

# Rib tuberculosis, apropos of two clinical cases

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### Abstract

The authors present two clinical cases of rib tuberculosis. Both patients were males, and during the investigation, the first one revealed to have severe immunodepression. In spite of the clinical aspects, with insidious fever of unknown etiology and associated cold abscesses of the thoracic region, floating and tending to fistulating and in spite of both patients having received antibiotics with no response, it was difficult to make a diagnosis. In the first case, only the high degree of suspicion and the decision of starting tuberculosis therapy leading to the resolution of the

patient's complaints, allowed us to make the diagnosis. In the second case, the diagnosis was only confirmed with the study of the material obtained by aspiration, with Lowenstein method. The rib tuberculosis is a rare infectious disease with a difficult diagnosis, which is based on the high degree of suspicion, on tuberculosis endemicity and the existence of possible immunodepression comorbidities.

Key words: Rib tuberculosis, cold abscesses, HIV, endemicity.

### INTRODUCTION

From ancient times, tuberculosis has been a major problem in public health. In the 19<sup>th</sup> Century it would account for one in each 10 deaths in Europe. The emergence of the antibiotics age led to a decreased prevalence, however, in the last few years it has been increasing exponentially due to an increase on global migration and the incidence of HIV infection.<sup>1,2</sup> For the same reason, atypical presentations have been more and more frequent.

Musculoskeletal tuberculosis represents 1-5% of all tuberculosis infections. From these, 50% involve the spine and only 0-5% are located at rib level, representing 0.1% of all tuberculosis infections, with a one location in 90-95% of cases.<sup>3</sup>

The authors present two cases of rib tuberculosis: the first in a patient with HIV co-infection, without

evidence of affecting other levels; the second, of an immunocompetent patient but living in an endemic tuberculosis area and with a clinical condition compatible with the diagnosis.

### PRESENTATION OF THE 1<sup>st</sup> CASE

39 years old patient, Caucasian, male gender, civil construction painter, with endovenous drugs habits (heroin consumption), serving time in Lisbon Prison Facility, having a right chest pain of pleuritic features, without fever, denying other complaints, having been medicated at the time, empirically with clarithromycin. About 1 month after, he starts complaining of expectorating cough with some mucosa, fever, keeping right thorax pain. The objective exam highlighted a tumefaction on the anterior region of the right thorax wall, with marked inflammatory signals, with a posterior fistula to the skin and purulent fluid effusion. Regarding laboratorial data, the only thing to highlight was the existence of a discreet increase on CPR C Protein Reactive (4.7mg/dL), without any changes to the thorax X Ray. Serum levels for Human Immunodeficiency Virus (HIV) and Hepatitis C Virus (HCV) were positive. On the diagnosis date the immunology status was as follows: 451 TCD4<sup>+</sup>/mm<sup>3</sup>, 1658 TCD8<sup>+</sup>/mm<sup>3</sup> and viral load of 162.069 copies/mL.

The bacteriologic exam of the rib exudate has shown itself negative for potentially pathogenic bacteria. BAAR search in the sputum was negative. Due to a clinical suspicion of rib osteomyelitis he was medicated with flucloxacillin. Rose Bengala and Wright tests were requested and proven negative.

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# Work presented partially on the 8th Radiology National Congress

Received for publication on the 24th July 2007

Accepted for publication on the 31st July 2009

Although improved, the patient mentioned persistent thorax pain keeping a scarce drainage of the thorax wall abscess. A thorax CAT scan was performed and a new sample of rib exudate was collected to BAAR research and Lowenstein cultures. Thorax CAT scan was compatible with chronic osteomyelitis of a likely tuberculosis etiology, being negative the BAAR search in the rib exudate. Before the lack of the clinic reaction, in spite of the antibiotic therapy apparently adequate, it was decided to start anti bacilli therapy responding to the tomodesitometry aspects suggesting bone tuberculosis. The patient immunologic status was kept stable throughout the whole process.

