

The illusion of a chest wall tumor: a case report of sternal tuberculosis

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Abstract

The incidence rate of tuberculosis in developed countries is low. The most common presentation of this disease is its pulmonary form but with the increasing use of immunosuppressive drugs, extra-pulmonary tuberculosis is re-emerging. Nevertheless, sternal bone involvement is uncommon. We report the case of an eighty-three-year-old man who presented a painful sternal mass

which progressed towards cutaneous ulceration. The first diagnostic hypothesis was neoplasia. The pathological and microbiological diagnosis of tuberculosis was achieved after surgical biopsy. The patient received treatment against tuberculosis for nine months enabling recovery without surgery. This case illustrates the importance of having a diagnosis prior to any kind of treatment facing any voluminous parietal thoracic lesions. This diagnosis is made possible by surgical samples and interdisciplinary teamwork. This case underlines that tuberculosis remains a differential diagnosis that must be evoked in case of unusual bone mass.

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Introduction

In developed countries the incidence rate of tuberculosis is low. The most common form is pulmonary tuberculosis. However, extra-pulmonary forms are not uncommon (15%) [1], like lymph node tuberculosis or bone tuberculosis [2]. Frequency of these forms increases with immunocompromised patients [1] and at either end of the age scale. Among bone involvement, sternal tuberculosis is exceptional (less than 1%) [2].

Case Report

An eighty-three-year-old man presented a painful sternal mass which progressed towards cutaneous ulceration associated with fever and asthenia. That sternal lesion was growing for five months (Figure 1). His past medical history included Bowen's disease, polycythemia vera and arterial hypertension. His medication included ruxolitinib and acyclovir. The past treatments received for polycythemia vera were hydroxycarbamide, interferon, pipobroman and ruxolitinib. Associated to these clinical observations the patient showed biological inflammatory syndrome (CRP 34 mg/L) and anemia (10.1 gr/dL). The chest computed tomography (CT) revealed a sternal lesion of 82 x 68 x 57 millimeters wide, associated with bone lysis. The CT also showed pulmonary micronodules (Figure 2).

The first hypothesis was neoplasia. A first CT-guided (11-gauge needle) sternal biopsy was performed with the help of a radiologist. The sample showed no evidence for epithelial or connective tumoral process and no plasma cells proliferation. The analysis revealed granulomatous tissue without caseous necrosis. In order to further refine the diagnosis, we decided to organize

surgical biopsies with the help of thoracic surgery. Analysis of these new samples allowed to diagnose sternal bone tuberculosis. Indeed, the histological analysis put in evidence epithelioid granulomas with multinucleated giant cells. Ziehl coloration was negative. Direct examination (microbiological analysis) was negative but subsequent analysis with liquid culture medium was positive at day twelve, identifying *Mycobacterium tuberculosis* rpoB wild-type, sensitive to first-line anti-tuberculosis drugs. PCR analysis also confirmed the previous result. However, sputum examinations remained negative (direct and prolonged cultures).

A four-drug regimen against tuberculosis was initiated, including rifampicin, isoniazid, pyrazinamide, and ethambutol. Ethambutol was later stopped when the antibiogram became available. Initial treatment stage lasted three months and then the patient followed a maintenance treatment of six months (isoniazid and rifampicin). The total duration of treatment was nine months. To help healing of the deep lesion, the patient benefited from a dressing protocol. Full recovery was obtained (Figure 3).

Discussion

In developed countries, tuberculosis is rare and sternal tuberculosis is uncommon, thus explaining why our first hypothesis was

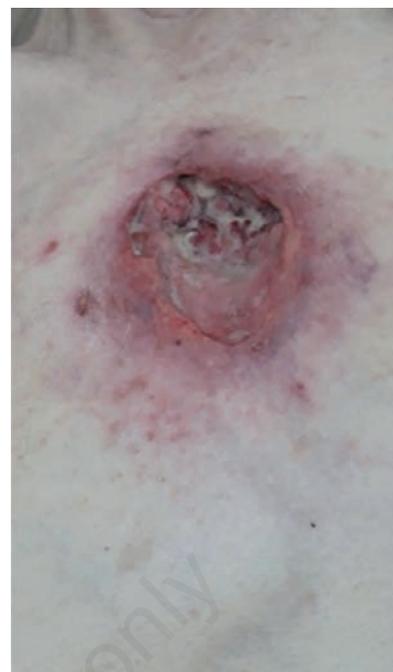


Figure 1. Aspect of the lesion at diagnosis.

