

Thoracic Hypotransparency in an Infant in Close Contact with Tuberculosis

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Keypoints

What is known:

- Tuberculosis diagnosis is suggested by a recent close contact, positive tuberculin skin test / interferon-gamma release assay, and symptoms or findings on radiography and physical examination.
- Frontal and lateral chest radiography is a critical tool for diagnosing intrathoracic tuberculosis in children.
- In many cases, laboratory confirmation is never established (particularly under 5 years of age), and diagnosis relies primarily on clinical criteria.

What is added:

- Computed tomography scan is essential when radiographic images are equivocal and inconsistent with clinical or laboratory findings.
- This case demonstrates a primary tumor with a thoracic location that can be detected incidentally on radiographs.
- This case highlights the importance of structured clinical reasoning and a dynamic management decision despite robust suggestions of a diagnosis.

Introduction

A 9-month-old infant with a history of hospitalization at 2.5 months for bronchiolitis was admitted to the pediatric ward for suspected pulmonary tuberculosis. He had adequate neurodevelopment and an updated national immunization schedule, including bacillus Calmette-Guérin (BCG) at 2 months of age.

When he was 5 months old, he had close contact (cumulative time more than eight hours) with his maternal great-uncle diagnosed with bacilliferous pulmonary tuberculosis. During the contact screening, the infant underwent a chest radiography showing an upper left lobe hypotransparency (Fig. 1). He was then referred to the hospital admission for further management.

At admission, he was asymptomatic. He had good weight-for-height growth, an unremarkable physical examination, and no BCG scar. The analytic workup revealed a complete blood count with 380 monocytes/ μ L, erythrocyte sedimentation rate of 8 mm, C-reactive protein of 0.319 mg/L, glutamic oxaloacetic transaminase of 37 U/L, lactate dehydrogenase of 356 U/L, negative cultures of gastric aspirate for *Mycobacterium tuberculosis*, tuberculin skin test without skin reaction, and anti-human immunodeficiency virus types 1 and 2 negative. Afterward, he underwent a thoracic angiotomography. The findings uncovered an extensively calcified mass of

4 x 3.5 x 5.2 cm in the posterior mediastinum in a left vertebral para-hilar location. Therefore, a neuroblastoma was suggested (Figs. 2 and 3), and he was transferred to an oncology center.

Primary neuroblastomas can be localized in the thorax (15%). However, some are asymptomatic and may be detected incidentally on radiographs.^{1,2} In this case, lateral radiograph imaging would help localize the lesion in the posterior mediastinum and show its calcifications. Moreover, it is cheaper and more available than a computed tomography scan.

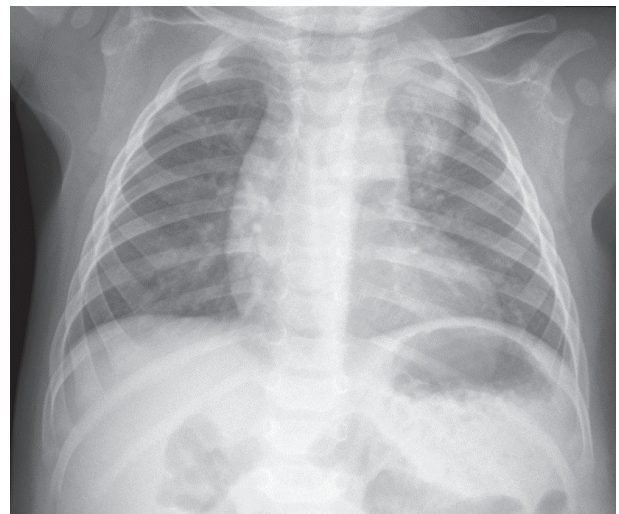


Figure 1. Chest radiography image revealing a well-defined hypotransparency in the left upper lobe (limiting arrows).

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Figure 2. Thoracic angiotomography image revealing an extensively calcified mass of 4 x 3.5 x 5.2 cm in the posterior mediastinum.

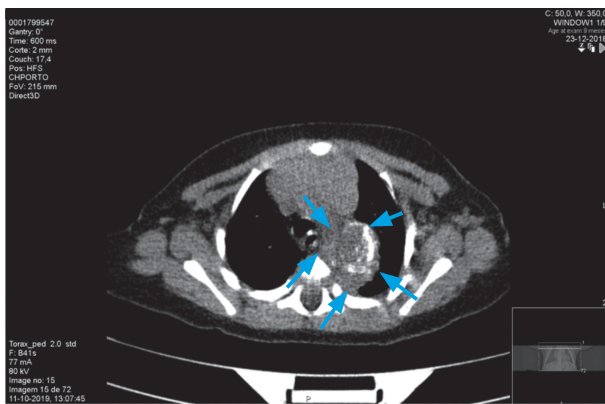


Figure 3. Thoracic angiotomography image revealing a mass in a left vertebral para-hilar location, suggestive of a neuroblastoma.

Although radiographic images of mediastinal tumors are non-specific, localization, radiolucency, mass effect, and calcifications usually suggest the diagnosis.^{1,2} In children with tuberculosis, the most common finding is a primary complex (opacification with lymphadenopathy) that

may progress to atelectasis or pneumonia.^{3,4} Computed tomography scan should be performed in the presence of other findings as a different etiology may be found.

Keywords: Computed Tomography Angiography; Infant; Neuroblastoma/diagnostic imaging; Radiography, Thoracic; Tuberculosis, Pulmonary/diagnostic imaging

Author Contributions

SM, AF, MFM and AR participated in the study conception or design. SM participated in acquisition of data. SM, AF, MFM and AR participated in the analysis or interpretation of data. SM participated in the drafting of the manuscript. AF, MFM and AR participated in the critical revision of the manuscript. All authors approved the final manuscript and are 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.

Conflicts of Interest

The authors declare that there were no conflicts of interest in conducting this study.

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Confidentiality of data

The authors declare that they have followed the protocols of their work centre on the publication of patient data

Consent for publication

Consent for publication was obtained.

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