

***Salmonella enteritidis* bacteraemia in a thalassaemia major patient; a case report**

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Introduction

Non-typhoidal *Salmonella* (NTS) species are important food borne pathogens with acute gastroenteritis being the most common clinical manifestation. However, (NTS) is increasingly recognized as an important pathogen associated with bacteraemia especially for patients with risk factors such as immunosuppression, haemoglobinopathies and extremes of age (1). Invasion beyond the gastrointestinal tract occurs in approximately 5% of the patients with NTS gastroenteritis resulting in bacteraemia (2) while *Salmonella enteritidis* showing the highest blood invasiveness (3). *Salmonella enteritidis* is usually transmitted to humans by contaminated foods of animal origin and healthy person's risk for infection is low. The overall mortality rate has been reported to be 15% in children with extra intestinal NTS infections (4). We report a case of *Salmonella enteritidis* causing bacteraemia in a child with thalassaemia major.

Case Report

A six-year old, male child with thalassaemia major was admitted to Teaching Hospital, Anuradhapura, Sri Lanka for routine blood transfusion. On admission, he was apparently well and Hb was 8.2g/dL. One day after blood transfusion he developed fever with left sided parotid swelling. There was no history of recent or ongoing acute gastroenteritis. Immunization was up-to date. Social history did not reveal any association with poultry. On examination, child was febrile and a parotid swelling was noticed. His heart rate was 120/min and respiratory rate was 30/min. Apart from mild pallor, enlarged firm spleen and liver rest of the clinical examination was unremarkable.

His total leucocytes were $5 \times 10^9/L$ with 50% neutrophils, 47% lymphocytes and 3% eosinophils.

Haemoglobin was 12.6 g/dL. Erythrocyte sedimentation rate was 38 mm. Blood cultures were taken on admission. After 24 hours of incubation subculture was made on routine culture media and non-lactose fermenting gram negative bacteria (GNB) was isolated. Isolate was identified as *Salmonella spp.* according to the standard microbiological techniques (5). At this point we requested to obtain specimens for culture from parotid discharge and stool. Serotyping was performed according to Kaufmann-White scheme using O and H antisera and the organism was identified as *Salmonella enteritidis* (6). Antibiotic susceptibility testing was determined by using the Strokes disk diffusion method.

After taking blood cultures patient was started on empirical intravenous ampicillin and cloxacillin and they were changed to intravenous gentamicin and cefuroxime after positive identification of the organism. Patient was discharged home after completing the treatment.

Discussion

Salmonella infections in the pediatric age group carry special significance as they are associated with high morbidity and mortality. In recent years, NTS bacteraemia has been increasingly reported as a cause of life-threatening infection among high risk patients. Extra intestinal sites other than bacteremia associated with NTS include soft tissue abscesses, pneumonia and septic arthritis (2). NTS have also been isolated from cerebrospinal fluid from patients with underlying risk factors such as agammaglobulinaemia, thalassaemia and AIDS (3). In addition NTS serogroups to invade the bloodstream was significantly influenced by the patient's age (7).

In this case report in addition to NTS bacteraemia patient had a parotid swelling. However, we couldn't correlate this patient's soft tissue swelling as a focus of infection for salmonella bacteraemia, as we didn't receive appropriate specimens. However, with treatment the swelling subsided. Neck abscess caused by salmonella has been reported in a thalassaemia major patient previously (8). In our patient, stool culture was negative for salmonella. According to the antibiotic sensitivity pattern, this isolate was resistant only to ampicillin. However, in some countries > 50% of the isolates associated with NTS bacteraemia were resistant to multiple drugs including ampicillin and it is a major challenge in the treatment of invasive NTS infections.

Our laboratory Antibiotic Sensitivity Testing protocol doesn't include gentamicin for salmonella, as salmonella is a facultative intracellular pathogen and difficulty in penetration of aminoglycosides into cells. However, our patient was given gentamicin in addition to cefuroxime. In this case report we wish to highlight the use of appropriate antibiotics in correct dosage to minimize antibiotic resistance development especially for sensitive isolates. On the other hand there are reports where gentamicin has been used for multiple drug resistant Salmonella typhi isolates as an alternative (10).

The gold standard for diagnosis of salmonella infections is blood culture. Serological tests such as Widal tests are of limited value due to the poor sensitivity as well as interpretation difficulties.

Early identification and prompt antibiotic therapy can be life saving because of the high mortality and morbidity associated with disease especially in high risk patients.

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