

Contents lists available at [ScienceDirect](http://www.sciencedirect.com)

Asian Pacific Journal of Tropical Medicine

journal homepage: www.elsevier.com/locate/apjtm

Document heading doi:

Multiple bilateral costo–chondral abscesses due to *Mycobacterium tuberculosis*Peter G^{1*}, Basti SR², Joy AS³¹Department of Medicine, Yenepoya Medical College, University Road, Mangalore –575018, Karnataka, India²Department of Radio–diagnosis & Imaging, Fr Muller Medical College, Fr Muller Road, Mangalore –575002, Karnataka, India³Department of Radio–diagnosis & Imaging, Fr Muller Medical College, Fr Muller Road, Mangalore –575002, Karnataka, India

ARTICLE INFO

Article history:

Received 11 October 2010

Received in revised form 27 October 2010

Accepted 15 November 2010

Available online 20 November 2010

ABSTRACT

Multiple abscesses of the costo–chondral junctions are very uncommon in practice. In this report we present the case of a 55 year old man who presented to us with chest pain and fever of few months duration. On imaging with ultrasound and CECT we were able to demonstrate multiple abscesses of costo–chondral junctions bilaterally. We confirmed tuberculosis by FNAC and BACTEC cultures from abscesses.

Keywords:

Costo–chondral abscesses

Multiple rib abscesses

Tuberculosis

1. Introduction

Tuberculosis is a very common infection in the Indian sub–continent, and most develop pulmonary infections. Tuberculosis of bones and joints are well described in literature. There are only a few case reports of costo–chondral abscesses due to tuberculosis in literature. We report, this rare case of multiple costochondral abscesses due to tuberculosis in a 55 year old immune–competent man.

2. Case report

A 55 year old man presented with central chest pain of 3 months and fever of 1 month duration. On examination he was febrile, had bilateral tender central axillary lymph nodes and bilateral tender swellings over the lower

costo–chondral junctions. The systemic examination was unyielding. Investigations showed elevated WBC counts, with neutrophilia and an erythrocyte sedimentation rate (ESR) of 98 mm/h. The routine blood biochemistry, Tridot test and chest roentgenogram were within normal limits. Mantoux test given was positive with 15 mm induration.

Ultrasound images of the chest wall (Figure 1) demonstrated juxta–chondral anechoic fluid collections with internal echoes, suggestive of costo–chondral abscesses. CECT images of thorax (Figure 2) in axial and reformatted sagittal and coronal sections showed bilateral peripherally enhancing fluid collections around 6th to 9th costo–chondral joints, confirmative of costo–chondral abscesses.

An ultrasound probe guided FNAC aspirate from the abscesses showed caseous necrosis with lymphocytic infiltrations with acid–fast bacilli on Ziel–Neelson's staining. BACTEC culture of the aspirate was positive for *Mycobacterium tuberculosis*. The subject was started on anti–tuberculous chemotherapy and at 16 weeks of treatment there was regression in the swellings at the costo–chondral junctions.

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Figure 1. USG images of chest wall.

A & B –Longitudinal and transverse images captured by B mode ultrasonography (using 8 MHz linear transducer), depicting juxta–chondral anechoic fluid collections with internal echoes (marked with white block arrows), suggestive of costo–chondral abscesses.

