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Young man with Spontaneous Pneumomediastinum with Atypical Presentation

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Abstract

Introduction: Spontaneous pneumomediastinum (SPM) is a rare condition that is defined as the presence of free air in the mediastinal structures without underlying cause. It commonly happens after coughing, vomiting or intensive physical exercise. Most patients present to emergency department (ED) with dyspnea and chest pain. Young healthy adults are the most population that involve with this problem. Chest X-ray and Chest CT are modalities that can be used for approving the diagnosis. Although SPM seldom accompany with life threatening complications, it is usually a benign and self-limiting disorder. Here we introduce a patient with spontaneous pneumomediastinum with atypical presentation.

Case Presentation: A 19-year-old man presented to ED with chief complaint of dyspnea without chest trauma. He denied any drugs consumption and his past medical history did not have noticeable problems. Patient's vital signs were normal and in physical examination, except mild emphysema of neck, other system inspection did not have any pathologic findings correspond with his complication. Chest X-ray and chest CT scan exhibited air in mediastinum without any other pathology like rib fracture. After three days his symptoms was resolved with no requiring to specific treatment.

Conclusion: It is a rare condition and if it present with rare symptoms the diagnosis would be very difficult. More, physical examination and chest x-ray as the first diagnostic imaging in respiratory complaints may detect no obvious findings. SPM should be considered as differential diagnosis in young adults, with any respiratory complaint.

Keywords: Dyspnea, Emphysema, Spontaneous pneumomediastinum

1. Introduction

Pneumomediastinumis defined as presence of air in the mediastinum which originates from esophagus, lungs, or bronchial tree (1). Spontaneous pneumomediastinum (SPM) may occur without any predisposing factors like trauma or iatrogenic causes (2). At first in 1819 Rene Laennec described pneumomediastinum, following that in 1939 spontaneous pneumomediastinum was explained by Louis Hamman (3). It is a benign and self-limiting condition in comparison with secondary pneumomediastinum that may be associated with serious internal organ damage (4).

The incidence of SPM is low, estimated 1in 30000 of emergency department presentation. Young male adults are the most susceptible population that present with SPM in emergency department (5,6). Some events can triggered of SPM such as asthma, vomiting, drugs, exercise, and Valsalva maneuvers (2).

Increasing pressure gradient between the intra-alveolar and interstitial spaces is described as the pathophysiology of SPM, which cause air leakage expansion from small alveolar openings and ruptured alveoli into the perivascular adventitia contributing to interstitial emphysema (7).

The most common symptoms of SPM are pleuritic chest pain and dyspnea (5). Patients may present with other symptoms such as odynophagia, cough, dysphonia, back pain, dysphagia or abdominal pain (8). On physical examination more than half of patients have subcutaneous emphysema (9).

Chest X-ray and chest CT scan should be considered as main imaging instruments for diagnosis respectively, because chest X-ray cannot well demonstrate pneumomediastinum (10).

Decision for treatment of SPM depend on severity of signs, symptoms and underlying disease and treatment could be outpatient or inpatient (11). Monitoring of these patients is very important because of potential lethal complications like pneumothorax, pneumopericardium, pneumoperitoneum, pneumor- rhachis and mediastinitis (9,12).

Here we describe a young man with spontaneous pneumomediastinum who presented with atypical presentation.

2. Case Presentation

A nineteen-year- old manpresented to emergency department with chief complaint of dyspnea. His problem started from mid-day and developed gradually. He also complained of sore-throat and dysphonia. On physical examination he did not have any nasal discharge, cough, sialorrhea or neck lymphadenopathy. Throat examination was normal. He also did not have history of trauma or foreign body aspiration.

The patient had no prior history of medical or surgical disease and taking medicine.He did not

