

# Infectious Mononucleosis: A Case Report with Unusual Features and EBV Induced Hepatitis

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## ABSTRACT

Despite the fact that Epstein-Barr virus (EBV) infections are common, we continue to hear about new cases of the illness with bizarre and unique symptoms, which prompts the issue of how well we understand this disease. In developing countries, the average age at which an infection is contracted is rising. Other physical symptoms are less noticeable and liver involvement is more noticeable throughout these stages. To inform healthcare professionals of this change, an update on infectious mononucleosis (IM) variable manifestation is necessary. Although our patient didn't have many physical symptoms, blood testing revealed a typical picture of EBV-induced hepatitis. This instance is consistent with recent research suggesting that hepatic involvement is among the most noticeable symptoms in adults with primary EBV infection.

**Keywords:** Epstein-Barr virus, Infectious mononucleosis, Hepatitis

## INTRODUCTION

A clinical illness known as infectious mononucleosis (IM) is defined by lymphadenopathy, fever, and sore throat. [1] The Epstein-Barr virus (EBV) accounts for 90% of cases, cytomegalovirus (CMV) accounts for 5% to 7%, and toxoplasma gondii (T gondii) accounts for less than 1%.

EBV is a common virus that is mainly communicated by infected saliva. [2] Testing for IgG and IgM antibodies against viral capsid antigens, early antigens, and EBV nuclear antigen proteins can provide a conclusive diagnosis (Paul Bunnell test). [3] There is no approved treatment for infectious mononucleosis. Several nucleoside analogs have in vitro activity against EBV, but a clinical benefit has not yet been proven for any of them. [4] Inflammatory side effects including airway obstruction or autoimmune conditions like anaemia and thrombocytopenia are frequently treated with corticosteroids, although their efficacy is debatable and they may hamper virus clearance. [3] Although the mechanism is unknown, primary EBV infection-related hepatitis is typically mild and self-limited. Rarely, deadly infectious mononucleosis causes hepatic failure along with severe jaundice. [5]

Here we represent a case report of young patient with infectious mononucleosis along with EBV induced hepatitis.

## CASE REPORT

A 32 year old male patient was admitted in the General Medicine department with the affliction of fever for past 2 weeks and throat pain for 4 days. On physical

examination, the patient had two inflamed lymph nodes below the jaw. General Practitioner (GP) started treatment on the assumption of viral tonsillitis based on the signs and symptoms.

First day physician started intravenous antibiotics amoxicillin clavulanic acid, pantoprazole to prevent gastric irritation, acetaminophen tablet as antipyretic, saline gargle, steam inhalation, and ordered laboratory investigations of hemogram, C Reactive Protein (CRP), Erythrocyte Sedimentation Rate (ESR), Liver Function Test (LFT). Lab investigation report shows a rise in White Blood Cell (WBC) count, lymphocyte, ESR, CRP, LFT (as shown in table 1.0). Hepato protectant Ursodeoxycholic acid tablet was started along with antibiotics. Second day the tonsils get enlarged and white spots starts appearing. For the expert opinion physician seek otolaryngologist consultation. A fever spike was seen on the second and third day despite giving antipyretics, so physician

started Azithromycin 500mg once daily for 5 days. On the third day otolaryngologist took the consultation and ordered an Albert Stain test for ruling out Diphtheria. Fourth day physician repeated the WBC count, lymphocyte, ESR, CRP, LFT and the lab reports shown a rise in values (as shown in table 2.0).

Lab report on Albert Stain came negative on that day itself. Then based on the expert opinion of otolaryngologist and GP, Paul Bunnell test was performed and continued the medications. Paul Bunnell test report showed positive for the presence of heterophile antibodies. From fifth day onwards patient starts to feel better; there is reduction in the enlargement of tonsils. Seventh day physician repeated the WBC count, lymphocyte, ESR, CRP, LFT and the lab reports shown a downfall (as shown in table 3.0). Patient was discharged on the seventh day after the completion of antibiotic dose.