At three month of anti-bacilli therapy a marked clinical improvement was seen, with remission of pain complaints. After completing the treatment, complied with for 12 months, a thorax CAT Scan was carried out to monitor the peri-lesional abscessed lesion with an intra and extra thoracic component, with a fistulous path to the skin (Fig.1), reason why it was reintroduced the anti-bacilli therapy having been referred to a Cardio-Thoracic Surgery appointment, in which it was proposed an excision of the fistulous paths and affected rib segments.

Concomitantly, the patient immunologic condition has deteriorated (TCD4<sup>+</sup>: 205 cels/mm<sup>3</sup>; viral load: 430 585 copies/mL) being necessary to start antiretroviral therapy (ARVT) with Zidovudine + Lamivudine and Efavirenz.

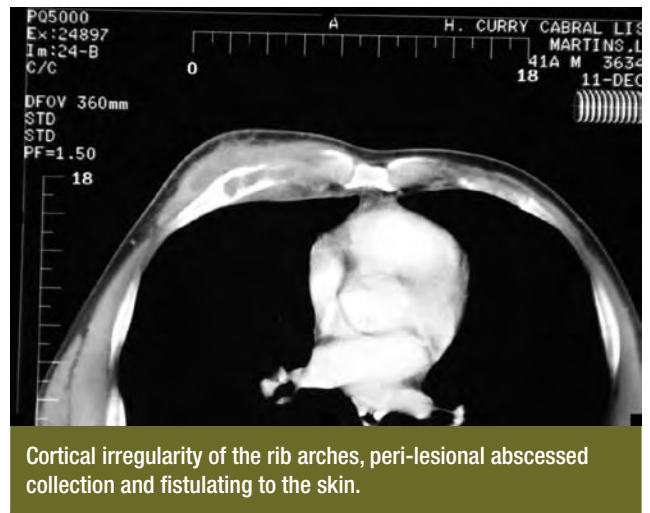
After 18 months of anti-bacilli therapy associated to ARVT it was seen a total remission of the abscessed lesion with a clinical and radiologic resolution, having no longer a surgical indication.

### PRESENTATION OF THE 2<sup>nd</sup> CASE

53 years old patient, of Indian origin, living in Lisbon for 17 years, coming from Mozambique, admitted due to a febrile syndrome and thorax wall abscess.

Two months before being admitted asthenia, anorexia, evening fever, nocturnal sweating and pain on the left dorso-axillary region, not related with the breathing movements or the shoulder joint have emerged. Without irradiating or finding a painless position.

Subsequently, a painful tumefaction is noticed on the tegument covering the left scapula progressing to the anterior axillary region, with sinuous contours, soft, with flotation areas, moderately painful to pal-



Cortical irregularity of the rib arches, peri-lesional abscessed collection and fistulating to the skin.

FIG. 1

pation and without skin changes, being medicated with antibiotics which name he could not specify, but without any effect.

From the lab tests there was only to highlight a discreet anemia (Hb: 11.8 g/dL); leukocyte count and formulae within normal with ESR: 110mm/1<sup>st</sup> hour. HIV screening was negative.

The thorax X Ray has revealed a left parietal homogenous opacity, joining the upper and medium thirds, of round and regular borders (Fig.2). Also a discontinuity on the 5<sup>th</sup> costal arch near the opacification was seen. The left anterior oblique incidence (LAOI) has shown a loss of the bone matter in a pseudo-cystic image and unaligned rib distal portion (Fig.3).

The thorax CAT Scan has revealed to be an abscessed collection, circumscribed with pleural involvement. The adjacent osteolytic lesion, apparently unique, was located near the junction of the posterior third with the lateral third of the rib arch (Fig.4).

By puncture, it was obtained a brownish purulent material which direct exam, namely with Ziehl-Nielsen staining was negative, but that in a Lowenstein environment has demonstrated the *Mycobacterium tuberculosis* growth.

