

# **Epstein-Barr Virus Superinfection on Chronic Autoimmune Hepatitis Causing Severe Hepatic Dysfunction : A Case Report**

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**Introduction :** Autoimmune hepatitis(AIH)is an uncommon disease and low incidence is found in Taiwan. Epstein-Barr Virus(EBV)induced hepatitis has been frequently noted, but the majority of cases presented with mild clinical course and were usually self limited. Cases with severe hepatic injury caused by EBV were infrequent. There was medical report of EBV playing an important role in triggering the disease onset of AIH,but to the best of our knowledge,the superinfection of EBV on pre-existing chronic AIH, resulting in severe hepatic dysfunction, has not been reported. We herein describe an unusual case of EBV superinfection on pre-existing AIH with early cirrhosis, which caused enhancement of the autoimmune disease process and resulted in severe hepatic decompensation and jaundice.

**Case report :** A 66-year-old female patient was admitted due to acute onset of symptoms including general malaise,poor appetite,jaundice and mild lower leg edema for one week. She had history of chronic liver disease and intermittent episodes of arthralgia for years. The lab tests for hepatitis B and C were all negative. She had no other systemic disease, had no history of alcohol drinking,blood transfusions,chronic medications, toxin exposure, and no known history of viral hepatitis.Physical examination revealed a slightly emaciated, acute ill looking patient with marked degree of jaundice. No abdominal tenderness, no hepatosplenomegaly, but lower leg pitting edema and moderate ascites were noted. Lab data : WBC 6700 ; lymphocyte 44% ; AST 3090 IU/L ; ALT 1490 IU/L ; total bilirubin 26.4 mg/dL ; direct bilirubin 15.1 mg/dL ; ALP 318 IU/L ; prothrombin time 21s ; The serological tests for Hepatitis A,B,C, HCV RNA were all negative. IgG 2110 ; ANA 1:2560 positive ; AMA negative ; The serological tests for detection of EBV infection were done 2 months after admission. EBV VCA IgM(1:40)(+) ; EBV VCA IgG(1:640)(+) and ( 1:2560 ) (+) ; EBV PCR(+). Liver biopsy showed histologic features suggesting autoimmune hepatitis(Fig 1 and 2)and early histologic features of cirrhosis(Fig 3). By using the diagnostic criteria of IAIHG, AIH with early liver cirrhosis was diagnosed(definite AIH,score18), and the patient was started with prednisolone therapy. The patient's hospital course was smooth and she recovered well. Serum liver enzymes and bilirubin levels declined steadily Fig(4). The decline of aminotransferases and bilirubin levels were in agreement with the decline of EBV VCA IgM titers Fig(5). Further improvement of liver function was noted during clinical follow up. From the clinical data presented, the superinfection of EBV on chronic AIH was evidenced by positive EBV PCR and serial changes in EBV VCA IgM and IgG titers.

Discussion : The role of virus in the interaction with the disease process of AIH is interesting. There were evidences that autoimmune reactions and disease are newly generated or enhanced by infection with certain human viruses. To the best of our knowledge, no medical literature was reported regarding the superinfection of EBV on a pre-existing AIH case, which resulted in enhancement of the disease severity and consequently caused severe hepatic dysfunction. The severe hepatic damage caused by the EBV superinfection could be explained by virtue of an immunopathogenic mechanism. The superinfection of EBV reactivated an autoimmune reaction with provocation of T cells and nature killer cells within the liver parenchyma and cause aggravation of the hepatocellular inflammation on an pre-existing chronic disease state, which led to severe hepatic dysfunction. Hence we concluded that taking into consideration of the high frequency of EBV infection, AIH with EBV superinfection or reactivation should be a subject of importance.