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Status asthmaticus complicated by bilateral upper lobe collapse and spontaneous pneumothoraxes

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Abstract

We present a case of a 32-year-old postpartum woman with status asthmaticus complicated by bilateral upper lobe collapse and pneumothoraxes. Imaging revealed bilateral upper lobe mucus plugging and barotrauma likely resulting from BiPAP use. She improved with conservative management. This case highlights the importance of early imaging in asthma decompensation to identify uncommon but serious complications.

Keywords: Status asthmaticus; Pneumothorax; Mucus plugging; Atelectasis.

Introduction

We present an unusual case of bilateral upper lobe opacification in a young woman with status asthmaticus, ultimately found to have bilateral pneumothoraxes and upper lobe collapse.

Case description

A 32-year-old G2P2 non-smoking woman, three months postpartum with a history of moderate persistent asthma, presented with status asthmaticus precipitated by rhinovirus infection. She was initially placed on bilevel positive airway pressure (BiPAP) with settings of inspiratory positive airway pressure (IPAP) 12 cm H_2O, expiratory positive airway pressure (EPAP) 5 cm H_2O, and fraction of inspired oxygen (FiO_2) 100%. After five hours, she developed sudden, severe bilateral posterior chest pain and worsening respiratory distress with respiratory splinting. Exam revealed tachypnea with bilateral wheezing and reduced air movement. Chest X-ray showed low lung volumes (Figure 1), and CT chest with contrast revealed bilateral upper lobe mucus plugging with post-obstructive atelectasis, as well as bilateral pneumothoraces without evidence of pulmonary embolism (Figures 2 & 3). She was transitioned to high-flow nasal cannula and gradually weaned to room air without requiring bronchoscopy.

Discussion

This case highlights a rare presentation of bilateral upper lobe collapse and bilateral pneumothoraces in a postpartum woman with status asthmaticus. Upper lobe collapse due to mucus plugging is uncommon in asthma but can occur in severe exacerbations with impaired clearance and bronchial obstruction [1]. The development of pneumothoraces may possibly be attributed to barotrauma from the use of non-invasive ventilation such as BiPAP [2]. Additionally, the postpartum period may contribute to worsened asthma control due to hormonal and immunologic changes that increase airway hyperresponsiveness [3].

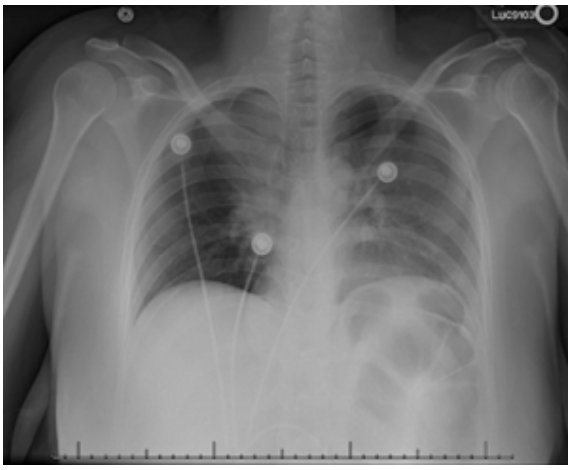

Figure 1: Chest X-ray showing low lung volumes.

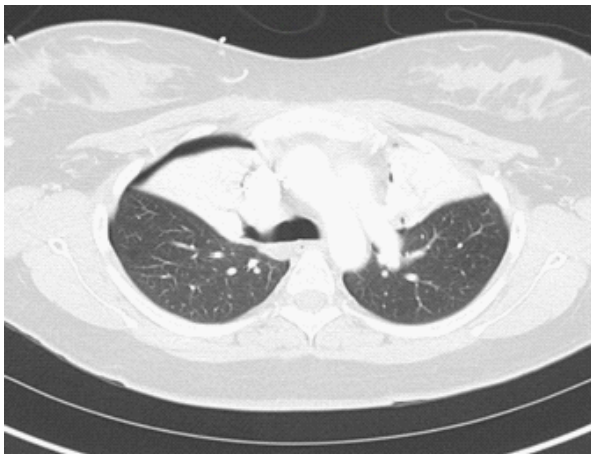

Figure 2: CT chest showing bilateral upper lobe collapse with bilateral pneumothoraces.

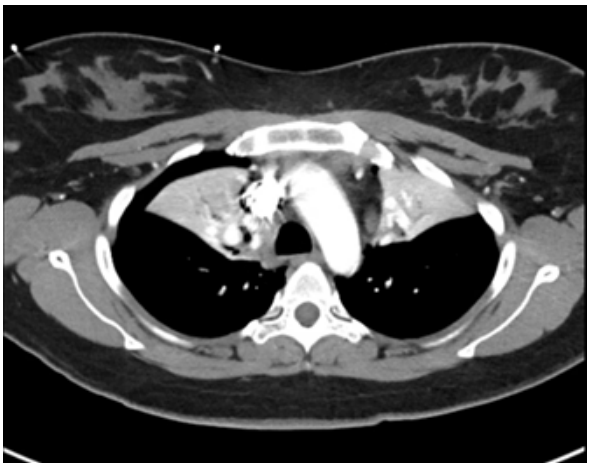

Figure 3: CT chest showing bilateral upper lobe collapse with bilateral pneumothoraces.

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