

Case Report

Chronic Pyogenic Osteomyelitis of the Rib: A Case Report in a Paediatric Patient

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Abstract: Rib osteomyelitis is extremely rare and accounts for less than 1% of haematogenous osteomyelitis. We report a rare case of pyogenic osteomyelitis involving the rib in a 5 year old male child who presented with a discharging sinus over the chest wall for 1 year duration. The diagnosis of rib osteomyelitis requires a high index of suspicion given its nonspecific clinical manifestations. Clinicians should be aware of the possibility of rib osteomyelitis in healthy children. Early recognition and prompt treatment allow a high cure rate.

Keywords: Rib, Pyogenic osteomyelitis

INTRODUCTION

Osteomyelitis is one of the most common invasive infections in the paediatric age group generally resulting from haematogenous spread and affects the metaphysis of long bones such as the femur and tibia [1]. Rib osteomyelitis is extremely rare and accounts for less than 1% of haematogenous osteomyelitis [2]. We report a rare case of pyogenic osteomyelitis involving the rib in a 5 year old male child.

CASE REPORT

A 5 year old male child presented to the Orthopaedic outpatient department with history of a

discharging sinus over the right lateral chest wall for 1 year duration. This was associated with pain and low grade fever. There was no significant history of trauma. The patient had taken local treatment for the same, the details of which were not available. Routine blood investigations revealed a haemoglobin of 11.5gm/dl, a total leucocyte count of 11,200/mm³ with 68% neutrophils. The chest X ray and computed tomography scan of the chest revealed hypertrophy of the 6th rib on the right side at the costo-chondral junction. A complete surgical excision of the 6th rib was done after obtaining anaesthetic clearance (Fig. 1).

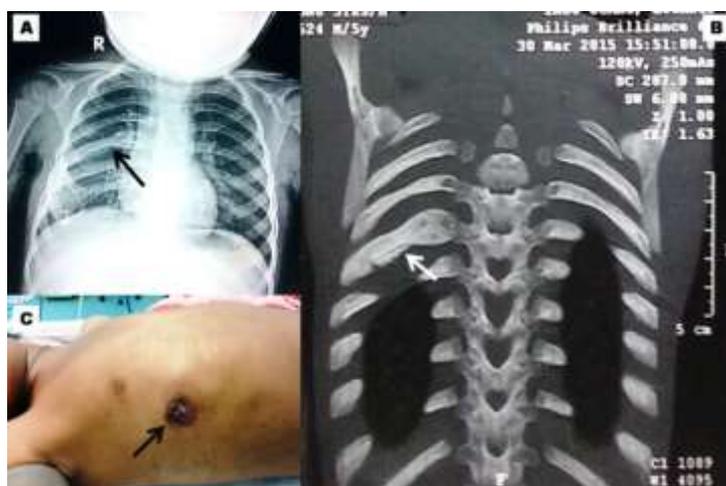


Fig. 1 (A): Chest X- ray showing hypertrophy of the 6th rib [Black arrow] **(B):** CT scan Chest showing hypertrophy of the 6th rib on the right side with partial destruction [White arrow] **(C):** Clinical photograph of the patient with a discharging sinus over right lateral chest wall [Black arrow]

About 2ml of pus was obtained during the surgery which was sent to the microbiology department for culture and sensitivity. The gram staining and the Ziehl Neilsen staining were negative and culture

revealed staphylococcus aureus. The excised rib was sent for histopathological evaluation and the diagnosis of chronic pyogenic osteomyelitis was confirmed by histopathology (Fig. 2).



Fig. 2: (A): Post Surgery completely excised rib with Sequestrum [Black arrow] (B): Histological section showing irregular fragment of dead bone surrounded by heavy infiltration by lymphocyte and plasma cells (magnification x 400; haematoxylin and eosin). (C): Histological section showing irregular fragment of devitalised bone surrounded by fibrosis and lympho-plasmacytic infiltrate (magnification x 100; haematoxylin and eosin).

The post operative period was uneventful and the patient was kept on broad spectrum antibiotics and is on regular follow up.

DISCUSSION

Rib osteomyelitis is a rare entity and generally results from penetrating trauma, a contiguous infection like empyema or pneumonia or via haematogenous seeding from a distant focus of infection [1, 2]. In our case no significant history of trauma or contiguous infection was present. Osteomyelitis due to haematogenous spread generally involves the areas where the bone is metabolically active and in regions with the maximum blood supply. In the ribs the common sites are near the costo-chondral junction anteriorly and the costo-vertebral junction posteriorly. Osteomyelitis involving the rib is generally unifocal and multifocal lesions have been reported in severely ill newborns [3].

The earliest signs and symptoms of rib osteomyelitis are generally nonspecific, which result in delayed diagnosis and inappropriate management. In most cases the patients generally present with fever, pain and an abscess or sinus that fails to heal [2, 3]. Our patient presented with history of discharging sinus associated with fever.

The most common infecting pathogen is, *Staphylococcus aureus*, but atypical organisms can also be involved. The pus culture obtained from the lesion was revealed *Staphylococcus aureus*. Mycobacterial infection accounts for about 7% cases of rib osteomyelitis. Fungal osteomyelitis is reported in immunocompromised individuals and occurs as a part of multi-system disseminated disease [4].

The diagnosis of rib osteomyelitis requires a strong index of suspicion. Imaging modalities like chest X ray, CT scan and magnetic resonance imaging are useful. The definitive diagnosis of rib osteomyelitis requires culture of the aspirated pus or blood cultures [2, 4].

Empiric treatment with a broad-spectrum regimen of parenteral therapy is warranted, always including an agent directed to *S. aureus*. Surgical debridement is more critical for optimal treatment for cases of chronic osteomyelitis [3, 4].

CONCLUSION

In conclusion, the diagnosis of rib osteomyelitis requires a high index of suspicion given its nonspecific clinical manifestations. Clinicians should be aware of the possibility of rib osteomyelitis in healthy children. Early recognition and prompt treatment allow a high cure rate.

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