Acute Viral Hepatitis E Infection With Conjugated Hyperbilirubinemia In 9-Year Boy

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Abstract: Hepatitis E virus (HEV) infection is most common among acute viral hepatitis (AVH) infections in developed countries. It is an enteric virus which usually causes a self-resolving hepatitis. We report the case of a 9-year old boy who presented with anorexia, fever, pain in abdomen and jaundice. Ultrasound revealed no signs of cholestasis. Laboratory findings revealed conjugated hyperbilirubinemia, transaminitis, and bilirubinuria. There was no evidence of any autoimmune or metabolic disease, and routine viral serology was normal except for immunoglobulin M to HEV suggestive of acute origin of disease. The jaundice resolved slowly after a period of 2 months. Hepatitis E virus RNA was not detectable in the convalescent serum. This case is an example of conjugated hyperbilirubinemia seen in acute phase of viral hepatitis caused by HEV. [Shah T Natl J Integr Res Med, 2021; 12(2):67-68]

Key Words: Hepatitis E virus, transaminitis, bilirubinuria

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Introduction: Acute viral hepatitis (AVH) is a major health problem in developing countries with regard to morbidity and mortality, although it is prevalent across the world. AVH is caused by hepatitis viruses such as A, B, C, D, E and G. The most common among them are viral hepatitis A and hepatitis E in India.[1,2] Hepatitis E virus (HEV) is an enterically transmitted virus that causes an acute hepatitis.

It has an adverse outcome especially in pregnant ladies. HEV infection course is usually benign and self-resolving but it could be fatal too.[3,4] We came across a patient from a poor socio-economic class having jaundice and other significant history points that we believe was caused by HEV.

Case Report: A 9-year old male boy from poor socio-economic class came to the pediatric out-patient department of Dhiraj Hospital, Vadodara, Gujarat with complaints of decreased appetite for last 15 days, fever for last 4-5 days, pain in abdomen for last 4-5 days and yellowish discoloration of eyes for 2-3 days. The pain was constant and cramping. There was no history of regular medication and bad habit like tobacco chewing or smoking.

On Physical Examination Following Information Revealed: Blood pressure 118/72, heart rate 74 per min, respiratory rate 18 per min, blood oxygen saturation 94%, yellowish sclera (icterus), tenderness in right hypochondriac and epigastric region of abdomen were found. Liver was palpable but soft in consistency. There was no peritoneal irritation, no signs of chronic liver disease, no signs of neurological distress and no encephalopathy. No history of any recent blood transfusions. An ultrasound was performed that revealed the absence of gallstones and evidence of cholecystitis. He was provisionally diagnosed a case of Jaundice due to viral infection.

Laboratory Investigations Revealed: Blood serum sample was found icteric. A total bilirubin level= 7.4 mg/dl, direct bilirubin= 6.4 mg/dl, indirect bilirubin= 1.0 mg/dl, aspartate aminotransferase= 1228 U/L; alanine aminotransferase (ALT)= 2079 U/L; and alkaline phosphatase = 100 U/L. The hepatitis A virus (HAV), hepatitis B virus (HBV) and hepatitis C virus (HCV) antibodies were negative except for immunoglobulin M (IgM) anti-HEV which was found reactive. Urine analysis revealed physical appearance of deep yellow colour, increased specific gravity and presence of bilirubin (+++). Serum ferritin and urinary copper excretion were within normal limits.After laboratory investigations done, he finally diagnosed a case of Acute Viral Hepatitis E with conjugated hyperbilirubinemia and bilirubinuria.

Discussion: We came across a case of Acute Viral Hepatitis E with conjugated hyperbilirubinemia and bilirubinuria during a period of 3 months. Thus, it was considered as case of acute hepatocellular jaundice. Natural history viral hepatitis was also observed in this case. Raised serum transaminase level around four-five times higher than the upper limit was first detected in patient who had been suffering from symptoms for 2 weeks, as it is seen in typical of viral hepatitis condition. No any other cause of hepatitis was present as per the history. The important feature in this condition was raised conjugated bilirubin.

Usually in initial phase of hepatocellular jaundice, unconjugated bilirubin is increased because hepatocytes cannot perform conjugation properly. In chronic case when fibrosis takes place due to cellular inflammation, obstructive stage developed, which in turn leads to raised conjugated bilirubin. But here in this case we found elevated conjugated bilirubin level and its appearance in urine. This feature was found even if acute onset of disease. Presence of bilirubin in urine suggestive of cholestasis but sonography report was negative for any stone in biliary tree suggestive of intrahepatic cholestasis which is correlated with fibrosis followed by inflammation stage. Hepatitis E virus RNA, as detected by enzyme linked fluorescent assay (ELFA) was detected in the serum taken during the acute illness but was not detected in the serum taken when the patient had recovered. The presence of anti-HEV IgM is a marker of acute infection. Six IgM anti-HEV enzyme immunoassays have been compared using sera from immunocompetent individuals infected with all four genotypes of HEV.[5]

Hepatitis E is a self-resolving, enterically transmitted acute viral hepatitis. This infection occurs most frequently in epidemic outbreaks. Average incubation period of HEV infection is 40 days (range, 15–60 days) and is usually mild.[4] The highest rates of symptomatic disease have been reported in young to middle-aged adults as observed in this case. Laboratory findings in patients with HEV include elevated serum bilirubin level, raised transaminases level.

Disappearance of hyperbilirubinemia and elevated aminotransferases generally occurs within 1 to 6 weeks after the onset of illness.[6] This pattern was also observed in our case. ALT level is usually found between 1000-3000 U/L, as observed in this case but in some cases patient has modest transaminitis with ALT level is normal in blood samples taken at the time of viremia.[7]

Conclusion: We reported a case of acute viral hepatitis due to HEV infection. The characteristic feature we observed was raised conjugated bilirubin level which is otherwise seen in advanced stage of chronic hepatitis. It was suggested that acute hepatitis phase can be considered as one of the causes of conjugated hyperbilirubinemias.

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