

Paratyphoid Fever with Myocarditis and Nephritis: A Case Report

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Typhoid fever with myocarditis and nephritis has been reported in various studies as uncommon or rare. The data regarding Paratyphoid fever with myocarditis or nephritis is sparse. Here we report a case of 20 years old man with Paratyphoid A fever with myocarditis and nephritis.

Keywords: myocarditis, nephritis, paratyphoid fever, typhoid fever.

Typoid fever is a potentially life threatening multi-systemic disease and Paratyphoid fever is traditionally thought to be a relatively benign disease in comparison with Typhoid fever.¹ Toxic myocarditis is reported in 1-5 % of the patients with Typhoid fever,² and Typhoid nephritis is reported as uncommon,³ or even rare.⁴ However, data regarding Paratyphoid fever with myocarditis or nephritis is sparse and is deemed to be rare. Here, we present a case of 20 year old man with Paratyphoid A fever with myocarditis and nephritis.

Care Report

A 20-year-old man presented in Emergency Department with history of fever for 8 days (maximum temperature recorded was 104^o F) associated with chills, sweating, headache and nonproductive cough. He also had loose bowel motion (2-3 times per day, greenish in color) with mild abdominal pain for 4 days.

On examination, he was alert, febrile (temperature 103.8^o F), had pulse rate of 112 beats per minute with frequent drop beats and blood pressure of 120/70 mmHg. His systemic examination was non-

contributory except for irregular heart sounds. His complete blood count, random blood sugar, kidney function test and serum magnesium were normal and liver enzymes were mildly elevated. His urinalysis showed plenty of red blood cells (RBCs) and trace albuminuria. Electrocardiogram (ECG) was done and it revealed frequent unifocal atrial premature contractions (APCs), without ST-T changes. His chest X-Ray was normal.

A provisional diagnosis of Enteric Fever was made and the patient was admitted and started on Injection Ceftriaxone 2 gm IV twice a day. Ultrasonogram (USG) of abdomen showed increased bilateral renal echogenicity with mild splenomegaly. Echocardiogram (ECHO) revealed abnormal kinesis of interventricular septum (IVS) and left ventricular ejection fraction (LVEF) was 47%. Repeat urinalysis for RBC morphology in fresh urine sample revealed mostly crenated RBCs. The patient became afebrile after 72 hours and his blood C/S report at 96 hours showed growth of *Salmonella paratyphi A* sensitive to Ceftriaxone, Azithromycin and Chloramphenicol but was resistant to Nalidixic acid. Injection Ceftriaxone was continued for full 2 weeks and patient was discharged.

At 2 weeks' follow up after discharge, the patient was doing fine. His repeat ECG and urinalysis were normal.

At 4 weeks' follow up after discharge, repeat USG of abdomen showed normal echotexture of both kidneys and normal spleen size. Repeat ECHO revealed LVEF of 50% but the regional wall motion

abnormality of IVS persisted.

At 12 weeks' follow up for repeat ECHO, revealed LVEF of 55% and reversal of wall motion abnormality.

Discussion

Enteric Fever is caused by *Salmonella enterica* serovar typhi or *Salmonella enterica* serovar paratyphi A, B or C. The disease is endemic in many developing countries with an estimated 21 million cases per year and over 200,000 deaths.⁵ Toxic Myocarditis is reported in 1-5% of patients with Typhoid fever.² However, data regarding paratyphoid fever and myocarditis is sparse. Myocarditis is used to describe an inflammatory process with necrosis of myocardium. It usually forms a part of generalized infection, most commonly initiated by viral infection but may be caused by drugs, toxins, hypersensitivity reactions, collagen vascular disease and autoimmune reactions and less commonly due to other infections like bacteria, rickettsia, spirochete, fungi and protozoa. Clinically, most myocarditis are asymptomatic, but may cause dizziness, syncope, palpitation and sometimes may be fatal due to fulminant congestive heart failure or ventricular arrhythmia. ECG changes of myocarditis include QTc prolongation (29%), ST-T changes (20%), bundle branch block (7%), first degree heart block (7%) and arrhythmia (2%).⁶ Traditional echocardiographic findings are left ventricular regional or global dysfunction, and left ventricular dilatation, however in addition to left ventricular dysfunction, right ventricular dysfunction,

asynergic ventricular areas, left ventricular hypertrophy, ventricular thrombi and restrictive ventricular filling may be seen.⁷ Our patient was asymptomatic but had frequent APC's on ECG and had abnormal kinesis of inter ventricular septum with LVEF of 47% in echocardiography.

Typhoid nephritis is regarded as uncommon,³ or even rare,⁴ however data regarding Paratyphoid nephritis is sparse. The mechanism of glomerular injury in Enteric glomerulonephritis is possibly immune complex mediated; but deposition of Vi antigen has been documented only in few cases. Mesangial deposition of IgA, IgG & C₃ is common.⁸

Although, our patient did not have classic Nephritic syndrome with edema, oliguria, and hypertension, he had puffy face, plenty of RBCs in urine and urine RBC morphology examined in fresh urine sample showed crenation indicating that the hematuria was glomerular in origin and USG of abdomen showed increased bilateral renal echogenicity and mild splenomegaly. Repeat USG of abdomen and urinalysis was performed 4 weeks after discharge. USG of abdomen showed normal echotexture of both kidneys and urinalysis showed complete resolution of hematuria.

Salmonella paratyphi A is thought to cause milder disease than Salmonella typhi, with predominantly gastrointestinal symptoms.⁹ However, recent studies indicate that Salmonella paratyphi A is an increasingly important cause of enteric fever^{10,11} and Salmonella paratyphi A can cause clinical syndrome indistinguishable from

Salmonella typhi,¹² and Salmonella paratyphi isolates have been found to be more resistant to Nalidixic acid than Salmonella typhi isolates.¹²

Conclusion

Paratyphoid A fever with myocarditis and nephritis is rare. But with Paratyphoid A fever as an emerging enteric fever in Asia both in prevalence and resistance, multisystemic complications due to it may become more common and hence more reported in the future.

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