

# Solitary excavated lung nodule revealing pulmonary tuberculosis: A case report

Imrani Kaoutar, N Moatassim Billah, I Nassar

## ABSTRACT

Pulmonary tuberculosis is an endemic infectious disease. The symptomatology of tuberculosis is non-specific, giving varied presentations. When the clinical context is evocative and the lung lesions are multiple and evocative, imaging can guide the diagnosis. Pulmonary tuberculosis is rarely revealed by a solitary nodule, in this case, when the biological features are not contributory, the diagnosis can be performed by lung biopsy with histological study. We report the case of a 47-year-old-female patient presenting with a solitary cavitary lung mass whose biopsy revealed pulmonary tuberculosis.

**Keywords:** Pulmonary nodule, Tomography scanners, Tuberculosis

### How to cite this article

Kaoutar I, Billah NM, Nassar I. Solitary excavated lung nodule revealing pulmonary tuberculosis: A case report. Int J Case Rep Images 2021;12:101248Z01IK2021.

Article ID: 101248Z01IK2021

\*\*\*\*\*

doi: 10.5348/101248Z01IK2021CR

Imrani Kaoutar<sup>1</sup>, N Moatassim Billah<sup>1</sup>, I Nassar<sup>1</sup>

**Affiliation:** <sup>1</sup>Radiology Department, Ibn Sina University Hospital, Mohammed V University, Rabat, Morocco.

**Corresponding Author:** Imrani Kaoutar, Radiology Department, Ibn Sina University Hospital, Mohammed V University, Rabat, Morocco; Email: Kaoutaimrani6@gmail.com

Received: 23 April 2021

Accepted: 21 June 2021

Published: 24 August 2021

## INTRODUCTION

Pulmonary tuberculosis is an endemic lung infection in our context. It is characterized by clinical and radiological polymorphism. Imaging, especially the chest computed tomography (CT) scans, plays an important role in the detection of parenchymal lesions, however, the radiological and semiological aspects of tuberculosis are multiple and non-specific. When the clinical context is evocative with multiple and evocative lung lesions, imaging can guide the diagnosis. Rarely, lung tuberculosis presents with a solitary nodule or mass making diagnosis difficult [1, 2].

## CASE REPORT

A 47-year-old-female patient, having a history of pulmonary tuberculosis treated 12 years ago, was presented to the emergency department for mild dyspnea evolving for one month associated to weight loss estimated at 3 kg with productive cough.

The clinical examination found a fever at 38.2°C. The cardiovascular and respiratory examination was without particularity. Biological data showed inflammatory syndrome (C-reactive protein = 75 mg/L; erythrocyte sedimentation rate = 60 mm/h). The blood cell count was normal. Conventional chest radiography was realized showing a nodule at the right upper lobe.

Chest CT scans showed a nodule at the right upper lobe with regular margins and a central cavity measuring 10 mm in diameter, without other associated lesion of pleural effusion (Figure 1).

A bronchoscopy with bronchoalveolar lavage and biopsies was negative. A biopsy of the lesion was realized (Figure 2) using a needle of Menghini 18 Gauge and histological analysis showed necrotic changes surrounded by a thin epithelioid crown in favor of a tubercular origin. The patient was given antituberculosis drugs for six months. The evolution was marked by the regression of clinical symptoms and radiological image during a control carried out six months later.



Figure 1: Axial chest CT scans in the mediastinal (A) and lung parenchyma window (B) showing a nodule at the right upper lobe (arrow) with regular margins and a central cavity measuring 10 mm in diameter.

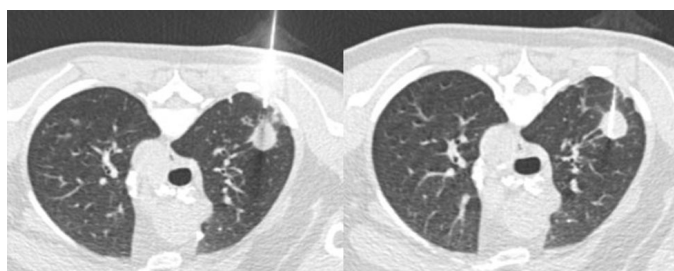


Figure 2: Chest CT scan in lung parenchyma window showing the biopsy of the nodule.

## DISCUSSION

Pulmonary tuberculosis is an endemic infectious disease caused by mycobacterium tuberculosis or Koch bacillus. The symptomatology of tuberculosis is non-specific, giving varied presentations. The general signs are dominated by weight loss and night sweats. Respiratory signs include chronic cough that may be dry or productive, associated to purulent or hemoptoic sputum. Chest pain is infrequent [2]. The diagnosis is confirmed by the identification of BK in pathological specimens. Bronchoscopy is useful to detect endobronchial involvement with possibilities of bacteriological and histological samples, as well as therapeutic gestures [3, 4].

When the diagnosis cannot be made by bacteriology techniques, a biopsy of the lesion is indicated with anatomopathological study showing the epitheliogiganto cellular granuloma with caseous necrosis [2]. Imaging plays an important role in diagnosis. Conventional radiography is the first exam performed when pulmonary tuberculosis is suspected, but it remains insufficient. Computed tomography is much more sensitive in detecting small, basal, para-mediastinal, or retro-cardiac lesions. It also helps guiding biopsy in atypical form [1, 5].

