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Case Report

An unusual radiologic manifestation of hypersensitivity pneumonia

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ABSTRACT

Hypersensitivity pneumonia is clinically suspected and can be characterized on computed tomography by its pattern of diffuse lung disease, in children, as in adults. However, identifying the diagnosis is not always as simple. We report an organizing pneumonia pattern of hypersensitivity pneumonia that can be seen in adult patients, but has not been reported in the pediatric population.

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Introduction

Hypersensitivity pneumonia is one cause of chronic lung disease seen on computed tomography (CT) and can be seen in adults, secondary to external, and often, occupational allergens [1]. It can be seen in children secondary to environmental allergens, but often, the allergen is not found. The diagnosis of hypersensitivity pneumonia in children can be challenging [1]. The pattern-based approach to chronic interstitial lung disease in children is similar to that in adults where, at first, the typical radiologic pattern is identified

with different possible descriptions: unusual interstitial pneumonia, nonspecific interstitial pneumonia, hypersensitivity pneumonia, and organizing pneumonia [2,3]. Second, if the cause (some common and others rare) of this pattern is not identified, a diagnosis of an idiopathic condition is suggested [2,4]. The typical radiologic hypersensitivity pneumonia pattern includes the presence of centrilobular ground glass opacities, seen diffusely in both lung fields. In the chronic phase, fibrotic changes might be seen. In adults, an organizing pneumonia pattern of focal consolidation can be seen with hypersensitivity pneumonitis [2,5]. This pattern has

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not been reported in children. We present a case of an unusual radiologic presentation of hypersensitivity pneumonia presenting with an organizing pneumonia pattern of diffuse lung disease on CT in a 7-year-old child.

Case report

A 7-year-old, otherwise healthy girl, presented with a 6-month history of chronic cough. She had been treated with antibiotics (oral antibiotics, 15 days) for 2 episodes of fever without complete resolution of symptoms. Her initial chest X-ray demonstrated a focal left lower lobe retrocardiac alveolar infiltrate with air bronchograms, consistent with pneumonia (Fig. 1A). Two-weeks later, X-ray showed the appearance of alveolar infiltrates in the right upper and lower lobes and in the left upper lobe with partial regression of the left retrocardiac alveolar infiltrate seen earlier (Fig. 1B). CT (Siemens SOMATOM Definition Edge, 80 kVp, tube current 216 mA, slice thickness 0.75 mm, and CTDIvol 1.5 mGy) confirmed an organizing pneumonia pattern of focal opacities in both lung fields, and one with mixed attenuation (central ground glass and peripheral alveolar consolidation), compatible with the Atoll sign in the left lung fields (Fig. 2). A bronchoscopy showed no anatomic anomalies, and the bronchoalveolar lavage demonstrated a normal cellular repartition with an absence of cellular anomalies (Gold and Arhens score, negative periodic acid-schiff stain, normal CD4:CD8 ratio, and a normal CD1 stain). Bacteriology, virology (adenovirus and cytomegalovirus), and a quantiferon test showed negative results. Owing to the persistence of a chronic cough and increased respiratory effort, an oral short-acting steroid treatment (prednisone 2 mg/kg/d) was initiated. Clinical improvement of respiratory symptoms and in lung function

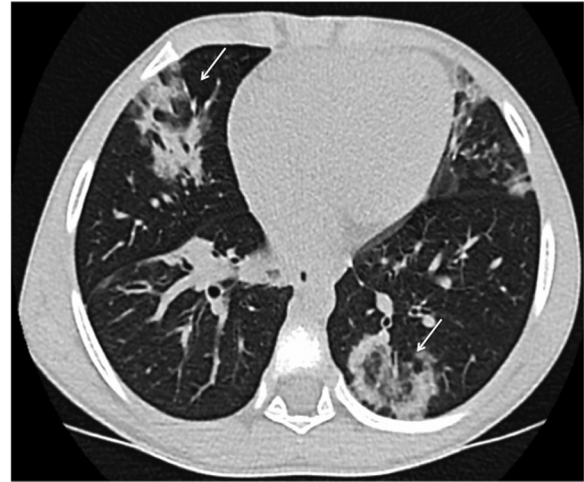


Fig. 2 – CT at treatment initiation demonstrating patchy focal alveolar consolidations in both lung fields with a central ground glass opacity surround by a peripheral alveolar consolidation (the Atoll sign) in the apical segment of the left lower lobe.

test (functional vital capacity and total lung capacity) was demonstrated post-treatment. After 2 months of corticosteroid weaning, the patient presented again with shortness of breath. CT performed postweaning, demonstrated the appearance of a new focal perihilar apical segment left lower lobe alveolar consolidation with air bronchograms. The diagnosis of organizing pneumonia was retained based on the clinical and CT findings.

Follow-up CT 13 months after presentation, and 6 months after initiation of steroid treatment demonstrated a new

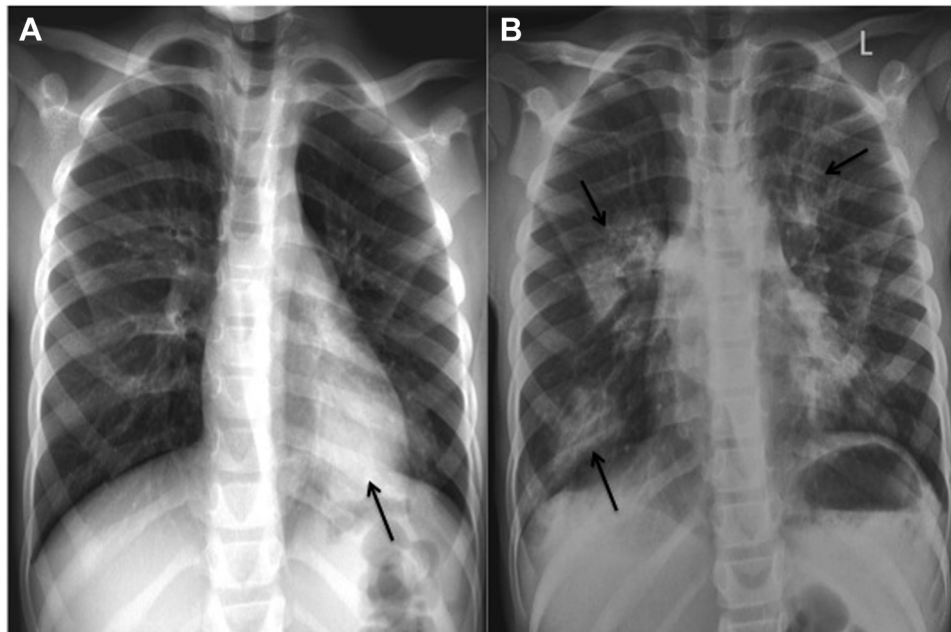


Fig. 1 – (A) Chest X-ray at presentation demonstrating left lower lobe retro-cardiac consolidation (arrow). (B) Chest X-ray 1 month later demonstrating multiple focal lung consolidations in the right and left lobes (arrow), disappearance of the retro-cardiac consolidation.

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