Table 1.0 showing laboratory report of patient on the first day.

| Test | First day | Fourth day | Seventh day | Normal range              |
|------|-----------|------------|-------------|---------------------------|
| WBC  | 14730     | 14320      | 10800       | 4500-11000 cells/ $\mu$ L |
| ESR  | 56        | 40         | 28          | 0-30 mm/hr                |
| CRP  | 30.5      | 39.9       | 8           | <5 mg/L                   |
| ALT  | 218       | 273        | 126         | <50 U/L                   |
| AST  | 119       | 138        | 47          | 15-37 U/L                 |

## DISCUSSION

The herpes virus family includes the Epstein-Barr virus (EBV), one of the most prevalent viruses to infect people. 90% of the general population is thought to contract the virus before the age of 30. [6] EBV infection can cause anything from an asymptomatic condition to a variety of diseases. Children are typically asymptomatic from viral infections, similar to the majority of viral infections, but young adults typically display the infectious mononucleosis (IM) symptoms. [7]

According to the literature, upper respiratory symptoms (64%), a sore throat (94%), cervical lymphadenopathy (81%), and exhaustion are the most typical signs of IM. Fever, sore throat, and lymphadenopathy are considered the clinical

trifecta of primary EBV infection. [6] Signs and symptoms of our patient include fever, inflammation of tonsils and fatigue.

Obtaining laboratory confirmation using a heterophile antibody test, which has been used as the standard point-of-care laboratory method ever since its discovery by Paul and Bunnell in 1932, is the practical way to obtain laboratory confirmation and the precise way to diagnose infectious mononucleosis due to primary EBV infection. Heterophile antibodies are those that can react to specific antigens that are considerably distinct from, and phylogenetically unrelated to the one important in inducing the antibody response,' according to Paul and Bunnell. Mammalian erythrocytes from different species are used in heterophile testing to

find IgM class antibodies that are generated during the generalised immunological upregulation that comes along with acute primary EBV infection. [8] In our case the diagnosis of IM was conformed using Paul Bunnell test. On serology examination heterophile antibodies are seen positive.

Over 80% of initial EBV cases involve liver involvement. [8] Consequently, it is crucial to comprehend this component of the illness. Alkaline phosphatase (ALP), gamma glutamyltranspeptidase (gamma GT), alanine aminotransferase (ALT), and aspartate aminotransferase (AST) are among the increased liver enzymes. The EBV hepatitis is harmless and self-resolving. However, a thorough comprehension of its progression is helpful to inform medical professionals when they come across unexpected laboratory results and address patients' inquiries regarding the infection pattern. [9] In our case it is found that the levels of ALT and AST was risen as shown table 1.0 significantly showing hepatic dysfunction due to EBV infection.

Since IM typically self-limits, there is no special therapy for it. Supportive care is the cornerstone of IM treatment. Encourage patients to continue consuming enough fluids and food. It is advised to take over-the-counter drugs to treat fever, lethargy, and sore throat symptoms. [3] In our case patient was treated with antibiotics amoxicillin clavulanic acid, azithromycin, acetaminophen as antipyretics, pantoprazole to prevent gastric irritation, ursodeoxycholic acid as hepatoprotective agent, saline gargle and steam inhalation for enlarged tonsils and throat pain. Patient was symptomatically better at the time of discharge.

## CONCLUSION

EBV is an uncommon agent that can cause acute hepatitis when infectious mononucleosis is present. It usually goes unnoticed clinically, is minor, and resolves on its own. When discriminating patients who come with a liver abnormality, fever, pharyngitis, and lymphadenopathy, we

should take infectious mononucleosis hepatitis into consideration. It provides evidence of a significant hepatitis caused by the EBV in a young, healthy adult male.

This study highlights the significance of identifying primary EBV in elderly populations, accounting for the potential reduction in characteristic IM symptoms, and raising the probability of silent hepatitis.

## Declaration by Authors

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