# Hepatitis and AIHA Induced by EBV-associated Infectious Mononucleosis

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## Abstract

Epstein-Barr Virus (EBV) may cause infectious mononucleosis (IM), with hepatitis in <10% of cases and autoimmune hemolytic anemia (AIHA) rarely in immunocompetent individuals. We present a case of an 18-year-old female with abdominal pain, red urine, jaundice, and arthralgias. Labs revealed direct hyperbilirubinemia, elevated transaminases, and a positive EBV panel and direct Coombs test. Imaging and other workups were unremarkable, and she improved with supportive care and prednisone. This case highlights a rare EBV presentation complicated by hepatitis and AIHA, emphasizing the delicate balance between treating autoimmune complications, avoiding immunosuppression, and the importance of monitoring for potential hepatic decompensation.

## Introduction

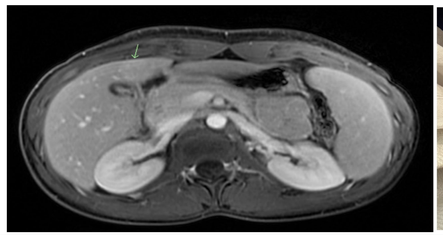
Epstein-Barr virus (EBV) is a common double-stranded DNA herpesvirus that establishes lifelong latency and infects more than 90% of people worldwide by adulthood [1]. In adolescents and young adults, primary infection often presents as infectious mononucleosis (IM), which classically causes fever, pharyngitis, and lymphadenopathy [2,3]. Hepatic involvement is frequent, with mild transaminase elevations seen in most cases, but clinically significant EBV hepatitis is uncommon, occurring in fewer than 10% [4,5]. Rarely, EBV triggers autoimmune hemolytic anemia (AIHA), a complication typically associated with immunocompromised hosts but reported in healthy adolescents and young adults [5,6]. We present a case of EBV-induced AIHA and hepatitis in a previously healthy adult.

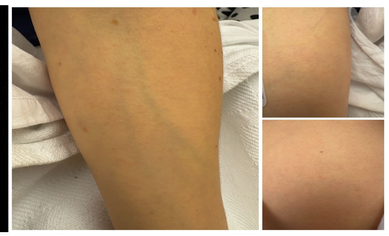
## Case

An 18-year-old female with no significant PMH presented to the emergency department (ED) with abdominal pain, red urine, and generalized jaundice for 1 day. She also endorsed arthralgias of her distal fingers, knuckles, and toes for 4 days. Her labs were notable for direct hyperbilirubinemia (8.3 mg/dL), elevated aspartate aminotransferase (215 U/L), and alanine aminotransferase (317 U/L). However, her hepatitis panel (hepatitis A/B/C), acetaminophen levels, and gallbladder ultrasound were unremarkable. Following hospital admission, laboratory workup for autoimmune (antinuclear antibody, anti-smooth muscle antibody, anti-mitochondrial M2 antibody, liver kidney microsome antibody, inflammatory bowel disease (IBD) serology panel) was unremarkable. Infectious workup for HIV, CMV, parvovirus B19, and hereditary causes (e.g., ceruloplasmin) was unremarkable, except for positive IM screen, EBV IgM, and heterophile antibodies.

## Case (continued)

Direct Coombs IgG was also positive, consistent with EBV-associated AIHA (hemoglobin dropped from 11.2 to 8.9 g/dL by day 4). MRCP showed gallbladder wall edema and a hepatic focal nodular hyperplasia (FNH) (Figure 1). GI and Hematology/Oncology were consulted. The patient received supportive care including IV fluids, warm blankets, and close monitoring. A short prednisone trial (40 mg daily) was initiated for AIHA but stopped after 2 doses due to concerns about immunosuppression. Liver enzymes and bilirubin gradually normalized, and hemoglobin increased to 9.3 g/dL. By day 6, she developed a non-pruritic, non-tender rash on her forearms and right thigh, scattered, non-blanching red papules (Figure 2). She was discharged after five inpatient days with topical triamcinolone 0.1% and hydrocortisone 1% for the rash, and a reduced dose of her oral contraceptive (norgestrel 75 → 30 mcg) due to concerns about hepatic function and FNH.





## Conclusions

- This case represents a rare dual presentation of EBV-induced cholestatic hepatitis and autoimmune hemolytic anemia (AIHA) in an otherwise healthy young adult.
- The patient's cholestatic pattern of liver injury and systemic symptoms required a broad differential and extensive workup to rule out biliary, autoimmune, hereditary, and infectious causes.
- A structured diagnostic approach using labs and imaging (ultrasound, MRCP) helped avoid unnecessary invasive procedures like liver biopsy.
- Management of AIHA in the context of EBV posed a challenge due to the risk of steroid-induced immunosuppression worsening hepatic inflammation.
- Early corticosteroids were discontinued after two doses, and the patient improved with supportive care alone, avoiding liver decompensation.
- This case underscores the need to consider atypical EBV presentations and highlights the importance of balancing autoimmune treatment with infection control in complex viral illnesses.

## References

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