

Case Report

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Aspiration of a Bee causing Right Lung Collapse, Anaphylaxis and Hypoxic Respiratory Arrest

Andrew Lee Holzman^{1*}, Catherine Williams¹ and Douglas Rappaport²

¹Mayo Clinic Alix School of Medicine, Scottsdale, Arizona, USA

²Mayo Clinic Department of Emergency Medicine, Phoenix, Arizona, USA

ABSTRACT

We report the apparent aspiration of a bee followed by anaphylaxis and respiratory arrest in an adult male. The patient's subjective experience of "swallowing a bee" is supported by clinical and radiographic findings.

*Corresponding author

Andrew Lee Holzman, Mayo Clinic Alix School of Medicine, Scottsdale, Arizona, USA.

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Introduction

Foreign Body Aspiration

Foreign body aspiration is uncommon in adults but can present dramatically, with wheezing, coughing and acute respiratory distress noted clinically, and bronchiectasis, atelectasis and hyperinflation noted radiographically [1]. Aspiration of insects has been previously described in the literature. A 2018 case reported an adult man with a "crawling sensation" in his chest who on flexible bronchoscopy was found to have a foreign body resembling an Australian cockroach obstructing the lingula. The foreign body was successfully removed [2]. In 1996, Sharma et al. reported finding a "mummified" cockroach in the bronchus of a pediatric patient [3].

Bee-Sting Anaphylaxis

Systemic reactions to bee sting allergies are a relatively common presentation, with one study finding these in 2.3% of people in a rural community [4]. These are mediated by an IgE-dependent release of histamine, causing vasodilation, airway constriction, shock and death, which can occur within minutes of a severe reaction [5]. Initial treatment of bee-sting anaphylaxis is by intramuscular epinephrine and airway maintenance [6].

Case Report

A 42-year-old male presented to the emergency department in severe respiratory distress with profound hypoxemia. Bystanders at the construction site where the patient had been working reported that he was consuming an energy drink when he began coughing after he stated he had "swallowed a bee." Family members later reported that the patient had a severe allergic reaction as a child, but the cause of the reaction was unknown. The patient was found unresponsive with agonal respirations by EMS; he was treated with intramuscular epinephrine and brought to the hospital with a laryngeal-mask airway. In the ED, the patient was tachycardic to 127 bpm with a blood pressure of 136/94 and a respiratory rate of 30 breaths per minute. The patient was afebrile and saturating

well at 98% on 100% FiO₂ via the LMA. On auscultation, diffuse wheezing was noted. He had no angioedema or oropharyngeal swelling. The patient was intubated and briefly treated with an intravenous epinephrine drip and IV steroids. Laboratory studies revealed an elevated lactate of 8.5 mmol/L. A CT chest angiogram revealed right upper and middle lobe atelectasis with hilar fullness, concerning for aspiration and endobronchial obstruction (Figure 1). Bronchoscopy was performed and showed significant airway edema, but a foreign body could not be located. The patient improved in the ICU, was extubated uneventfully and was discharged the next day with a sore throat and instructions to carry an Epi-Pen.



Figure 1: CT Chest Angiogram with Intravenous contrast Showed Post-Obstructive Atelectasis of the Right Middle and Lower Lobes

Discussion

The diagnosis of acute respiratory failure in the emergency department is challenging and involves consideration of a variety of life-threatening diagnoses. In this patient, CT angiogram of the chest revealed atelectasis suggestive of an obstruction, and the

clinical presentation of the patient was consistent with anaphylaxis. Notably, there was no finding consistent with other acute causes of respiratory failure, including pulmonary embolism. This accords with the patient's subjective experience of "swallowing" an insect and is supported by the history of an unknown but severe allergic reaction. In some cases of foreign body aspiration of an insect, it has been possible to recover the insect by flexible bronchoscopy. However, patients may also expel foreign bodies successfully by expectoration while conscious. In this case, the patient's successful expectoration of the insect would not preclude its causing hypoxic respiratory failure from systemic anaphylaxis secondary to a bee sting.

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