Bronchial Hypersecretion as a Clue for Asthma Diagnosis

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An 11-year-old girl presented to the local emergency department with chest pain, dyspnea, and fatigue occurring for the last two days. She had perennial rhinitis, second-hand smoke exposure, and was previously admitted to the emergency service due to acute bronchiolitis in the first year of life and at 16 months for a wheezing episode. Family history was positive for asthma. At the emergency service, absence of lung sounds on the left hemithorax was noticed, with normal peripheral oxygen saturation. Chest radiography showed atelectasis of the left lung (Fig. 1). She was admitted and prescribed oxygen. Chest computer tomography confirmed the atelectasis of the left upper lobe and superior lingular segment, and left shift of the mediastinum. She was referred to a tertiary care hospital. At admission, chest radiography showed radiological worsening (Fig. 2). Bronchoscopy revealed abundant mucopurulent bronchial secretions. Microbiological respiratory cultures were negative. Sweat chloride test was normal. Full blood count was normal, C-reactive protein maximum value 1.47 mg/dL (reference values < 0.5 mg/dL). Total serum immunoglobulin E was 419 U/L (reference values < 200 U/L), with no aeroallergen sensitivity (Table 1). A spirometry evaluation revealed bronchial and bronchiolar obstruction with a positive response to bronchodilator without complete reversibility. She received oxygen, inhaled bronchodilators, systemic corticosteroids, antibiotics, and respiratory physiotherapy. A favorable clinical and chest radiography evolution (Fig. 3), allowed for discharge at day 11, prescribed with twice-daily fluticasone propionate-salmeterol and as-needed salbutamol. We concluded that this episode of bronchial hypersecretion was a clue for the diagnosis of asthma.

Bronchial hypersecretion as an expression of asthma is rarely described in the literature.[1] This presentation, different from the classic allergic eosinophilic asthma, seems to be associated with increased disease severity[2] and bronchial obstruction.[3] Recent studies propose the inclusion of bronchial hypersecretion as a poor prognostic factor.[3,4] The etiological study should be guided by the clinical history and complementary evaluation directed to the main causes of bronchial hypersecretion. This case highlights that even common diseases may have atypical presentations.

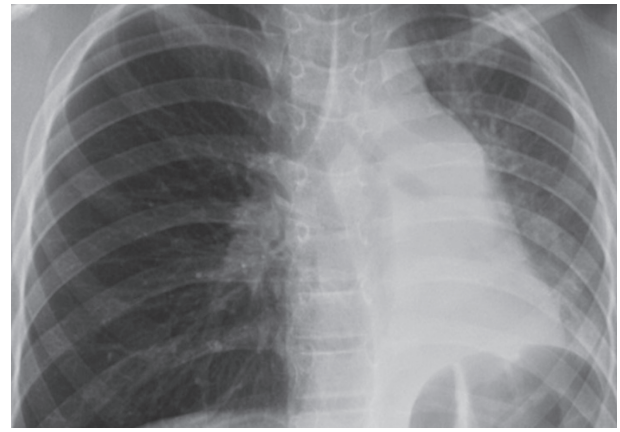

Figure 1. Chest radiography on day two of disease. Left tracheal shift, opacification in the left lung and hyperinflation in the right lung.

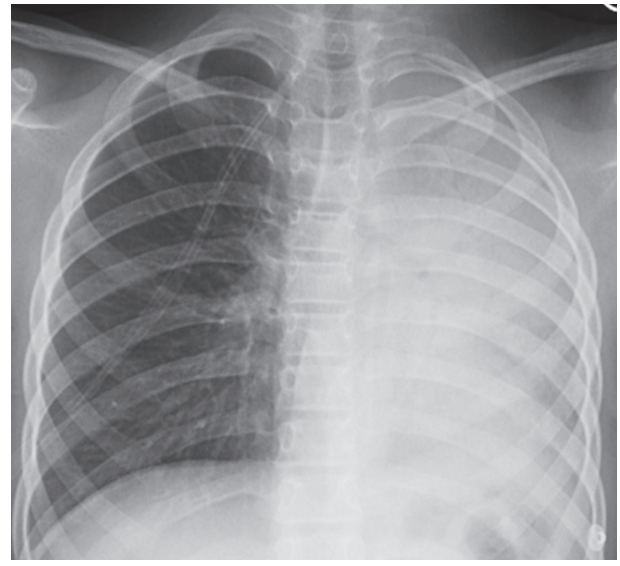

Figure 2. Chest radiography on day five. Extensive opacification in the left lung, without the obliteration of the left costophrenic angle, and left tracheal shift.

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Table 1. Overview of the patient sensitization to aeroallergens

Serum immunoglobulin E		
Total*		419 U/L
Allergen-specific†	Grass mix – gx1 (g3, g4, g5, g6, g8)	Negative
	Tree pollen – tx7 (olive tree, willow, white pine, eucalyptus, acacia, melaleuca)	Negative
	Dermatophagoides pteronyssinus	< 0.35 kU/L
	Dermatophagoides farinae	< 0.35 kU/L
	Lepidoglyphus destructor	< 0.35 kU/L
	Blomia tropicalis	< 0.35 kU/L
	Alternaria alternata	< 0.35 kU/L
	Parietaria judaica	< 0.35 kU/L

* Total serum immunoglobulin E reference value is < 200 U/L.
† Positive serum allergen-specific immunoglobulin E was defined as a value ≥ 0.35 kU/L.

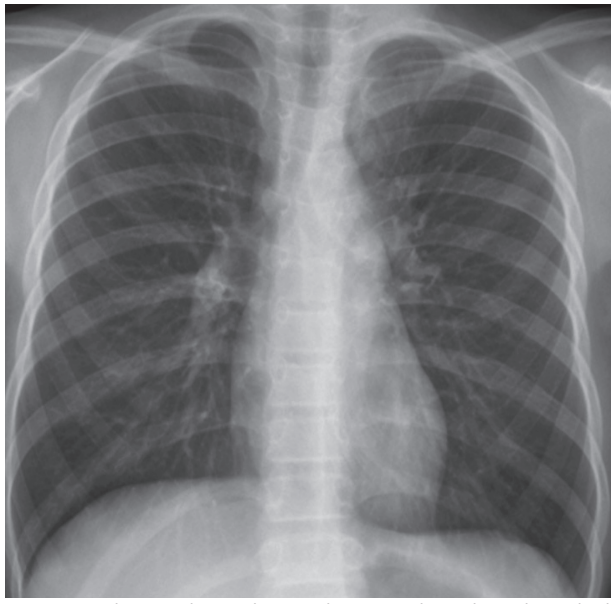

Figure 3. Chest radiography on day 14. Bilateral peribronchial thickening, with no other alterations.

Keywords: Asthma/diagnosis; Bronchi/metabolism; Child; Mucus/metabolism; Pulmonary Atelectasis/etiology

WHAT THIS REPORT ADDS

- Airway mucus hypersecretion is a rare and more severe phenotype of asthma, usually associated with poor clinical control.
- Airway mucus hypersecretion can lead to significant airflow limitation.
- The diagnostic workup should be guided by the clinical history and complementary evaluation directed to the main causes of bronchial hypersecretion.
- Effective and specific treatment must be targeted to assure a favorable clinical and radiological evolution.

Conflicts of Interest

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

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Consent for publication

Consent for publication was obtained.

Confidentiality of data

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

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Awards and presentations

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