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Spontaneous pneumomediastinum presententing as nasal voice

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1. Introduction

We present a case of spontaneous pneumomediastinum in a person with hypoxemia and dyspnea caused by vigorous cough. The entity of spontaneous pneumomediastinum is unfamiliar and is considered rare. Nasal voice is an uncommon sign of that entity. The dyspnea after exposure to substance inhalation and cough can be caused by different mechanisms such as toxic effects to the lungs and esophagus, or perforation of the trachea, which were not found in our patient.

The entity of spontaneous pneumomediastinum should be introduced to the general medical population.

2. Case

A 42-year-old male presented with dyspnea and mild neck discomfort. An hour earlier he opened a toilet cleaner and vapors spread in the room caused him to cough vigorously. On examination he was tachypneic. Room air saturation was 92%. Auscultation to the lungs, neck examination and chest x ray were unremarkable. Few hours later the patient developed a high pitched voice with hyponasal quality and lack of resonance. Soft tissue crepitus of the upper chest and neck was noticed and subcutaneous emphysema was seen on neck X ray. Computerized tomography was performed. What is the patient's diagnosis?

3. Discussion

Entry of air into the mediastinum causing pneumomediastinum (Fig. 1) may occur through the trachea, bronchi, esophagus, neck, abdomen or retroperitoneum. Spontaneous pneumomediastinum was described by Hamman in 1939 [1]. It is a rare clinical entity with an incidence of 1 per 7000 to 12,000 hospital admissions. It tends to occur when intrathoracic pressure is increased as during physical exercise, cough and vomiting. Predisposing factors include asthma, COPD, smoking and illicit drug use. The most common symptom is retrosternal chest pain. Other symptoms are neck discomfort, persistent cough or

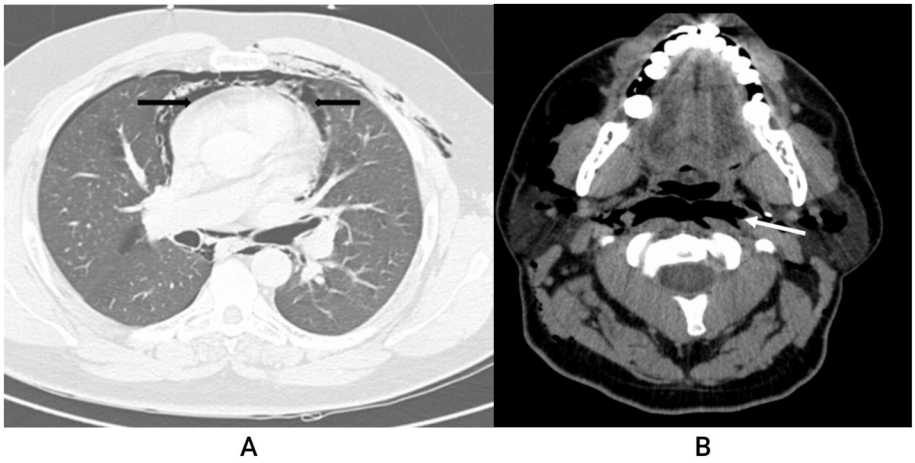

Fig. 1. Panel A: Chest computerized tomography showing pneumomediastinum and small Rt. pneumothorax. Panel B: Neck computerized tomography demonstrating air penetrating the retropharynx

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dyspnea. Subcutaneous emphysema is the most common sign. [2]

Alterations in voice in association with pneumomediastinum have been described in case reports. [3] The thickened, high pitched, hyponasal voice is termed closed rhinolalia. The mediastinum and retropharengeal spaces are a continuous anatomical structure permitting passage of free air from the mediastinum upward between the planes causing pneumonasopharynx (Fig. 1). Pneumonasopharynx can, in turn, cause partial or complete obstruction of the nasopharyngeal lumen, reducing nasal airflow. Air in the retropharynx can also cause alternation of tissue consistency and compliance. These changes cause alternation of nasopharyngeal tissue resonance, thus altering the patient's voice quality, known as closed rhinolalia. It is an uncommon sign, but when present can serve as a clue to the diagnosis.

Spontaneous pneumomediastinum usually resolves spontaneously within 7 days. The treatment is usually conservative and rarely necessitates surgical intervention. Chest tube insertion may help patients with associated pneumothorax or tracheal compression. Recurrence is uncommon.

Conflict of interests

The authors declare we have no conflict of interest regarding the case “Dyspnea and funny voice”.

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