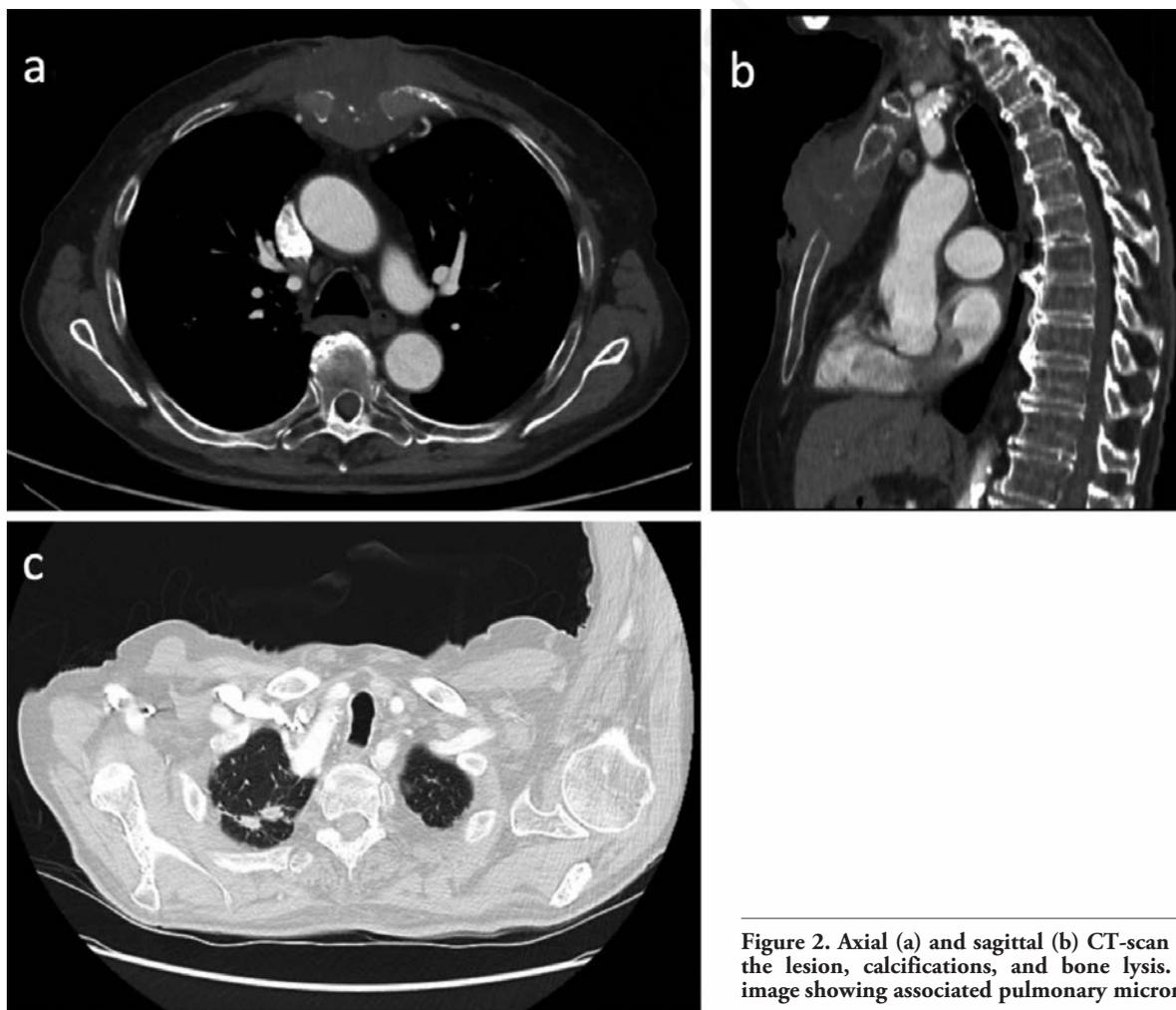


Figure 2. Axial (a) and sagittal (b) CT-scan images showing the lesion, calcifications, and bone lysis. Axial CT-scan image showing associated pulmonary micronodules (c).

