Typhoid Fever Complicated By Multiple Organ Involvement In A Child

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SUMMARY

A 12-year old girl was admitted to our clinic because of fever, headache, diarrhea and weakness for 10 days. Dyspne, tachycardia, hypotension, fever and letargy were determined in physical examination. The levels of urea, creatinine, aspartate aminotransferase, alanine aminotransferase were found to be increased. In echocardiography, myocardial dysfunction and low systolic functions were detected. Blood culture was positive for S.typhi. We report multiple organ involvement in a patient with typhoid fever and review the literature.

Keywords: Typhoid fever, myocarditis, hepatitis, renal failure

Bir Çocukta Multiorgan Tutulumu Gösteren Tifo Ateşi

ÖZET

12 yaşında kız çocuğu kliniğimize 10 günden beridir olan ateş, baş ağrısı, ishal ve halsizlik nedeni ile başvurdu. Fizik muayenede taşikardi, dispne, hipotansiyon, ateş ve uyku hali tespit edildi. Laboratuvar incelemede üre, kreatinin, aspartat ve alanin aminotransferaz düzeyleri yükselmiş bulundu. Ekokardiografik değerlendirmede sistolik fonksiyonlar azalmış ve miyokardiyal disfonksiyon belirlendi. Kan kültüründe S.typhi üredi. Enterik ateşli bir hastada çoklu organ tutulumunu literatür eşliğinde sunmayı amaçladık.

Anahtar kelimeler: Enterik ateş, miyokardit, hepatit, böbrek yetmezliği

INTRODUCTION

Typhoid fever remains an important public health problem in developing countries. It is an acute systemic illness and characterized by bacterial invasion via Peyer's patches, bacteremia, and multiplication within the mononuclear phagocytic cells of the liver, spleen, and lymph nodes, generally caused by Salmonella typhi[1]. Various organs have been involved in the course of typhoid fever, resulting in a wide spectrum of presentations including gastroenteritis, hepatitis, myocarditis, renal failure[2,3,4]. In this article we report a patient with multiple organ involvement by blood culture positive Salmonella typhi (S.typhi) infection and review the literature.

Case report

A 12-year old girl was admitted to our hospital because of fever, headache, diarrhea and weakness for 10 days. The pulse rate was 125/minute, blood pressure 70/40 mmHg, respiratory rate 28/minute and axillary temperature 38.4°C, urine excretion normal. On admission, physical examination revealed dyspne, tachycardia and letargy. Hepatomagly,

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splenomegaly, murmur, and meningeal irritation findings (nuchal rigidity, Kernig, Brudzinski) were not determined. The leucocyte count was 7.000/mm³ (72% polymorphs, 24% lymphocytes, 4% monocytes), heamoglobin 11gr/dl, hematocrit 34%, sedimentation rate 24mm/hr and CRP (C-reaktive protein) 112 mg/L (n:0-8 mg/L). Urine examination showed mild proteinuria (1+) and haematuria (1+). Serum urea concetration was 70 mg/dl (n:0-50mg/dl), creatinine 1.7 mg/dl, aspartate aminotransferase (AST) 366 U/L, alanine aminotransferase (ALT) 203 U/L. Levels of C3, C4, total protein, albumine, cholesterol and serum electrolytes were normal. The stool examination showed fecal occult blood test was positive. Viral serological markers, including hepatit B surface antigen, antihepatitis A immunoglobulin M, anti hepatitis C were negative. S.typhi antibody titres (typhoid O and H) were negative, but blood culture was positive for S.typhi. Pro-BNP (brain natriuretic peptide) concetration was 432 pg/mL (n:0-110 pg/mL), creatinine kinase-MB(CK-MB) 43 U/L (n:0-24 U/L). Chest X-ray, electrocardiography (ECG), myoglobin and troponine levels were normal. Echocardiography (ECHO) revealed myocardial dysfunction. Ejection fraction (EF) was 58% and systolic functions were low. Ultrasonography of abdomen revealed minimal hepatosplenomegaly and normal kidneys. Dopamine was initiated for myocardial dysfunction and hypotension for four days. She was treated with seftriaxon according to antibiotic sensitivity testing for 14 days. Her body temperature became normal after three days; tachicardia, hypotension and irritability after 48 hours. The urinalysis (haematuria, proteinuria) and renal functions returned to normal (urea:28mg/dl, cre:0.4mg/dl) one week later. AST (26U/L), ALT (31U/L), pro-BNP (89.4pg/ml) levels and ECHO were normal after four weeks.

DISCUSSION

Typhoid fever is endemic in developing countries and may cause very different clinical findings in children. It is a severe disease with a variety of complications including hepatitis, myocarditis and renal failure. Asymptomatic hepatitis commonly occurs in typhoid fever, with most patients having only minor elevations of AST and ALT. Shetty AK et al. studied 100 patients with culture-proven typhoid fever and found hepatic dysfunction in eight patients[2]. Ozen H et al. reported hepatitis in a 10 years old child with typhoid fever[5]. Yaramis A et al. studied a total of 314 patients with clinical and/or laboratory diagnosis of typhoid fever and observed 32% elevated AST and ALT in a total of 314 patients[6]. Katar S et al. reported 19 patients with blood culture proven enteric fever and elevation of AST and ALT were described in nine (47%)[7]. Secmeer G et al. studied a series of patients with s.typhi infections and reported elevation of AST and ALT in 68,5%[8]. In our patient only AST and ALT were elevated and other clinical findings of hepatitis were not described. Myocarditis is a rare clinical complication in children with typhoid fever. The incidence of myocarditis during typhoid fever is contradictory[9]. Baysal K et al. evaluated sixty-six patients with salmonella typhi infections and cardiac involvement was described in three cases (4.5%) of typhoid fever[10]. Aka S et al studied 22 patients with enteric fever and determined toxic myocarditis in a child[11]. Kuchar E et al. reported myocarditis in an eight years old boy with stool culture proven Salmonella typhi[12]. The diagnosis of myocarditis is supported with ECG and ECHO. In our patient, diagnosis was supported with ECG and ECHO. Renal involvement is a rare manifestation of typhoid fever[13]. Occasionally, renal manifestation of typhoid fever is acute, transient and reversible glomerulonephritis with proteinuria or hematuria[14]. Simpson J et al. reported non-oliguric renal failure in a 11 years old boy who was treated with ciprofloxacin successfully[3]. Hayashi M et al. reported a case of endemic acquried typhoid fever associated with acute renal failure probably due to acute nephritic syndrome successfuly treated with levofloxacin[14]. The cause of acute renal failure in our case may be related to the S.typhi septicemia. Renal functions and urinalysis returned to normal with antibiotic and supportive therapy one week later.

In conclusion, our paper highlights the complications of multiple organ involvement

in typhoid fever. In these patients diagnosis is difficult and physicians must be careful. In order that; early diagnosis, promptly supportive and antimicrobial treatment, are crucial for patients with typhoid fever.

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