A Case of Hereditary Spherocytosis Coexisting with Gilbert’s Syndrome

Min-Jae Lee, Yoon Hwan Chang, Seung-Hwa Kang, Se-Kwon Mun, Heyjin Kim, Chul Ju Han, Jin Kim and Hye Jin Kang
Departments of Internal Medicine and Laboratory Medicine, Korea Cancer Center Hospital, Korea Institute of Radiological and Medical Sciences, Seoul, Korea

INTRODUCTION

Hereditary spherocytosis (HS), the most common form of inherited hemolytic anemia, is caused by a defect in one of the proteins that couples the red cell membrane skeleton to the plasma membrane. Its prevalence in Europe and North America is 1 per 2,000 persons. The primary lesion in HS is the loss of membrane surface area, leading to reduced membrane deformity, due to defects in the membrane proteins ankyrin, band 3, α-spectrin, β-spectrin, or protein 4.2. The clinical symptoms are variable but most often include anemia, jaundice, and splenomegaly. Most patients have well-compensated anemia but exhibit icterus and cholelithiasis due to chronic hemolysis.

Gilbert’s syndrome (GS) is a common cause of unconjugated hyperbilirubinemia due to diminished activity of the conjugating enzyme uridine diphosphate-glucuronosyltransferase (UGT1A1). The prevalence of GS is approximately 3-10% in the West and 3% in the East. HS and GS can coexist, but only one such case has been reported in Korea. Herein, a case of HS combined with GS that we recently encountered is presented.

CASE REPORT

The patient was a 41-year-old man who exhibited icteric
sclera and hyperbilirubinemia. His jaundice has been detected when he was 22 years old but had been observed without treatment. He had recently noticed a feeling of increased fatigue and therefore visited a gastroenterologist of Korea Cancer Center Hospital via local clinic with laboratory test which shows high total bilirubin level (10.4 mg/dL). He has 3 brothers and 2 sisters. One of his brothers had undergone cholecystectomy due to cholecystitis with multiple pigmented gallbladder (GB) stones. The patient’s height and weight were 178 cm and 58 kg, respectively. His body temperature was 36.7°C and blood pressure was 120/80 mmHg. Heart rate and respiration rate were in normal ranges. Physical examination revealed icteric sclera, but there were no abdominal tenderness and organomegaly. Bowel sound was normoactive. There were no specific finding in physical examination.

Routine laboratory tests were performed and the following results were obtained: white blood cell count, 7,580/μL; hemoglobin, 13.0 g/dL; platelet count, 250,000/μL; hematocrit, 37.2%; mean corpuscular volume, 86.9 fl; mean corpuscular volume concentration, 34.8 g/dL; AST, 14 IU/L; ALT, 11 IU/L; total bilirubin, 4.0 mg/dL; direct bilirubin, 0.5 mg/dL; and ALP, 62 IU/L. Abdominal ultrasonography showed several 6 mm GB stones and wall thickening of the GB, thereby suggesting adenomyomatosis. Splenomegaly with the largest dimension of 13 cm was also noted. The patients was initially diagnosed as GS because of the elevated indirect bilirubin level with hemoglobin levels within the normal range. However, after the detection of the GB stones and splenomegaly by abdominal ultrasonography, the patient was supposed to have concurrent hemolysis. To evaluate the possibility of hemolysis, the following laboratory examinations were performed. The haptoglobin level was found to be below 10 mg/dL (normal range, 30-200 mg/dL), and direct and indirect Coombs’ tests were negative. The peripheral blood smear (PBS) showed normocytic normochromic red blood cells (RBCs) with poikilocytosis, including spherocytosis and schistocytosis (Fig. 1). The HS was suspected due to above findings. The osmotic fragility test and autohemolysis test were performed to diagnose HS (Fig. 2). The patient’s osmotic fragility test showed increased fragility (beginning, 0.56%; ending, 0.36% NaCl), and the autohemolysis test was positive (saline, 7.0%; glucose, 1.6%). The findings in the RBC membrane protein analysis by sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE) were normal. Thus, the diagnosis of HS was confirmed and concurrent of GS was still suspected. Therefore, to confirm the diagnosis of GS, UGT1A1 genotyping was performed and it found UGT1A1 gene polymorphism (c.3279T>G, c.53[TAG] and c.211G>A[G71R]). While splenectomy was not indicated in this patient, cholecystectomy for treatment of the adenomyomatosis of the GB was recommended, but the patient...