

A Rare Cause of Hepatitis and Hydrops of the Gallbladder: Scarlet Fever

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Abstract

Scarlet fever is a common pediatric infection disease caused by Group a beta hemolytic streptococci (*Streptococcus pyogenes*). Children with scarlet fever typically present with tonsillopharyngitis, fever, and a characteristic rash. Complications of scarlet fever include acute rheumatic fever, acute streptococcal glomerulonephritis as nonsuppurative sequelae and suppurative sequelae, such as adenitis, sinusitis, cellulitis, pneumonia, and septicemia. Hepatitis and hydrops of the gallbladder are very rare complications of scarlet fever in pediatric cases. Here we report the case of a 11-year-old boy with hepatitis and hydrops of the gallbladder that was associated with scarlet fever. (*J Pediatr Inf 2015; 9: 130-3*)

Keywords: Child, hepatitis, hydrops of the gallbladder, scarlet fever

Introduction

Scarlet fever is a common pediatric infection disease that is caused by the strains of the Group A beta haemolytic streptococci (*Streptococcus pyogenes*) releasing erythrogenic toxin. Scarlet fever in childhood is typically characterized by tonsillopharyngitis, fever, acute and scarlatiniform rashes. The non-suppurative complications of scarlet fever such as acute rheumatic fever, acute glomerulonephritis and PANDAS (A pediatric autoimmune neuropsychiatric disorder-related the Group A beta haemolytic streptococci) as well as suppurative complications such as adenitis, sinusitis, cellulite, pneumonia, septicemia, necrotizing fasciitis and osteomyelitis have an impact over the mortality and morbidity of the disease (1, 2).

Hepatitis and hydrops of the gallbladder are very rare complications of scarlet fever. In this study, we report the case of an 11-year-old boy with hepatitis and hydrops of the gallbladder diagnosed with scarlet fever.

Case Report

An 11-year-old male patient applied with the complaints of hepatitis, nausea, vomiting, abdominal pain and rashes. It was learnt that the patient had the complaints of sore throat and fever 5 days before hospitalization, and rashes on the body and neck appeared. In the physical examination of the patient, icterus, scarlatiniform rashes, pastia lines, red strawberry tongue, right upper quadrant tenderness and hepatomegaly were found. While leukocyte count in the laboratory investigation was 18,600 cell/mm³, there was the 74% neutrophil dominance in the peripheral smear. Serum C-reactive protein level was 6.2 mg/dL, sedimentation rate 42 mm/hour. It was found that alanine aminotransferase (ALT) value of the patient was 684 IU/L, aspartate aminotransferase (AST) value 622 IU/L, total bilirubin 4.6 mg/dL, direct bilirubin 2.8 mg/dL, gamma glutamic transpeptidase 316 IU/L and alkaline phosphatase 368 IU/L. Hepatitis A, B, C virus together with Epstein Barr virus and cytomegalovirus serologic examinations were negative.

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Table 1. Age, gender, clinical and laboratory findings and treatment summary of the pediatric cases developing hepatitis, hydrops of the Gallbladder and /or splenomegaly in the course of scarlet fever presented in the literature

