

Salmonella Paratyphi A Induced Pancytopenia - A New Association

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Abstract

A case of salmonella paratyphi A fever with reversible pancytopenia in a 15 years old boy who presented with history of high grade continuous fever, epistaxis and haemoptysis, relative bradycardia and splenomegaly is described here. A brief review of the literature on possible causes of reversible pancytopenia in this case is also discussed.

Introduction

Almost all cases of enteric fever are associated with some degree of neutropenia but pancytopenia is rare. Pancytopenia may be induced by drugs used for treatment of enteric fever. Chloromycetin may cause irreversible fatal pancytopenia in genetically determined individuals due to idiosyncratic response at any time and at any dosage^{1,2}. There may also be a dose dependent, transient, reversible chloromycetin induced pancytopenia when the drug is used at full dosage for one to two weeks or longer². Pancytopenia may also be caused by salmonella typhi³⁻⁶. A case of pancytopenia induced by salmonella paratyphi A is presented here.

Case Report

A fifteen years old boy was admitted with two weeks history of continuous high grade fever along with dry cough, haemoptysis and epistaxis which started on fourth day of illness. On examination he was toxic and pale. He had high fever temperature (104°C), relative bradycardia and splenomegaly. Rest of the systemic examination was normal. Blood samples were taken for complete blood picture, Widal test and blood culture. The total haemoglobin was 11 gm/dl and total leucocyte count 8.2x10⁹/l with 58% polymorphonuclear leucocyte, Widal titre to salmonella paratyphi A antigen was 1:160, X-ray chest was normal. Urinalysis and stool examination were normal. A provisional diagnosis of enteric fever was made. Chloromycetin 50 mg/kg/day in four divided doses was started. There was no clinical improvement after four days therapy. Blood culture yielded growth of salmonella paratyphi A resistant to Chloromycetin, Tetracycline, Vibramycin, Cotrimoxazole and Amoxicillin but sensitive to Ofloxacin and Ciprofloxacin. Chloromycetin was immediately replaced by Ofloxacin 400mg twice daily. On twenty-fourth day of illness the patient developed malena and multiple petechial haemorrhages into the skin and oral mucosa. He was still febrile. Haemoglobin at this stage was 5.3 gm/dl. Total leucocyte count dropped to 2.3x10⁹/l of which neutrophils were 50%. Platelet count was 20x10⁹/l. This picture was suggestive of pancytopenia. He was transfused one unit of whole blood and two units of packed red blood cells. Patient had not taken any medicines before hospitalization. On twenty eighth day of illness, the fever started settling and haemoglobin came upto 8.7 gm/dl. Total leucocyte count stepped up to 4.2x10⁹/l. One more unit of whole blood was transfused. He was afebrile on thirtieth day of illness and after ten days therapy with Ofloxacin. The epistaxis and malena also stopped at this stage. Thereafter, the patient made a smooth and rapid recovery. Ten days after his fever was settled, the platelet count improved to 170x10⁹/l, haemoglobin was 14.3 gm/dl and total leucocyte

count was $6.7 \times 10^9/l$ indicating reversal of pancytopenia. Bone marrow was not done initially because patient was bleeding from various sites. However, it was carried out in the convalescence and it revealed a normocellular marrow with a reticulocyte count of 0.3%, suggesting a good recovery from bone marrow suppression. The repeat blood, stool and urine culture were negative in the convalescence.

Discussion

Neutropenia is considered to be a diagnostic feature in all cases of enteric fever, however, pancytopenia is rare. Only four cases of pancytopenia associated with typhoid fever have been reported in the last 15 years⁴⁻⁷. A case of haemophagocytic histiocytosis and medullary aplasia in typhoid fever was reported in 1983⁴. Typhoid fever was associated with pancytopenia in another five patients in whom, bone marrow examination revealed histiocytic hyperplasia with marked phagocytosis of platelets, leukocytes and red blood cells⁵. In another patient typhoid fever was associated with histiocytic medullary reticulosis and pancytopenia⁶. One patient had typhoid hepatitis and pancytopenia⁷. To the best of our knowledge, pancytopenia has not been described so far in association with Salmonella Paratyphi A infection. Pancytopenia may also be caused by Chloromycetin used for treatment of enteric group of fevers⁷. The pathogenesis of Chloromycetin induced pancytopenia is unclear. It may either be idiosyncratic or dose dependent. The dose dependent insult results in red cell maturation defects which appear when a dose of 50 mg/kg/day is used and blood levels of the drug remain above 25-30 micrograms/ml for more than 1-2 weeks³. There is complete recovery from this type of pancytopenia after withdrawal of the drugs. The idiosyncratic type of response to Chloromycetin may occur in genetically determined individuals at any time and at any dosage^{1,2}. Fatal aplastic anaemia has been reported even after topical administration of ophthalmic Chloromycetin⁸. In our patient, the pancytopenia cannot be due to dose dependent effect of Chloromycetin because he received the drug only for four days. Similarly, it is unlikely to be due to idiosyncratic response to Chloromycetin because then it would have been irreversible. The other possible cause of pancytopenia in our patient might be due to Salmonella Paratyphi A infection because this strain was multi-drug resistant and response to Ofloxacin was delayed.

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