Primary infection is typically associated with infectious mononucleosis symptoms but will persist in an asymptomatic lifelong latency phase in most immunocompetent individuals but can lead to chronic or recurrent symptoms in immunocompromised individuals. Certain primary neoplasms such as B-cell lymphomas and nasopharyngeal carcinomas have been associated with EBV.

EBV is primary transmitted through exposure to infected saliva typically in the second decade of life after waning of passive maternal antibody protection. It is commonly known as the "kissing disease" as it is predominantly obtained through kissing but can less commonly be acquired through sexual transmission.[2] It is estimated that 75% of young adults typically develop infectious mononucleosis after primary EBV infection and typically present with classic triad of pharyngitis, fever, and lymphadenopathy. Fatigue is also commonly prevalent with median duration of 20 days of symptoms.[3] Treatment is typically supportive with glucocorticoids or antivirals reserved for severe EBV cases.

Subclinical hepatitis, noted by elevation in liver enzymes occurs in 90-95% of cases, but overt hepatitis with tender hepatomegaly and jaundice can occur in 5-10%. Serum liver enzymes are typically elevated 2-3 times upper limit of normal which are consistent with parenchymal injury, however cholestatic pattern with elevated alkaline phosphatase and bilirubin are not reported in 10-50% of cases of EBV hepatitis. Our patients' initial labs were suggestive of hepatocellular pattern with R-Factors 7.2, however repeat showed near cholestatic pattern with R factor 5.3. The MR venogram and MRCP were reassuring and did not showing any cholestatic liver disease.[4]

Splenomegaly is detected in most cases with imaging and risk of splenic rupture is one of the more concerning aspects of infectious mononucleosis with an estimated incidence of 0.5% -1% of cases. Most cases of splenic rupture occurring during the first 3 weeks of infection but have been documented up to 7 weeks after diagnosis. Splenomegaly usually begins to recede by the third week of the illness with median return to normal of 26 days.[5] Most advise return to non-contact activities after 3 weeks after the onset of symptoms. There is variability in return to contact sports ranging from 5 weeks to 6 months depending on ongoing labs, and imaging studies.[6]

Conclusion

Our patient presented with incidentally elevated liver enzymes in the setting of upper respiratory symptoms which raised the suspicion for EBV hepatitis. Sustained liver function abnormalities and onset of RUQ pain, led to gastroenterology consultation and additional imaging. Liver functions tests were monitored with return to baseline and near resolution of hepatosplenomegaly, 8 weeks after symptom onset. She was given recommendation for gradual return to non-contact activities with resumption of contact activity 9-10 weeks after symptom onset.

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