Spontaneous pneumomediastinum is a condition although uncommonly seen, has been well documented. This condition is defined as presence of gas or air within the mediastinum that occurs spontaneously. In this case report, we describe a patient with spontaneous pneumomediastinum who presented with sore throat, chest and neck pain. No risk factors could be identified. He was treated conservatively and had an uneventful outcome. (Hong Kong J. Emerg. Med. 2002;9:168-170)

Keywords: Risk factors, spontaneous

Introduction

A 17-year-old male student came to our emergency department in the middle of night complaining of chest pain, sore throat, neck pain and swelling for one day. He had no associated cough, fever, shortness of breath, nor hoarseness of voice. He had no history of recent trauma, no vomiting, no foreign body lodged or any history of drug abuse.

He was a non-smoker and a non-drinker and enjoyed good health.

Physical examination revealed a conscious and alert gentleman with no respiratory distress. His blood pressure was 126/73 mm Hg; pulse rate was 82 beat/min and SpO₂ was 97% on room air. He was afebrile.

There was subcutaneous emphysema and tenderness over left side of neck. His trachea was central. Chest examination was clear, with good air-entry on both sides. Other clinical examinations were essentially normal.

Chest X-ray and lateral X-ray of the neck were performed. On the neck radiograph, there was air seen in the subcutaneous tissue (Figure 1) and on chest X-ray, there was a radio-lucent line along the left border of the mediastinum. (Figure 2) ECG showed sinus rhythm with no ischaemic changes.

This gentleman was admitted to surgical unit for further observation.
Progress

Blood tests showed Hb 15.5 g/dL and WBC 16.3x10^9/L. Liver and renal function tests and arterial blood gas were normal.

Urgent CT neck and thorax were performed which showed pneumomediastinum tracking up to neck causing surgical emphysema in the subcutaneous plane, retropharyngeal and bilateral carotid spaces. There was no soft tissue swelling or air/fluid levels in the neck and mediastinum suggestive of abscess or mediastinitis.

Urgent gastrograffin swallow showed no leakage of contrast in both supine and prone position.

He was treated conservatively in hospital for 8 days with broad-spectrum prophylactic antibiotic. Progress was uneventful. Upon discharge, there was still some residual surgical emphysema seen in X-ray of the neck and chest. He was followed up in 3 weeks later at the surgical out-patient clinic.

Discussion

Spontaneous pneumomediastinum is an uncommon disease. It occurs about 1 in 7000-12000 hospital admission. It is usually self-limiting, and is commonly seen in young men. The incidence is rather difficult to evaluate because the disease frequently escapes recognition. The disease is sometimes associated with conditions leading to increase in intra-thoracic pressure such as asthma, severe coughing, childbirth, severe vomiting, diabetes ketoacidosis, Valsalva maneuvers, and inhalational drug abuse like heroine, marijuana and cocaine.

The pathophysiology of this disorder is related to excessive intraalveolar pressure leading to rupture of perivascular alveoli. Air escapes into the perivascular connective tissue with subsequent dissection into the mediastinum. It may also dissect superiorly into the visceral, retropharyngeal and subcutaneous spaces of the neck.

Patient with spontaneous pneumomediastinum usually presents with pleuritic chest pain, dyspnoea, and neck pain. Some uncommon presentations include dysphagia and dysphonia. Physical signs may reveal subcutaneous emphysema and mediastinal crepitation. However, patients can be relatively asymptomatic and physical findings may be absent.

X-ray is essential in the diagnosis. In AP film, there are radio-lucent and vertically oriented streaks of air within the mediastinum. The air is more easily seen in lateral projection, and like pneumothorax, it is better seen in expiratory film.

Laboratory findings in spontaneous pneumomediastinum are non-specific and are frequently normal.

In order to make a diagnosis of spontaneous pneumomediastinum, other causes of pneumomediastinum must be ruled out. Other important causes like Boerhaave’s syndrome, soft-tissue infection of head and neck by gas producing organisms, trauma and foreign body.
It is also important to look for associated pneumothorax in patients who presented with spontaneous pneumomediastinum since it is commonly associated.

Gastrograffin swallow is a useful, easily performed test that can be done to detect any oesophageal disruption.

Therapy of spontaneous pneumomediastinum should be directed at the underlying causes such as asthma. Analgesic, bed rest, treatment for coughing and breathing 100% oxygen will enhance re-absorption of the free air by increasing the gradient of nitrogen between the alveoli and the tissue. Needle or surgical decompression is dangerous. Pain typically subsides within a few days and chest X-ray usually returns to normal within 1 to 2 weeks.

References