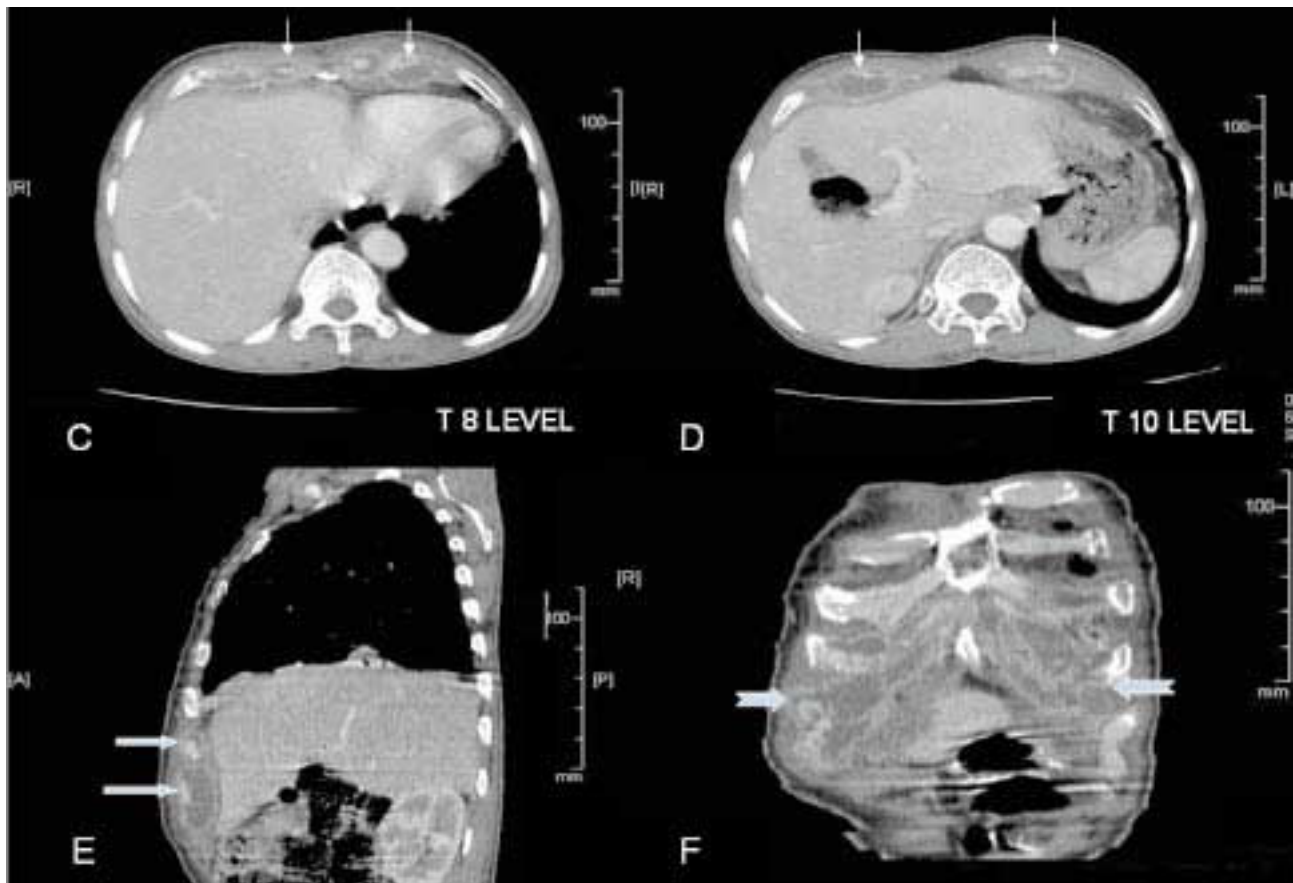


Figure 2. Contrast enhanced CT images of thorax.

C & D –Axial CECT sections at T-8 and T-10 vertebrae showing peripherally enhancing fluid collections bilaterally around the costo–chondral joints of 6th to 9th ribs (white arrows), confirmative of costo–chondral abscesses; E & F – Sagittal and Coronal reformatted CECT sections demonstrating the costo–chondral abscesses better (white block arrows).

3. Discussion

According to WHO[1], nearly one third of the world's population is infected with tuberculosis; and approximately 10% of them are at a life time risk of developing the disease. India is the second–most populous country in the world, but

has more new tuberculosis cases than other country[2]. In its recent estimate, WHO gives a prevalence of 2 186 million cases in India. The incidence of smear positive tuberculosis cases in the country is estimated as 75 new smear positive cases per 100 000 people. WHO estimated TB mortality in India as 276 000 (24/100 000 population) in 2008.

Although tuberculosis of the lungs are more common, infections involving the lymph nodes, pleura, skin, and the genito–urinary and skeletal systems are not rare^[3–6]. Tubercular infections of the chest wall and ribs accounts only to less than 5% of musculoskeletal tuberculosis and less than 2% of all cases of tuberculosis. This makes chest wall and ribs as an uncommon site for tuberculosis. Tuberculosis is the most common for a destructive rib lesion after metastatic neoplasms^[7,8].

The mechanisms in the pathogenesis of chest wall and rib tuberculosis maybe direct extension from underlying pleural or pulmonary parenchymal disease; hematogenous dissemination associated with activation of a dormant tuberculous focus; and/or by direct extension from lymph node on the chest wall^[9].

Rib tuberculosis presents as painless or painful nodular lesions on the chest wall or costo–chondral junctions, which subsequently form a cold abscess or a draining sinus^[10]. Clinically, a cystic, or doughy and painful, or non–tender fluctuating mass is usually seen. In the present case there were tender swellings over the lower costo–chondral junctions bilaterally. The skin overlying the mass looked normal and there were tender axillary lymph nodes present.

Conventional X–rays fail to detect early skeletal disease, and the diagnosis of lesion is delayed until bone destruction with overlying soft tissue changes^[11]. The extent of bone lesion and the degree of soft tissue involvement may be defined better by CT scan, whereby unsuspected lesions may be recognized. The X–ray, CT and MRI features of chest wall tuberculosis have been described^[12,13]. In the present report the chest roentgenogram and the CECT showed no evidence of pulmonary parenchymal involvement. CT is also useful in defining the appropriate site for biopsy.

Tissue biopsy may yield tuberculoid lesions, acid–fast bacilli on direct smear or positive culture for tubercle bacilli^[3]. In our case the diagnosis of *Mycobacterium tuberculosis* was made with a positive Mantoux test (showed a 15 mm induration), fine needle aspiration from the abscess showed acid–fast bacilli and BACTEC culture of the aspirate showed *Mycobacterium tuberculosis*.

Uncomplicated chest wall tuberculosis usually responds to anti tubercular therapy. Surgery is an option when there is an unstable or deformed bone structure, which has a high risk of sinus formation^[14]. Our patient improved with anti tubercular treatment. On review after 16 weeks of treatment the costo–chondral swellings regressed completely.

Government of India has published the RNTCP (revised national TB control programme) report–2010, with RNTCP implementation, by 2008 there is a 43% decline in death due to tuberculosis as compared to 1990^[15].

At most clinical suspicion of extra pulmonary tuberculosis enables the diagnosis and otherwise it is difficult to diagnose. In this report we are able to describe the diagnostics, radiological features and successful

management of multiple costo–chondral tubercular abscesses.

Conflict of interest statement

We declare that we have no conflict of interest.

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