



Empyema due to salmonella typhi in a diabetic patient: a rare case report

KEYWORDS

Diabetes mellitus; Empyema; Salmonella typhi

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ABSTRACT

We report a 30 years old diabetic male presented with left sided chest pain and breathlessness in which a diagnosis of pleural effusion was made. Chest X-ray showed left sided pleural effusion with subdiaphragmatic collection. *S. typhi* was isolated from subdiaphragmatic and pleural effusion taps cultures. After the treatment with antibiotic ceftriaxone for 15 days along with intercostal drainage, repeat X-ray was taken which showed loculated pleural effusion. Again diagnostic tap was done and sent for the culture. *S. typhi* was isolated again from that. So treatment with antibiotic was continued further for 15 days. After the course of four weeks treatment repeat x-ray was done which was normal and patient was discharged. Empyema due to salmonella is rare and often had underlying risk factors. Our case report emphasizes on rarity, risk factors for salmonella empyema and need for prolonged treatment for its eradication.

Introduction:-

Salmonellae are motile, gram negative, non-spore forming members of the family Enterobacteriaceae.^[1] Human beings become infected with *Salmonella typhi* (*S. typhi*) through ingestion of fecal contaminated food, milk or water. Symptoms are characterized by fever (30-100%), headache (43-90%), gastrointestinal symptoms (8-79%), relative bradycardia (17-50%), splenomegaly (23-65%) and leucopenia.^[2] Extra-intestinal infectious complications occur less commonly with *S. typhi* and pleural effusion or empyema infected with salmonella is extremely rare.^[3,4] Empyema accounts for less than 1% of all cases of salmonellosis.^[5] We report a case of salmonella empyema in a diabetic patient.

Case History:-

A thirty year old male was admitted to the hospital with left sided chest pain and breathlessness. He was chronic alcoholic since twenty years and a known case of type 2 diabetes mellitus from two years. He was receiving oral hypoglycemic agents for diabetes.

On examination patient was afebrile and there was tenderness at the left costal region. He had signs of left pleural effusion. The pulse rate was 80/min and blood pressure was 130/85 mmHg. Chest x-ray showed left sided pleural effusion with subdiaphragmatic collection. An ultrasonographic examination also revealed same findings with hepatosplenomegaly.

Initial investigations showed that hemoglobin level of 11 g/dL, total leucocyte count 11,500/mm³ (78% neutrophils, 28% lymphocytes, 1% eosinophils & monocytes each). Random blood glucose level was 243 mg/dL. Total bilirubin was 4.3 mg/dL. Serum urea, creatinine and electrolytes were normal. HIV ELISA was negative.

Ultrasound guided percutaneous aspiration from subdiaphragmatic collection was done and the fluid was sent for the culture. Intercostal drain was put & 800 ml of turbid pleural fluid was obtained and treatment with intravenous ceftriaxone 1g/12 hourly was started. Examination of pleural fluid showed total nucleated cells 32/mm³ (62% neutrophils, 38% lymphocytes), proteins 0.78 g/dL, and glucose 4 mg/dL. Pleural fluid was also sent for culture. Both subdiaphragmatic collection and pleural fluid grew *S. typhi* which was sensitive to Ampicillin, chloramphenicol and ceftriaxone while resistant to nalidixic acid and ciprofloxacin. The patient had no

fever or clinical features of infection. Also there was no history of diarrhea and cultures of faeces, urine and blood were repeatedly negative.

Insulin was added to oral hypoglycemic drugs to control blood glucose level. After two weeks intercostal drain was removed and repeat x-ray was done. X-ray showed little haziness in the left lower lobe. Diagnostic tapping was done and sent for the culture from which again *S. typhi* was grown. So treatment with ceftriaxone was continued for next two weeks and repeat x-ray was done which was normal. Patient was discharged after day 32 of hospitalization.

Discussion:-

Salmonella typhi can be isolated from blood but stool cultures are often negative. Localized suppurative infections develop in about 10% of the patients and become apparent days, months or even years after initial bacteremia.^[3] Localized infection has been reported in the thyroid, meninges, bone, heart, lungs, adrenals, pancreas, spleen liver, testes, pericardium, soft tissues, areas of necrosis or infarction, benign or malignant tumours and cysts. Pleural empyema is a rare complication of salmonella infection, accounting for less than 1% of all cases of salmonellosis.^[5]

Patients with pulmonary manifestations of typhoid fever often have underlying lung abnormalities, a previous history of lung infection, sickle cell anemia, alcohol abuse, diabetes or immunosuppression with HIV/ AIDS.^[6] Diabetes mellitus and chronic alcoholism were the predisposing risk factors for the localized infection in our case.

The recommended therapy for pulmonary manifestations caused by *S. typhi* is ceftriaxone and fluoroquinolones for 14-21 days.^[7] Gill et al reported a case of malignant pleural effusion infected with *S. enteritidis* which was eradicated by four weeks of ciprofloxacin treatment. Nandan D et al^[8] have also reported the requirement of prolonged course of antibiotics (ceftriaxone & ofloxacin) in their case. In cases of empyema, surgical drainage is also required in addition to antimicrobial therapy.

In summary, our case report emphasizes on rarity, risk factors for salmonella empyema and need for prolonged treatment for its eradication.

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