

CASE REPORT

RECURRENT SALMONELLA TYPHI CHEST WALL ABSCESSSES IN A DIABETIC LADY

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ABSTRACT: Salmonella enterica serovar typhi causing typhoid fever is common in many parts of the world particularly in developing countries. Extra intestinal manifestations are uncommon and occur in immunocompromised individuals such as patients with diabetes, HIV infection, chronic steroid use, chemotherapy and malignancy. We report a case of Salmonella typhi causing recurrent chest wall abscesses in a lady with uncontrolled diabetes. She was admitted with high grade fever, left sided chest wall abscess and a previous history of two similar chest wall abscesses. After hospitalization prompt incision and drainage was done and aerobic culture of pus grew moderate growth of Salmonella typhi resistant to ciprofloxacin and sensitive to cephalosporins. Based on culture report our patient was treated with oral azithromycin for ten days and parenteral ceftriaxone for six weeks. There was rapid and full recovery and six months follow up revealed no recurrence.

KEYWORDS: Salmonella enterica servovar typhi, diabetes, chest wall abscesses.

INTRODUCTION: Typhoid fever caused by Salmonella typhi is an acute, invasive bacteraemic infection of the reticulo endothelial system and is endemic in many parts of India, where sanitation is poor and faecal contamination of food and water is common.^[1] Overall, 1-5% of infected people become chronic carriers by harboring Salmonella typhi in the gall bladder and intestinal tract despite antibiotic therapy.^[2] Salmonella typhi is capable of forming abscesses in various organs such as the spleen, subcutaneous tissue and skin.^[3]

The chance of developing focal infection is high in diabetic patients.^[4] The greater frequency of infections in diabetic patients is caused by the hyperglycaemic environment that favors immune dysfunction (damage to the neutrophil function, depression of the antioxidant system, and humoral immunity).^[5] We report a case of recurrent Salmonella typhi chest wall abscesses without bacteraemia in a lady with uncontrolled diabetes.

CASE REPORT: A 35 year old lady with uncontrolled diabetes mellitus presented in our outpatient department with high grade fever of 101°F, 6x10 cm size globular, fluctuant swelling with redness and tenderness over the left lower, anterior chest wall of ten days duration. There was no tenderness over the adjoining rib and breast examination was normal. Her respiratory system examination was normal.

She was hospitalized and her lab reports showed; haemoglobin-9.9g/dl, white blood cell count-11, 400/mm³ (neutrophils 80%, lymphocytes 10%, monocytes 8%, eosinophils 2%); erythrocyte sedimentation rate-119mm/1st hr, fasting blood sugar-216mg/dl, post lunch blood sugar-198mg/dl, HIV serology-non reactive, HbsAg-negative. Blood culture was negative and Widal titers were not suggestive of enteric fever. A CT Scan chest revealed a fairly large collection over the left anterolateral chest wall at the level of 9th and 10th ribs. [Figure 1].

CASE REPORT

Ultrasound abdomen revealed a subcutaneous abscess in the left hypochondriac region, and the internal organs were normal. Incision and drainage was done and the aerobic culture of pus by VITEK 2 biomerieux system grew moderate growth of *Salmonella typhi* which was further confirmed as *Salmonella enterica* serovar *typhi* by antisera agglutination. The growth was resistant to ciprofloxacin and ofloxacin, and sensitive to ceftriaxone, ceftazidime, cefipime, cefoperazone, ceftizoxime, amoxicillin+clavulanate [Figure 2].

Mycobacterial and fungal cultures did not yield any growth. Based on culture the patient was treated with azithromycin 500mg twice daily for 10 days and parenteral ceftriaxone 1g twice daily for six weeks. Six months follow up revealed no recurrence.

She had a previous history of typhoid fever six years ago, followed by an abscess one year later on the right anterior chest wall for which she was given six months of empiric anti tubercular treatment by her family physician. Again four and half years later she presented with another abscess on the left anterior chest wall which was diagnosed as *Salmonella typhi* abscess in our hospital, based on pus culture she was treated with two weeks of parenteral ceftriaxone on an ambulatory basis.

This was the third time she presented with chest wall abscess which was diagnosed as *Salmonella typhi* abscess and successfully treated at our hospital.

DISCUSSION: Typhoid fever continues to be a global health problem, with an estimated 21.7 million cases worldwide and 217, 000 deaths each year.^[6] The disease is endemic in many developing countries, particularly in Indian subcontinent, south east Asia, south and central America, and Africa, with annual incidence rates estimated to be greater than 900 per 100, 000 population in India.^[7] Infections caused by *Salmonella* species have been classically divided into four types: gastroenteritis, enteric fever, focal disease and chronic carrier.