Authors	Age/Gender of the Cases	Diagnosis	Complaints and Clinical Findings	Laboratory Findings	Treatment
Girisch et al. (3)	6 years old / Male	Scarlet fever, hepatitis	* Fever, rashes, sore throat * Condensation in the urine color, light-colored stool on the 5 th day of the scarlet fever course	* AST 30 U/L, ALT 110 U/L, GGT 78 U/L, total bilirubin 1.8 mg/dL, ALP 511 U/L * AGBHS Quick antigen test is positive	Erythromycin
	7 years old / Male	Scarlet fever, hepatitis	* Fever, rashes, sore throat * Condensation in the urine color, light-colored stool on the 4 th day of the scarlet fever course	* AST 91 U/L, ALT 133 U/L, GGT 238 U/L, total bilirubin 2.7 mg/dL, direct bilirubin 0.6 mg/dL, ALP 511 U/L * AGBHS growth was detected in the throat culture.	Vancomycin and cefotaxime
Güven (4)	2.5 years old / Male	Scarlet fever, hepatitis	* Fever, rashes * Hepatitis, hematuria	* High liver function test results	-
Elishkewitz et al. (5)	9 years old / Male	Scarlet fever, hepatitis	* Rashes, fever, sore throat * Abdominal pain, nausea, vomiting, condensation in the urine color on the 4 th day of the scarlet fever course	* AST 40 U/L, ALT 90 U/L, GGT 70 U/L, total bilirubin 1.5 mg/dL, direct bilirubin 0.5 mg/dL, ALP 511 U/L * AGBHS growth was detected in the throat culture.	Amoxicillin
Gidarıs et al. (6)	6 years old / Male	Scarlet fever, hepatitis	* Fever, rashes, white strawberry tongue, pastia lines, sore throat * Condensation in the urine color on the 4 th day of the scarlet fever course, abdominal pain	* AST 179 U/L, ALT 199 U/L, GGT 149 U/L, total bilirubin 4.4 mg/dL, direct bilirubin 3.5 mg/dL	Cefuroxime
Koçak et al. (7)	12 years old / Female	Scarlet fever, hepatitis	* Fever, sore throat, rashes, strawberry tongue * Hepatomegaly	* AGBHS growth was detected in the throat culture. * Bilirubinuria * Increased polymorphonuclear leukocyte infiltration in the portal region in the liver biopsy and degenerative changes in the hepatocytes	-
	9 years old / Female	Scarlet fever, hepatitis	* Fever, sore throat, rashes, tonsillitis * Nausea, vomiting, hepatitis on the 3 rd day of the scarlet fever course	*Bilirubinemia	-
Çiftçi et al. (8)	4 years old / Male	Scarlet fever, hepatitis	* Fever, sore throat, rashes, strawberry tongue * Nausea, vomiting, hepatitis on the 3 rd day of the scarlet fever course	* AST 480 U/L, ALT 511 U/L, GG T 105 U/L, Total bilirubin 2.9 mg/dL, direct bilirubin 1.4 mg/dL * AGBHS growth was detected in the throat culture.	Benzathine Penicillin
Strauss (9)	5.75 years old / Male	Scarlet fever, Hydrops of the Gallbladder	* Fever, sore throat, rashes * Abdominal pain, vomiting, condensation in urine color on the 3 rd day of the scarlet fever course * Right upper quadrant tenderness, splenomegaly, icterus	* Total bilirubin 4.1 mg/dL, direct bilirubin 2,6 mg/dL	*Benzyl penicillin *Benzathine Penicillin
Rocco et al. (11)	4 years old / Female	Scarlet fever, Hydrops of the Gallbladder	-	-	-
Wang et al. (12)	15 years old / Female	Scarlet fever, Hydrops of the Gallbladder splenomegaly	* Fever, sore throat, rashes, strawberry tongue * Abdominal pain on the 4 th day of the scarlet fever course * Hepatomegaly, splenomegaly, acid	* AST 273 U/L, ALT 353 U/L, GGT 230 U/L, Total bilirubin 1,8 mg/dL * Bilirubinemia	Cefuroxime and vancomycin

ALT: alanine aminotransferase; AST: aspartate aminotransferase; GGT: gamma- glutamyl aminotransferase; ALP: alkaline phosphatase; AGBHS: group A β-hemolytic streptococcus

Anti-streptomycin O (ASO) titre was 560 IU/mL, hydrops in the gallbladder and mild diffuse changes and hepatomegaly were found in the ultrasonography examination. No gallbladder stone or any structural anomaly that could explain the hydrops gallbladder was found in the ultrasonography examination. *S. pyogenes* was isolated in the throat culture. No growth was found in the blood culture. Following ten days of oral penicillin treatment, the patient had clinical recovery; laboratory and ultrasonography findings of hepatitis and hydrops gallbladder improved on the third week.

Discussion

Hepatitis and hydrops of the gallbladder are very rare complications of scarlet fever. In the literature review, only 7 scarlet fever-related hepatitis cases and only 2 pediatric cases with hydropic gallbladder were found (3-10). In their study, Rocco et al. (11) presented the case of a 4-year-old girl with scarlet fever-related hepatitis and hydropic gallbladder; Wang et al. (12) presented the case of a 15-year of girl with scarlet fever-related hepatitis and hydropic gallbladder, splenomegaly and acidic (Table 1).

The etiology of scarlet fever-related hepatitis is not known categorically. It has been claimed that in the course of scarlet fever, streptococcal pyrogenic exotoxins may cause hepatitis by causing cellular damage via cytokine (11-13). Girisch et al. (3) emphasized that hepatitis might develop in scarlet fever-related hepatitis, but hepatitis might not be detected in some cases due to anicteric course. In the case we presented, the patient applied with the complaints of scarlet fever-related complaints and hepatitis, nausea, vomiting, abdominal pain on the 5th day of the symptoms; as a result of clinical, laboratory and ultrasonography examination, the diagnosis of hepatitis and hydrops of the gallbladder was made.

Hydrops of the gallbladder is very rare pediatric disease. Hydrops of the gallbladder is defined as acute enlargement in the gallbladder without gallstone or congenial gallbladder abnormalities. Even though the etiology of hydrops of gallbladder developing throughout the course of scarlet fever is not definitively known, it is thought that as a result of streptococcal pyrogenic exotoxins-related cytokine-mediated damage or systemic situation-related gallbladder stasis such as fever, hydropic sac may develop (10-12).

Conclusion

In this case study, hepatitis and hydrops of the gallbladder diagnosed with scarlet fever was presented.

Scarlet fever in general is a benign infectious disease with an appropriate anti-biotherapy, but it should be remembered that it may, though rarely, cause serious complication such as hepatitis and hydrops of gallbladder.

Informed Consent: Written informed consent was obtained from parent of patient.

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