CASE REPORT
An unusual presentation of perinatally transmitted hepatitis C

P Mohan, R S Chandra, D E Kleiner, N L C Luban

A unique presentation of perinatally acquired hepatitis C (HCV) with acute jaundice and chronic aggressive liver disease in a previously asymptomatic preadolescent is described. The difficulties in establishing the diagnosis and the importance of confirmatory testing for HCV in cryptogenic liver disease are discussed.

This report illustrates an unusual presentation of hepatitis C (HCV) with acute jaundice and rapid progression of liver disease in a preadolescent patient. It highlights the challenges in establishing the diagnosis and identifying the risk factors. Liver disease from chronic HCV in children is milder and progresses much more insidiously than in adults; decompensated liver disease is rare.1 2

CASE REPORT
An 11½ year old boy presented with acute jaundice, fever, diarrhoea, loss of appetite, and pruritis. He had no history of chronic symptoms, medications, or known ill contact. He was born at 34 weeks gestation by emergency caesarean section for placental abruption. The mother received several blood transfusions before and after delivery; the infant was not transfused. Both remained asymptomatic. The infant was breast fed briefly.

On examination, the patient had jaundice and mild hepatomegaly. Laboratory test results were as follows: total and direct bilirubin concentration, 153.9 and 125.8 μmol/l respectively; alanine aminotransferase, 199 U/l; aspartate aminotransferase, 498 U/l; γ glutamyltranspeptidase, 151 U/l. Prothrombin and partial thromboplastin time were slightly elevated. A complete blood count, serum immunoglobulins, α1 antitrypsin, and α2 antitrypsin were normal. Antibodies to hepatitis A, B, C, and D, cytomegalovirus, Epstein-Barr virus, HIV, and markers for autoimmune hepatitis were negative. A percutaneous liver biopsy showed advanced chronic hepatitis (grade 3 inflammation, stage 3 fibrosis) with a histological score of 16.1 A diagnosis of cryptogenic, chronic active hepatitis was made. Despite the HCV seronegativity, the maternal transfusion history prompted us to obtain HCV viral RNA (branched chain DNA, performed inhouse), which was positive on two separate occasions. The mother was then tested, and positive results were found for HCV enzyme immunoassay (EIA), recombinant immunoblot assay (RIBA)-2 (Strip Immunoblot assay; Chiron, Emeryville, California, USA), and HCV polymerase chain reaction (Ampli- cor; Roche Diagnostics, Somerville, New Jersey, USA); HIV antibody was negative. She had a mixed genotype of 1a and k. The donors involved in the mother’s transfusion had no evidence of exposure to HCV by history or surrogate markers. One donor tested HCV negative subsequently. The mother later admitted to intravenous drug use in the past.

Subsequently, the patient’s jaundice cleared, but the transaminase activities did not normalise and platelet count gradually fell. A second liver biopsy six months later showed worsening fibrosis. The patient remained HCV seronegative and polymerase chain reaction positive, but two years later became EIA-2 positive. The HCV genotype was 1a. A third liver biopsy after four years showed early cirrhosis. The patient failed a trial of interferon and ribavirin. He is awaiting the advent of newer treatments.

DISCUSSION
The patient’s initial presentation with acute jaundice and elevated transaminase activity was consistent with acute hepatitis, but the liver biopsy showed chronic, aggressive liver disease. This could implicate a superinfection with a hepatotrophic virus on pre-existing HCV infection, despite the lack of laboratory markers. Acute HCV infection in a patient with a previously undetected chronic liver disease was unlikely. The patient had no apparent risk factors for acute HCV infection, other than close contact with his infected mother. Perinatal transmission was the most obvious source of HCV despite circumstantial evidence.

The initial absence of HCV seropositivity was misleading and could have delayed the diagnosis but for the positive polymerase chain reaction. On the basis of 93–97% sensitivity, the HCV EIA-2 could have been falsely negative at that time. However, two years later the patient tested positive by the same generation of antibody testing. The sero-negative period far exceeded the well established “window” between the appearance of viral RNA and antibodies following acute infection.3 Cryoglobulinaemia, a cause of false seronegativity, was absent in our patient. Antibody negative HCV infection is well documented in immunocompromised patients such as organ transplant recipients and HIV infected patients.4 Persistent seronegativity has been described even in immunocompetent adults and children, caused by either failure of the host to produce antibodies or reactivity restricted to polypeptides not included in the available commercial assays.5

The unique presentation with acute jaundice in the second decade, chronic aggressive liver disease, and the diagnostic dilemma from a prolonged period of seronegativity is instructive. It challenges the clinician to consider atypical presentations of chronic liver diseases particularly from HCV while working up idiopathic acute hepatitis, despite negative screening tests.

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