Osteoarticular, urinary tract, intra-abdominal foci have been reported as the most common sites of focal salmonella infection. Focal salmonellosis of soft tissues is relatively uncommon accounting for 6-12 percent of all focal salmonella infections.^[8] Distal infection sites can present long after an acute gastrointestinal illness. Remote abscesses are the result of haematogenous or lymphatic dissemination of primary gastrointestinal infections.^[9]

In a study on Problem pathogens: Extra-intestinal complications of salmonella enterica serotype typhi infection 2005, David B Huang and Herbert L DuPont reported 17 cases of soft tissue infections caused by *Salmonella typhi*- three cases involved the psoas, one the gluteal muscle, one the foot, and 12 cases from other varying sites^[1]

In a recent study on extra intestinal salmonellosis in a tertiary care center in south India, sudhaharan et al showed that out of 36 patients diagnosed with extra intestinal salmonellosis the predominant serotype isolated was *Salmonella typhi* in 27(75%) patients. 10 out of 36 cases were noted to be soft tissue infections which is relatively high compared to earlier studies.^[10] Our patient presented with recurrent episodes of soft tissue infection. Diabetes mellitus has been found to be associated with 28% of focal salmonella infections.^[11]

The host susceptibility to recurrent salmonella infection is known to be augmented by lowered immunity due to predisposing factor i.e. uncontrolled diabetes mellitus in our patient.

Salmonella typhi isolates with increasing MIC to quinolones poses a challenge to clinicians in many parts of Asia resulting in treatment failure and poorer outcome. In a study on antimicrobial resistance trends in blood culture positive *Salmonella typhi* isolates from Pondicherry, India 2005-

CASE REPORT

2009 G.A. Menezes et al showed, out of 337 blood culture isolates of *Salmonella typhi*, 78% were nalidixic acid resistant, a surrogate marker for poor response with ciprofloxacin and 8% ciprofloxacin resistant strains. Isolates with reduced susceptibility to ciprofloxacin possessed single mutations in the *gyr A* gene.^[12]

The treatment options available for infection caused by nalidixic acid resistant *Salmonella typhi* are azithromycin, third generation cephalosporins and fourth generation fluoroquinolones. Our patient was successfully treated with a combination of azithromycin and third generation cephalosporin.

CONCLUSION: *Salmonella enterica* serovar *typhi* is rarely associated with extra intestinal infections, capable of forming abscess in various tissues and organs. Though enteric fever is endemic in developing countries like India, one should always be vigilant in recognizing uncommon presentations of common diseases, especially among individuals with uncontrolled diabetes.

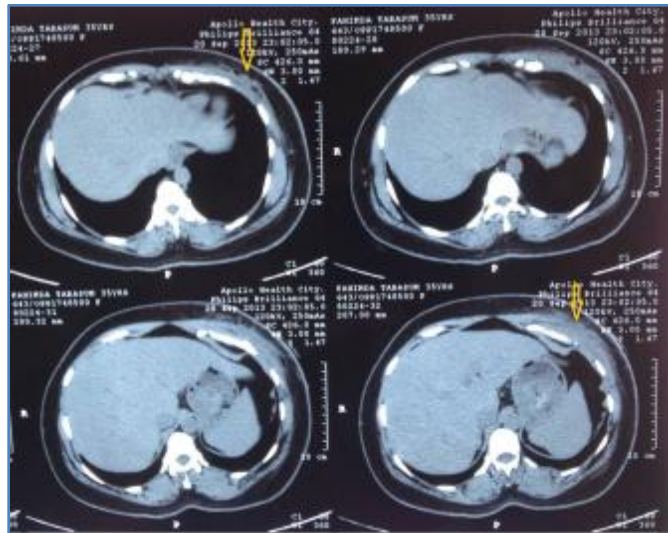


Fig. 1: CT scan chest

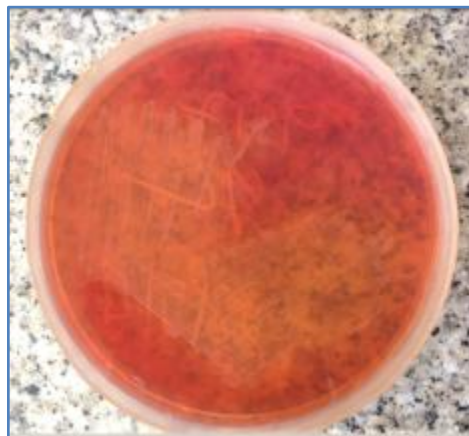


Fig. 2: Growth of *Salmonella enterica* serovar *typhi*

CASE REPORT

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