Pulmonary tuberculosis can take different radiological aspects:

- Centrilobular micronodules that tend to confluent giving a “bud tree” appearance, they are secondary to the bronchogenic dissemination of tuberculosis which is often post primary.

- Alveolar condensation and macronodules that result from the progressive filling of air spaces following the confluence of centrilobular nodules.
- Miliary tuberculosis secondary to hematogenic dissemination.
- Interstitial syndrome.
- Tuberculoma: It is a well-defined rounded or oval lesion in the lung parenchyma. The size is less than 3 cm but can reach up to 5 cm; it is usually located in the upper lobes. Calcifications in the tuberculoma and/or satellite nodules are seen in 30% of cases. Cavitation can be observed in tuberculoma or satellite nodules.
- Cavitory lesion: resulting from excavation of a condensation or nodular lesion. The walls are usually thick and nodular but sometimes thin and regular depending on the evolutionary stage. These lesions can mimic pulmonary cancer especially if the lesion is solitary [1, 3, 5].

Some radiological signs can guide the diagnosis in some cases. In case of pulmonary tuberculosis, the lesions are usually localized in the upper lobes while there is no predilection in lung cancer [2–4].

Tuberculosis is often associated to necrotic lymphadenopathy, parenchymal infiltrates, centrilobular adjacent micronodules, or pleural effusion. However, the common radiological aspects are a pulmonary nodule or mass with or without pulmonary atelectasis, unresolving pneumonia, pleural effusion, and rib erosion [1, 6].

Cavitation is frequent in tuberculosis and it is centric with regular margins while it is eccentric with irregular margins and radiating strands in malignant mass. Also, if the size of the lesion double in volume after an average of 240 days, it is more likely to be malignant [1].

In our case, the cavitory lesion was isolated, without associated signs, clinical and biological features were not specific, which indicate the biopsy of the lesion.

## CONCLUSION

Pulmonary tuberculosis is characterized by clinical and radiological polymorphism. Solitary pulmonary nodule constitutes a rare presentation. It is difficult to diagnose due to its not evocative aspect, hence, the interest of para-clinical examinations and in some cases a biopsy of the nodule to confirm the diagnosis.

## REFERENCES

1. Bhatt M, Kant S, Bhaskar R. Pulmonary tuberculosis as differential diagnosis of lung cancer. *South Asian J Cancer* 2012;1(1):36–42.
2. Patro M, Gothi D, Sah RB, Vaidya S. An interesting case of incidental solitary pulmonary nodule. *Breathe (Sheff)* 2018;14(4):e128–33.

3. Talari P, Pathak V, Tsegaye A, Rendo ISH. Pulmonary tuberculosis presenting as solitary pulmonary nodule in HB infected patient: A diagnostic dilemma in non-endemic area. *Am J Respir Crit Care Med* 2010;181:A3158.
4. Kim H, Kang SJ, Suh GY, et al. Predictors for benign solitary pulmonary nodule in tuberculosis-endemic area. *Korean J Intern Med* 2001;16(4):236–41.
5. Capone RB, Capone D, Mafort T, et al. Tomographic aspects of advanced active pulmonary tuberculosis and evaluation of sequelae following treatment. *Pulm Med* 2017;2017:9876768.
6. Bonetti A, Aubert JD. The solitary pulmonary nodule. [Article in French]. *Rev Med Suisse* 2008;4(180):2506–10.

\*\*\*\*\*

**Author Contributions**

Imrani Kaoutar – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

N Moatassim Billah – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

I Nassar – Conception of the work, Design of the work, Acquisition of data, Analysis of data, Interpretation of data, Drafting the work, Revising the work critically for important intellectual content, Final approval of the version to be published, Agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved

**Guarantor of Submission**

The corresponding author is the guarantor of submission.

**Source of Support**

None.

**Consent Statement**

Written informed consent was obtained from the patient for publication of this article.

**Conflict of Interest**

Authors declare no conflict of interest.

**Data Availability**

All relevant data are within the paper and its Supporting Information files.

**Copyright**

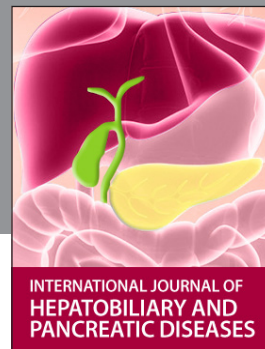
© 2021 Imrani Kaoutar et al. This article is distributed under the terms of Creative Commons Attribution License which permits unrestricted use, distribution and reproduction in any medium provided the original author(s) and original publisher are properly credited. Please see the copyright policy on the journal website for more information.

Access full text article on other devices



Access PDF of article on other devices





**Submit your manuscripts at**  
[www.edoriumjournals.com](http://www.edoriumjournals.com)



**Submit your manuscripts at**  
[www.edoriumjournals.com](http://www.edoriumjournals.com)