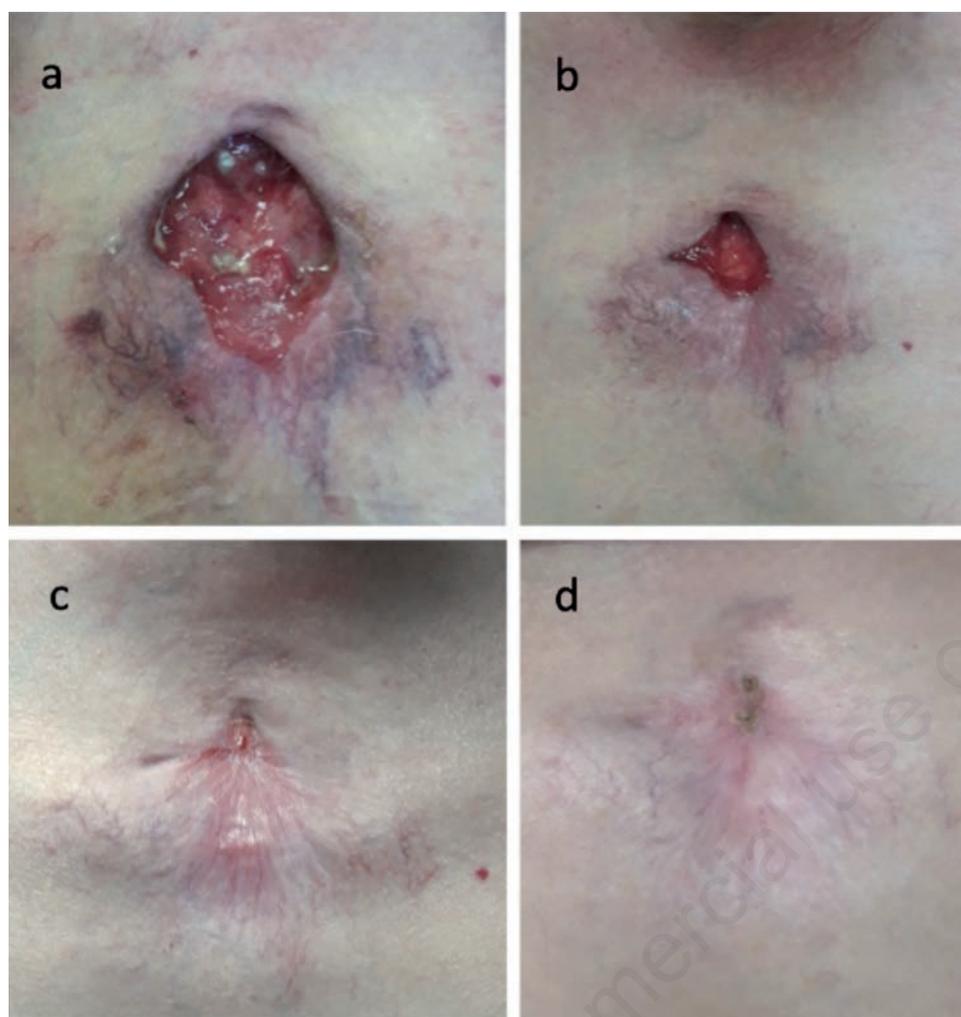


Figure 3. Evolution during treatment. Week 3 (a), month 3 (b), month 6 (c) and complete healing of the wound (d).

neoplasia. Indeed, this type of lesion can be seen in primitive bone tumor such as chondrosarcoma or plasmacytoma [3]. Hypothesis of a secondary lesion was also considered, like bone metastasis of lung cancer for example.

CT guided biopsy was not sufficient to obtain the diagnosis, therefore thoracic surgery was necessary. Diagnosis was made thanks to surgical deep samples. It is mandatory when facing large parietal lesions to have a diagnosis before an eventual resection. Indeed, like in the present case, infectious etiology is always a possible diagnosis. Additionally, thoracic surgeon checklist must evoke tuberculosis even if it is not the first hypothesis: every parietal and parenchymal surgical resections undertaken in our center benefitate from a systematic tuberculosis screening. This precautionary principle is necessary, knowing the major difference in term of prognosis and treatment between infection and neoplasia. Besides, large parietal malign lesions require histological diagnosis prior to resection surgery: margins are guided by the type of lesions and are crucial notably with sarcomas. One challenge for parietal lesions is to give patients the best outcomes while avoiding incorrect indications.

This case, beyond the fact that sternal tuberculosis is exceptional, underlines the need of multidisciplinary work (infectiologists, pneumologists, thoracic surgeons, histologists, microbiologists).

Tuberculosis is a complex systemic infectious disease, still

present in developed countries. The ageing of population and the increase of treatments weakening the immune system (immunosuppressive drugs, immunomodulators, biotherapies, chemotherapies) are two important factors leading to the potential resurgence of tuberculosis [4]. Moreover, these treatments might favor extrapulmonary tuberculosis, which are more challenging to diagnose and treat.

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