

## IMAGES IN CLINICAL PRACTICE

### LUNG ABSCESS - THE ANSWER IS IN THE CHEST RADIOGRAPH

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#### KEYWORDS

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#### ARTICLE HISTORY

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An 18-month-old male child, with a history of recurrent wheezing, was brought to the pediatric emergency department with a 3-week history of cough, nasal congestion and intermittent fever. The clinical examination on admission showed unaltered general status, hyperemic pharynx and tonsils, normal cardiopulmonary auscultation and absence of respiratory distress. Laboratory tests revealed elevated infection parameters (leukocyte count of 27600/uL with 76% neutrophils and C-reactive protein of 10.27 mg/dL) and the rapid strep test was negative. The chest radiograph revealed a round image, 45 mm in diameter, with an air-fluid level and well-defined margins, which was compatible with a lung abscess (Figure 1) The patient was admitted and started on clindamycin and cefotaxime. A chest computer tomography (CT) scan confirmed the lesion. (Figure 2) The length of hospital stay was 18 days, but the child was afebrile since day 2 and remained asymptomatic with adequate oxygen saturation on room air. He was then discharged with an oral amoxicillin clavulanate for 10 more days and referred to a pediatric consultation. During his follow up, a primary immunodeficiency (PID) screening revealed only reduced IgA levels.

Ten months after his admission, a follow up CT scan still showed a small pneumatocele that was 22 mm in diameter.

Chest radiograph: on the left, there is round image, 45 mm in diameter, with an air-fluid level and well-defined margins compatible with a lung abscess.

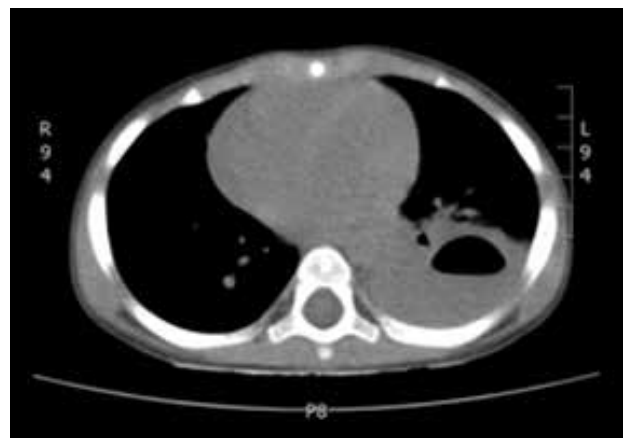
#### What is the Diagnosis?

Lung abscess is a rare disorder that accounts for 0.7/1,00,000 admissions per year.<sup>1,2,3</sup> It can be classified as primary, if it occurs in a previously healthy individual, or secondary, if there is an underlying or predisposing disorder, such as congenital lung disorders and immunodeficiencies.<sup>1,2,4</sup> A primary immunodeficiency (PID) screening (which included complete blood count and measurements of antibody production toward

**Figure 1.** Chest radiograph: on the left, there is round image, 45 mm in diameter, with an air-fluid level and well-defined margins compatible with a lung abscess.



**Figure 2.** Chest Computed Tomography of the chest: this exam confirms the large cavitary lesion in the left lower lobe with a relatively thick wall.



immunizations, serum immunoglobulin levels, total serum hemolytic complement assay and oxidative burst in neutrophils) was performed. IgA deficiency is the most common PID and often presents with recurrent sinopulmonary infections, but according to European Society for Immunodeficiencies (ESID) new criteria, diagnosis should only be considered at an age older than 4 years.<sup>5</sup> In most pediatric cases,

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lung abscess is a local complication of pneumonia. There were no predisposing factors in this child such as immunodeficiency syndromes or any neurological conditions which can lead to aspirations. This, led us to believe that this is a case of a primary lung abscess.<sup>6</sup> The most common pathogens are *Streptococcus pneumoniae* and *Staphylococcus aureus* and anaerobic species, although no microorganisms were isolated in this case, it can be difficult to verify the pathogens in lung abscess without invasive procedures as bacterial cultures are often negative.<sup>7,8</sup> Chest radiography usually establishes the diagnosis and CT scan is used in selected cases, to further define the characteristics of a lesion.<sup>4</sup> Empirical treatment consists of parenteral antibiotics against the most common agents (namely a third-generation cephalosporin and clindamycin). A surgical approach is reserved for those who are refractory to medical therapy.<sup>1</sup>

#### **Conclusion:**

This is a rare case of a severe lung disease in an 18-month-old child without underlying pathology. This case illustrates an untreated pneumonia that formed a lung abscess. Prolonged respiratory symptoms should prompt investigation including chest imaging and blood tests. A CT scan can be helpful to rule out other diagnosis and characterize existing lesions. Patients usually respond well to parenteral antibiotics, but a timely treatment is essential for a better prognosis.

#### **Compliance with ethical standards**

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Conflict of Interest: None

#### **References:**

1. Madhani K, McGrath E, Guglani L. A 10-year retrospective review of pediatric lung abscesses from a single center. *Ann Thorac Med.* 2016;11(3):191-196.
2. Oliveira A, Martins L, Félix M. Lung abscesses in children--twenty four years of experience. *Rev Port Pneumol (2006).* 2015 Sep-Oct;21(5):280-1.
3. Tan TQ, Seilheimer DK, Kaplan SL. Paediatric lung abscess: clinical management and outcome. *Pediatr Infect Dis J.* 1995;14(1):51-5.
4. Chirteş IR, Mărginean CO, Gozar H, Georgescu AM, Meliţ LE. Lung Abscess Remains a Life-Threatening Condition in Pediatrics - A Case Report. *J Crit Care Med (Targu Mures).* 2017;3(3):123-127.
5. Prashanth Rawla; Nancy Joseph. IgA Deficiency. In: *StatPearls. Treasure Island (FL): StatPearls Publishing; 2021 Jan.*
6. Alsubi H, Fitzgerald DA. Lung abscesses in children. *J Pediatr Inf Dis.* 2009;4:27-35.
7. Madhani K, McGrath E, Guglani L. A 10-year retrospective review of pediatric lung abscesses from a single center. *Ann Thorac Med.* 2016;11(3):191-196.
8. Choi MS, Chun JH, Lee KS, Rha YH, Choi SH. Clinical characteristics of lung abscess in children: 15-year experience at two university hospitals. *Korean J Pediatr.* 2015;58(12):478-483.