Anti-bacilli therapy was started with a progressive improvement of his general condition and radiologic regression at the end of a few months.

### DISCUSSION

Tuberculosis is the most frequent cause of inflammatory rib lesions after the metastases and the second



Left parietal homogenous opacity of regular borders on the upper and medium third joint.

FIG. 2

of infectious etiology.<sup>3,4</sup> It is more frequent in male subjects, affecting mainly an age range from 15 to 30 years old possibly by influence of an endogenous drugs consumer group and HIV infection, being two important risk factors.<sup>2</sup>

Rib tuberculosis usually is presented with a rib destruction and mass at the level of the thorax wall.

We must make a distinction between tuberculous osteochondritis, involving rib cartilages, and tuberculous osteomyelitis involving the bone matrix. The first is more common and can result on the formation of abscesses.<sup>5</sup>

The incidence of rib tuberculosis described in some studies, has revealed itself lower than 0.1% of all hospital admission due to tuberculosis.

From 50-75% of all osteoarticular tuberculosis are associated to a pulmonary primary focus, being more frequent the hematogenous dissemination.<sup>1,5</sup>

The clinic condition is usually insidious, specially in HIV patients, with a duration varying from 2 to 36 months, evolving with associated pain or not, the painful mass at the rib wall level (solid or cystic), badly responding to anti-inflammatories and wide spectrum antibiotics.<sup>6,7,8</sup>

Radiologic manifestations are predominantly osteolytic, sclerosis areas can exist, although the thorax X Ray has low sensitivity in early detection.<sup>9</sup>



LAO incidence; pseudo-cystic image and unalignment of the distal rib portion.

FIG. 3

In the Thorax CAT Scan well defined lesions were visualized (hypodense central zone with peripheral hyper-capture which increases with technetium 99) which are called cold abscesses and simulate commitment of the thoracic wall by actinomycosis.<sup>10,11</sup>

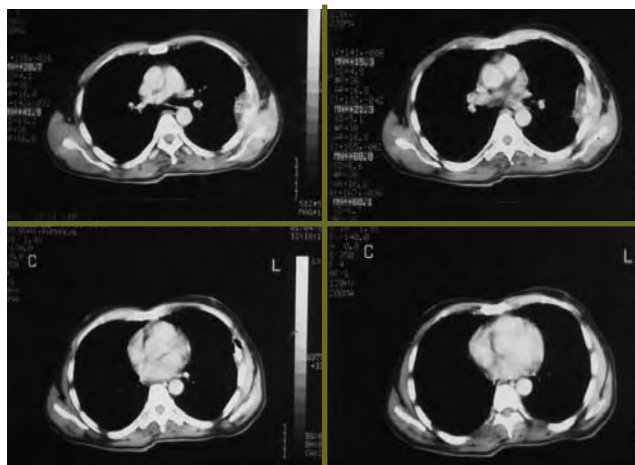
It is a difficult diagnosis, being often necessary the puncture through aspiration with a fine needle (PAFN), biopsy through thoracotomy or mediastinoscopy.

Medical treatment coincides with the pulmonary tuberculosis, although in most cases with a much wider time frame.<sup>2</sup>

The role of a surgical approach in musculoskeletal tuberculosis is controversial, however it is indispensable when there is no answer to tuberculostatics.<sup>6,12,13</sup>

The diagnostic suspicion is essential to the confirmation of rib tuberculosis.

We must consider such hypothesis in all patients



Abscessed collection with pleural involvement and osteolytic adjacent lesion in the posterior left third with the lateral third of the rib arch.

FIG. 4

with origin in an endemic area, with or without a previous tuberculosis history, with a destructive rib lesion, especially when associated to an abscess to the rib wall.

The diagnosis key consists on defying our mind considering tuberculosis manifestations in the most unusual places. ■

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