

# Case Report

## TOE ABSCESS WITH SALMONELLA TYPHIMURIUM IN SICKLE CELL ANEMIA PATIENT

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### ABSTRACT

Salmonella are a rare cause of toe abscess. We report a case of Salmonella typhimurium in sickle cell anemia in a pediatric patient. The isolate was sensitive to commonly used antibiotics and the patient was treated successfully with a course of amoxicillin.

**Keywords:** Salmonella typhimurium - sickle cell disease

### RESUME

Les Salmonella sont des germes rarement causant l'abcès des doigts et de pied. Nous rapportons un cas de salmonella typhimurium chez un enfants atteint de drépanocytose l'identification bactériologique du germe à été sensible aux antibiotiques communément utilisés et le patienta bien répondu au traitement d'amoxicilline.

**Mot clés:** Salmonella typhimurium - Drépanocytose

### INTRODUCTION

Patients with sickle cell disease (SCD) are susceptible to a variety of bacterial infections, which are a major cause of morbidity and mortality. This increased susceptibility to infections is related to abnormalities in the defense mechanisms of these patients, including functional hyposplenism, an abnormality in the alternative pathway of complement activities, and defective neutrophil function [1]. Abscess is the rare manifestations of nontyphoidal Salmonellosis. Although gastrointestinal symptoms occur in 50% of cases, bacteremia and concomitant positive stool cultures are rare for nontyphoidal salmonella infections [2]. Although osteomyelitis, soft tissue, urine, gastrointestinal tract, infective endocarditis, septic arthritis and splenic abscess due to Salmonella typhi and other Salmonella species have been reported in sickle cell anemia patients [1,2,3,4,5], none were toe abscess with Salmonella typhimurium. Here we describe a rare case of toe abscess due to Salmonella typhimurium in sickle cell anemia patient.

### CASE PRESENTATION

A known case of sickle cell anemia patient with 1 year 7 months old female attended to pediatric Out Patient Department (OPD) of King Faisal hospital, Rwanda, Kigali, with fever for one week without cough and an abscess on the middle toe of right foot for one week. No other abnormalities were noted on systemic examination. The investigations revealed: Haemoglobin 7.4 gms/dl, erythrocyte count  $2.7 \times 10^{12}/L$ , total WBCs  $19.0 \times 10^9/L$  with lymphocytes  $10.67 \times 10^9/L$  and thrombocytopenia ( $93 \times 10^9/liter$ ); Widal agglutination test showed non

significant titre (titre < 1/20) and blood cultures were negative. From toe abscess aspirate salmonella species was isolated and identified by using API 20E (BIO MERIEUX). It is confirmed as Salmonella typhimurium from National Reference Laboratory (NRL), Kigali. The sensitivity was assessed by the Kirby-Bauer disc diffusion method using Mueller-Hinton agar [6] and the concentrations of discs were: ampicillin, 30 µg; amoxicillin/ clavulanic acid 20 µg/10 µg; ofloxacin, 5 µg; ceftriaxone, 30 µg; chloramphenicol, 30 µg; ceftazidime, 30 µg; and cotrimoxazole 1.25 µg/23.75 µg. The Salmonella typhimurium were sensitive to all the above drugs. The patient was treated successfully with a course of amoxicillin syrup 125mg 8 hourly for 7 days and recovered from the abscess.

### DISCUSSION

The bacterial genus Salmonella causes a huge global burden of morbidity and mortality. In high-income countries, non-typhoidal salmonellae predominantly cause a self-limiting diarrhoeal illness in healthy individuals. Bloodstream or focal infection is rare and mainly happens in individuals with specific risk factors. By contrast, in sub-Saharan Africa, non-typhoidal salmonellae are consistently the most common bacterial bloodstream isolates in both adults and children presenting with fever and are associated with a case fatality of 20–25% [7]. Patients with sickle cell disease (SCD) are susceptible to a variety of bacterial infections, including infections caused by Salmonella species. The reason for the increased susceptibility of patients with SCD to Salmonella infections is not known, but several factors have been incriminated, including hyposplenism, and a defective complement system that hinders phagocytosis of Salmonella and also impaired macrophage function resulting from phagocytosis of red blood cell breakdown products, which reduces the capacity of these cells to ingest and kill Salmonella [1].

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Non typhoidal Salmonella is an uncommon pathogen. It has been previously incriminated as a cause of osteomyelitis, soft tissue, urine, gastrointestinal tract, infective endocarditis, septic arthritis and splenic abscess [1,2,3,4,5]. However, to our knowledge, this is the first report of toe abscess caused by this Salmonella typhimurium. In the present case, the organism was found to be sensitive to commonly used antibiotics. The patient was treated successfully with a course of amoxicillin syrup 125mg 8 hourly for 7 days and recovered from the abscess.

Toe abscess caused by Salmonella typhimurium are rare despite its endemic occurrence in Rwanda. This case is

reported to highlight the unusual presentation of Salmonella typhimurium. Conventional diagnostic methods including Widal and blood culture may not be useful for diagnosis. In chronic immunosuppressed individuals, typical history of fever is lacking. Isolation of Salmonella typhi from the joint remains the gold standard. In endemic areas physicians should be aware of the rare manifestations of non-typhoidal salmonella infections especially with sickle cell patients. Newer diseases are emerging and common diseases are presenting in newer ways therefore one should always be on the lookout for unusual presentations of common diseases.

## REFERENCES

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