CASE REPORT

SALMONELLA OSTEOMYELITIS OF RIBS

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A 45-year-old diabetic male who was a farmer by profession, presented to Khyber Teaching Hospital with swelling and redness on the right side of the chest at the level of 8th rib for the past 5 months which was accompanied by fever and pain. He went to a local hospital where he was given broad spectrum antibiotics. He presented again with yellowish discharge from the wound. Dressing of the wound was done and he was referred to Khyber Teaching Hospital. On presentation, there was an open wound of about 4 cm on the right side of the chest wall at the level of 8th rib near the midclavicular line. X-ray revealed a lytic bone lesion near the costo-chondral junction of the 8th rib. CT scan also showed erosive changes at the above mention site. His fasting blood sugar was well above the normal range and his Alkaline Phosphatase was slightly raised. He was started on Insulin. Debridement and dressing were done and samples were taken for investigations. Bone tissue biopsy revealed inflammatory non-caseating tissue. Culture report was positive for Salmonella Typhi which was resistant to Ciprofloxacin. The patient was given antibiotic (co-amoxiclave) treatment to which he responded leading to a satisfactory recovery.

Keywords: Osteomyelitis; Infection; Surgery, Ribs

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INTRODUCTION

Among the various causes of osteomyelitis, salmonella is found to be a rare aetiology at 0.45%.[1] Those patients who are found to have salmonella osteomyelitis are most commonly cultured to have the strains of Salmonella typhimurium, Salmonella typhi, and Salmonella enteritidis. The most important of all is Salmonella Typhi which is transmitted from human to human. Salmonella infections include Gastroenteritis, Enteric Fever, Bacteraemia, Soft tissue infections and chronic carrier state.[2] Osteomyelitis is a rare presentation when compared to other salmonella infections (0.8%).[1]

Typhoid osteomyelitis has a predilection for patients with Diabetes Myelitis, SLE, Lymphoma, Chronic liver disease, previous surgery, trauma and patients using Steroids.[3] Salmonella infection is also associated with Sickle Cell Disease. Salmonella Osteomyelitis of the Ribs is very rare.

CASE REPORT

A 45 years old Diabetic male, who was a farmer by profession, initially presented to a local hospital with a 5-month history of a lump on the right side of his chest, medial the midclavicular line and at the level of the 7th and 8th rib. He had a history of fever and pain at the site of swelling for the same duration. An incision and drainage were done at a local hospital, and he was prescribed broad – spectrum empirical antibiotics. The patient was referred 10 days later to Khyber Teaching Hospital with yellowish discharge from the wound.

On examination, there was an open wound of about 4 cm on the right side of the chest wall at the level of the 8th rib on the mid clavicular line. Regional lymph nodes were not enlarged on examination, a cardiovascular and respiratory system examination yielded no other positive findings. Baseline investigations were done. His peripheral smear showed Hb, MCV, and an MCHC within normal ranges with normal RBC morphologies. His TLC was 6200/L. His fasting blood sugar was well above the normal range at 271mg/dl and his Alkaline Phosphatase was slightly raised at 396 U/L. Widal's test was positive. Other investigations yielded normal results (Table-1) An X-ray done at admission revealed bone lesion near the costo-chondral junction of the 8th rib. (Figure-1) A CT scan was subsequently done which also showed erosive changes at the above mention site. (Figure-2)

For the duration of admission, the patient was shifted from oral antidiabetics to Insulin and dietary counselling was done. The differential diagnosis was made which included tuberculous osteomyelitis, typhoid osteomyelitis, multiple myeloma and metastatic bone lesion. Debridement and dressing were done under anaesthesia, where infected tissue was found to extend to the periosteum and samples were taken for investigations.

Bone tissue biopsy revealed inflammatory non-caseating tissue. Culture and sensitivity reports was positive for Salmonella Typhi which was

resistant to Ciprofloxacin and sensitive to co-amoxiclav and cephradine. The patient was given antibiotics (I/V co-amoxiclav 1.2 gm BD for 3 days then shifted to oral co-amoxiclav 1 gm BD on discharge for 4 weeks. He was also put on oral antidiabetics, with sequential postoperative FBS within normal range.

The patient came 4 weeks later for follow-up. The wound was non-productive with healthy granulation tissue. (Figure-3) A follow-up x-ray was done which showed improvement. (Figure-4) A swab was taken for culture which showed no growth.