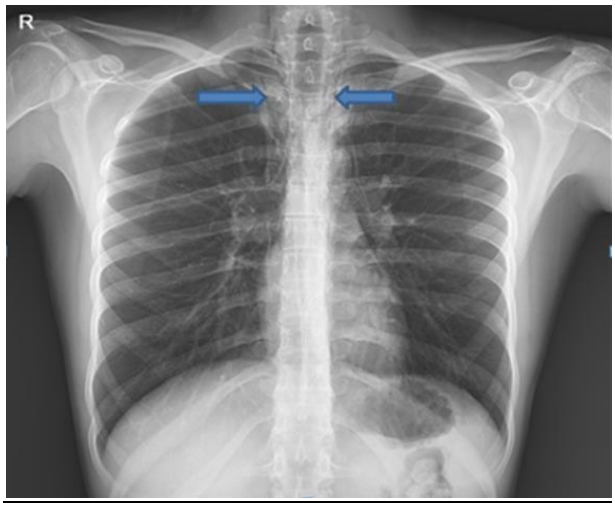

Figure 1. Postero-anterior radiograph demonstrates streaks of air outlining the mediastinum and neck, without evidence of rib fracture or pneumothorax

have respiratory distress but suffered from hoarseness. On physical exam blood pressure was 110/70, pulse rate 78/min, temperature 37°C, respiratory rate16/min and oxygen saturation of 98% in room air.Mild subcutaneous emphysema was palpable in neck examination.There was no jugular vein distension or signs of pharyngitis and decreased breath sounds. Further investigation revealed that he had heavy object lifting the day before. Chest X -ray revealed suspected evidences of pneumomediastinum (Figure 1), therefore chest CT scan was taken. Chest CT scan demonstrated free air around trachea and pericardium in axial view (Figure 2). So, the treatment plan was admissionin in surgery department for observation. After a few hours' observation in surgery ward, the patient left the hospital and refused to continue treatment and observation period. We followed up the patient daily by phone, after three days we informed that his problems were resolved considerably. But he refused to come back for further examination.

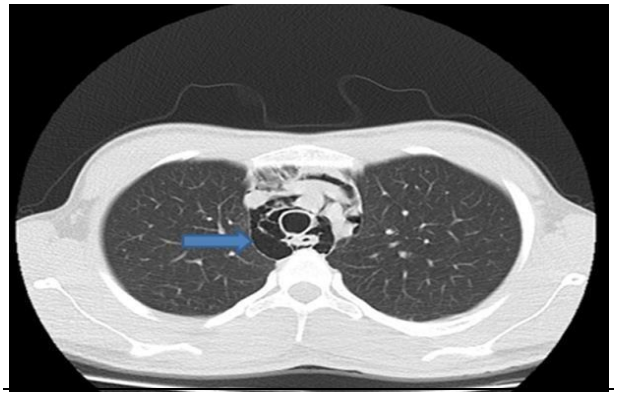

Figure 2. Chest CT scan, axial view: show free air around trachea and mediastinum

3. Discussion

SPM is a rare condition can occur after some predisposing factors such as vomiting, coughing, asthma attacks and intensive exercise that increase intrathoracic pressure (10).This leads to alveolar rupture due to overexpansion of distal airway and alveoli. Air spreading occurs throughout the neck and mediastinum because of interrelationship of these spaces through fascia (13). In our case SPM happened after 24 hours following heavy weight object lifting.

Chest pain, neck pain, dyspnea, dysphagia, weakness and swelling of the face and neck are the most common presentations of SPM (7). The chief complaint of the patient was dyspnea and sore throat which were to some extent confusing. Sore throat has rarely been reported as a symptom of pneumomediastinum (13). This is a rare presentation of a rare disease.

Subcutaneous emphysema particularly in the neck has been reported the most common sign (14). We detected only mild subcutaneous neck emphysema in this patient.

Additional diagnostic workup and admission is required if there is any doubt in diagnosis, need of specific treatment for underlying disease, or suspected organ perforation (11). Patients with SPM should be admitted for monitoring, excluding of secondary causes and conservative treatment, nevertheless SPM has an excellent prognosis (12,14). Owing to these reasons we admit our patient to surgery department. After a few days his symptom dissolved without any intervention.

SPM can be easily missed due to its low incidence and mild severity (5). In addition, signs and symptoms of SPM are not specific and these can be seen in many cardiopulmonary disease and other conditions (12).

SPM should be considered as differential diagnosis in young adults, with any respiratory complaint. It is a rare condition and if it presents with rare symptoms the diagnosis would be very difficult. More, physical examination and chest x-ray as the first diagnostic imaging in respiratory complaints may detect no obvious findings.

6. Conclusion

Spontaneous pneumomediastinum is a rare condition and if it present with rare symptoms the diagnosis would be very difficult. More, physical examination and chest x-ray as the first diagnostic imaging in respiratory complaints may detect no obvious findings. Spontaneous pneumomediastinum should be considered as differential diagnosis in young adults, with any respiratory complaint.

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