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LETTER TO THE EDITOR

Hemolysis and methemoglobinemia due to hepatitis E virus infection in patient with G6PD deficiency

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Dear Editor,

A 54-year-old Chinese male hepatitis B virus (HBV) carrier presented with jaundice, cyanosis, and confusion. Despite oxygen supplement, pulse oximetry showed persistent desaturation and investigations showed raised methemoglobin (16.8%, normal <1.5%). There was also grossly raised aspartate and alanine aminotransferase (>6,000 IU), bilirubin (763 IU), and lactate dehydrogenase (5,211 IU) and he was referred for liver failure. This was followed 2 days later by a rapid fall in hemoglobin levels (from 14.1 g/dl to 5.8 g/dl) with reactive leukocytosis. A peripheral blood film showed abundant hemighost cells (arrows, Fig. 1). Glucose-6-phosphate dehydrogenase (G6PD) deficiency was confirmed (0.83 IU/g Hb, normal 6.3–10.3). Interestingly, his HBV–DNA was negative and antibodies to hepatitis A and C viruses (HAV-IgM, HCV-Ab) were undetectable. However, hepatitis E virus (HEV) IgM was positive, indicating recent infection. His relatives volunteered recent consumption of undercooked porcine liver, a major source of HEV infection in Hong Kong [1]. He was treated as HEV-related hepatitis complicate by methemoglobin and hemolysis, with hemodialysis and transfusion but died of cerebral hemorrhage.

Massive hemolysis complicating G6PD deficiency during HAV liver failure is well recognized in the Far East [2]. HEV, another non-enveloped oral-fecal transmitted RNA virus, produces a similar syndrome in the Indian subcontinent [3]. In G6PD deficiency, oxidative drugs can cause hemolysis or methemoglobinemia, rarely both at the same time [4]. This is the first report of concurrent hemolysis and methemoglobinemia related to viral hepatitis. The pathogenetic link between viral hepatitis and oxidative hemolysis is unclear, and hemolysis can occur in non-G6PD deficient patients [2]. Hence, in some cases, antibody or complement-mediated mechanisms are involved [5, 6]. In our patient, however, the methemoglobulinemia strongly suggest oxidative stress to the G6PD-deficient erythrocytes. In the liver, the G6PD-deficient hepatocytes may also be more prone to viral cytopathic effect, causing fulminant hepatitis and cholestasis [7]. Both factors may combine to lead to a high fatality rate in these cases [2, 3]. Hence, in Far East

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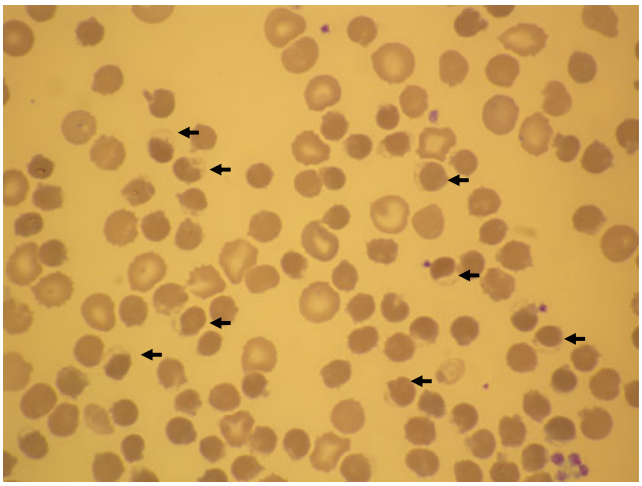

Fig. 1 Peripheral blood film showing abundant hemighost cells (blister cells, *arrows*) classical for oxidative hemolysis in glucose 6-phosphate dehydrogenase deficient patients

countries, where G6PD deficiency and raw food consumption are both common, such a clinical picture should be recognized. Proper preventive measures (e.g., vaccination and better hygiene) would also be prudent for health officials and susceptible individuals [5].

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