Acute Myocarditis Precipitated by Salmonella Montevideo Infection: A Case Report

Sir - A 19-year-old male was admitted in September with a two day history of a febrile illness associated with generalised abdominal pain, nausea, vomiting and diarrhoea. Two weeks prior he had returned from holiday in Spain during which he had suffered some mild cramping abdominal pain. He had no prior history of gastrointestinal disease. No family members complained of similar symptoms.

After admission, diarrhoea worsened with ten watery stools per day without evidence of blood per rectum. He developed rigors, sweating and a sinus tachycardia 115/min. Abdominal exam revealed generalised tenderness with no rebound, increased bowel sounds and rectal exam revealed liquid stool which tested negative for blood. A diagnosis of acute gastroenteritis was made. The patient was admitted to an isolation unit, blood and stool cultures were reserved and IV fluid therapy commenced. WCC was 10.4 X 10^9/L, Granulocytes 7.6 X 10^9/L with left shift. ECG on admission demonstrated right ventricular complexes in the anteroseptal leads but was otherwise unremarkable (Figure 1). A chest X-ray was normal.

On day 4, the patient complained of sharp central chest pain aggravated by deep inspiration. Clinical examination revealed a persistent sinus tachycardia and the new development of a third heart sound. ECG was repeated and demonstrated concave ST segment elevation in the infero-lateral leads (Figure 2), which subsequently evolved to symmetrically inverted T waves over the next several days (Figure 3). CPK was 589 IU/L (Range 55-170), MBCK 64 IU/L (Range 1-16; 10.8%), AST 102 IU/L (Range 10-36), LDH 1250 IU/L (Range 313-618). The enzyme abnormalities returned to normal over the next several days. A 2D echocardiogram with doppler study was performed which showed normal systolic function and, specifically, no regional wall motion abnormalities. Salmonella Montevideo was isolated from stool culture.

A diagnosis was made of acute myocarditis complicating Salmonella Montevideo enteritis. Myocardial infarction was considered unlikely in view of the echocardiography findings. The patient was commenced on Ciprofloxacin therapy. He made an uneventful recovery and was discharged home on day. Upon review at the out-patient clinic one month later he remained clinically well and all ECG changes had returned to normal. Given normal systolic function on the echocardiogram, his long term prognosis should be good.

Acute myocarditis is considered to be a precursor for dilated cardiomyopathy and congestive heart failure. When presented with cases of supposedly idiopathic dilated cardiomyopathy, the cause is frequently attributed in clinical practice to unknown "viral" infections occurring in the remote past. Heart disease has occasionally been reported with typhoid fever, in which myocarditis, pericarditis, endocarditis and asymptomatic ECG changes have all been described. We now report a novel and alternative aetiology for acute myocarditis, caused directly by the Salmonella Montevideo serotype. A Medline literature search dating back to 1966 failed to reveal any prior association.

The incidence of non-typhoid Salmonella infections is rising steadily throughout the western world. It is likely therefore that further complications from infections with other salmonella serotypes will be described. Consequently, salmonella infections must be considered more commonly in the aetiology of acute myocarditis.

Most viral causes of acute myocarditis, especially Coxsackie virus infection, have no specific treatment. Acute Salmonella Montevideo bacteremia is amenable to treatment with Ciprofloxacin and other antibiotics. Although, diarrhoeal illnesses due to salmonella infection are not routinely treated with antibiotics, we propose that early antibiotic treatment for salmonella infection is appropriate, once cardiac complications are manifest, with the aim of reducing the risk of progression to dilated cardiomyopathy.

Mortality from congestive heart failure has not changed throughout the western world, although the incidence of coronary heart disease is falling. As the incidence of myocardial infarction falls in Ireland, it is anticipated that the ratio of non-coronary to coronary causes of dilated cardiomyopathy will rise. This underscores the requirement to thoroughly investigate new cases of acute myocarditis looking for treatable causes.

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References