Table-1: Initial Baseline Labs

Test	Result	Test	Result
RBC Count	4.3x1012/L	SGPT	14 IU/L
HCT	32.50%	Bilirubin	0.36 mg/dl
MCV	75.0 fl	alk ph	396 U/L
RDW	16.00%	Creatinine	0.88 mg/dl
HGB	12.4 g/dl	FBS	271 mg/dl
MCH	28.7 pg	HBsAG	negative
MCHCH	38.2 gm/dl	anti-HCV	negative
platelets	221x109/L	Widal Test	positive
WBC	6.2x109/L		
LYM	24.90%		
Gran	66.60%		

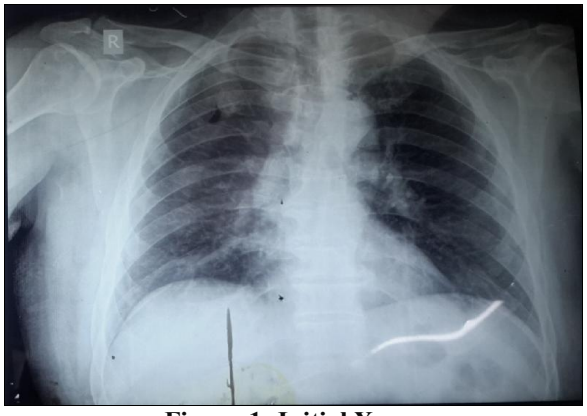

Figure-1: Initial X-ray

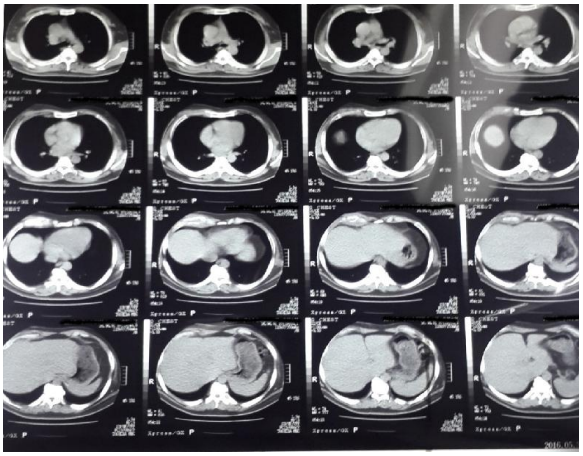

Figure-2: Initial CT scan

Figure-3: Wound on 4-week follow-up

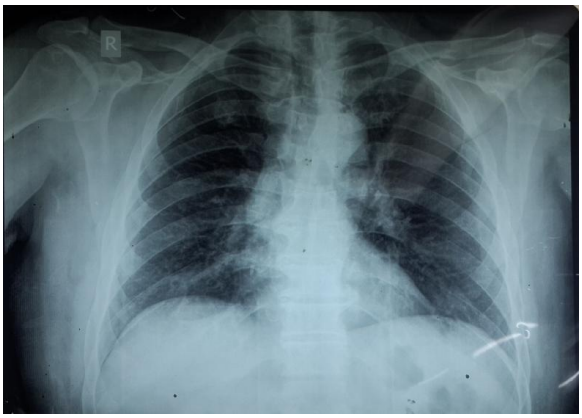

Figure-4: X-ray on follow-up

DISCUSSION

Salmonella osteomyelitis is typically an infection of the diaphysis of the long bones, in particular the humerus and femur.[4] Tibia, Radius and Vertebrae are also sometimes involved. Osteomyelitis of the ribs have been known to be caused by primarily mycobacterial infections followed by bacterial infections. Other causes of rib osteomyelitis which are less common are fungal and Entamoeba histolytica infections. The mean duration of symptoms before diagnosis was 16 days for bacterial osteomyelitis. Common clinical signs are fever (73%), soft tissue mass (64%) and chest pain (60%).[5] The patient in this case report had uncontrolled diabetes and was thus at risk of salmonella typhi infection.

Eradication therapy of typhoid osteomyelitis is difficult. The most commonly used antimicrobials are chloramphenicol, third generation cephalosporins and fluoroquinolones.[6,7] In particular Ciprofloxacin has the ability to penetrate macrophages, which

allows it to reach intracellular microorganisms.[8,9] The organisms cultured in this study were resistant to ciprofloxacin which is why alternative antibiotics were used along with surgical debridement. Santos and Sapicro have recommended 2 months' antimicrobial therapy in osteomyelitis.[10] In this study, the patient was resistant to ciprofloxacin, and was given co-amoxiclave for 4 weeks with satisfactory results. Though salmonella typhi causing osteomyelitis of the rib is a rare clinical entity, it must always be considered in the differential of such presentations, especially in patients who are immunocompromised or have other risk factors.

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