

Isolated Pneumomediastinum in an Adult: A Case Report

Erişkinde İzole Pnömomediastinum: Olgu Sunumu
Acil Tıp

Başvuru: 02.03.2017
Kabul: 27.07.2017
Yayın: 27.07.2017

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Özet

Pnömomediastinum (PM) mediastendeki hava kaçağının klinik bulgusudur. Göğüs, boyun travması ve özofagus ruptürü sonrasında veya nadiren spontan olarak gelişebilir. Bu hastaların acil servisteki değerlendirilmesi ve yönetimi ile ilgili çok az veri bulunmaktadır. 22 yaşında erkek hasta, acil servise boyunda şişlik ve ağrı şikayeti ile başvurdu. Hastanın akciğer grafisinde cilt altında yaygın serbest hava imajı saptandı. Hasta şifa ile taburcu oldu. PM ve subkutan amfizem nadir ve kendi kendini sınırlayan durumlardır. Plöretik göğüs ağrısı, boyun ağrısı ve nefes darlığı şikayeti ile başvuran özellikle genç erişkinlerde mutlaka araştırılmalıdır. Biz bu vakada, bazı PM hastalarında klinik bulguların ve semptomların beklenenden hafif olmasının alttaki daha ciddi yaralanmaların gözden kaçmasına neden olabileceğini sunmaya çalıştık.

Anahtar kelimeler: Pnömomediastinum, İlaç bağımlılığı, Spor travmaları, Boyun ağrısı

Abstract

Pneumomediastinum (PM) is the clinical finding of air in the mediastinum. It may develop after trauma to chest, neck and rupture of esophagus or rarely spontaneously. There is little data about the medical evaluation and management of these patients in the emergency department. We presented a case of 22-year-old male patient who had presented with complaints about neck swelling and pain to the emergency department (ED). His chest X-ray showed extensive air under the skin of neck. The patient had a good outcome. PM and subcutaneous emphysema are rare and self-limiting conditions but should be sought especially in young adults who present with pleuritic chest pain, neck pain and dyspnea. The aim of this case report is to emphasise that clinical findings and symptoms of some PM patients may be milder than expected so, it is easy to overlook further severe injuries.

Keywords: Pneumomediastinum, Drug addiction, Sport trauma, Neck pain

Introduction

Pneumomediastinum (PM) and subcutaneous emphysema are the clinical findings of air in the mediastinum and under the skin, which usually occur after an esophageal or chest trauma, or sometimes can be spontaneously¹. Spontaneous pneumomediastinum (SPM) is a rare but clinically benign finding especially in young patients with no history of precipitating condition. There is no absolute data but only case series, point to an incidence of 1/7000-45000². It is more common in young males. Causes include asthma exacerbations, dental extraction, barotrauma, infection and esophageal rupture³. It can also spontaneously occur due to vomiting, Valsalva maneuver, coughing, forceful straining during exercise^{1,4}. However, recreational illicit drug use is a very rare cause of PM and subcutaneous emphysema, there are only a few reported cases in literature⁵.

Case Report

A 22-year-old man with no past medical history presented to emergency department with a neck swelling and pain for 2 days. His vitals were normal and had no concomitant complaint. He was an exillicit drug user but he

denied any illicit drug use at presentation. There was no history of trauma or vigorous exercise. He described no history of vomiting or coughing. However, the patient remembered a history of trauma while wrestling with his friend 3 days ago.

His examination revealed crepitus under the skin of his neck but normal air entry on chest auscultation. His blood tests and ECG were normal. His chest radiography (Figure 1) showed extensive emphysema under the skin of neck and shoulders.

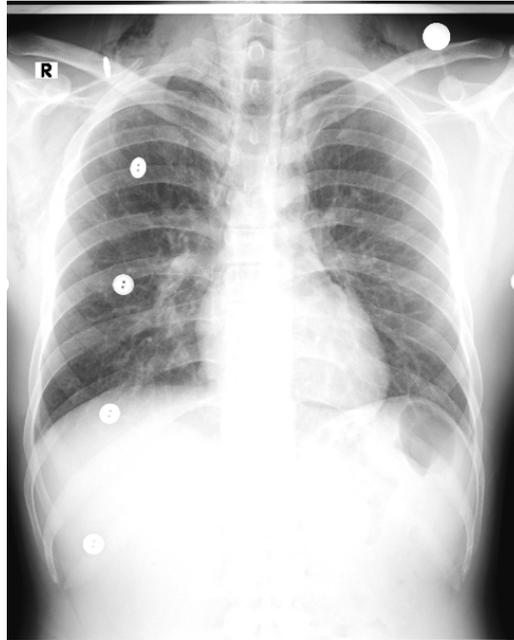


Figure 1

Chest X-ray, showed extensive emphysema under the skin of neck

Computed tomography (CT) was performed and CT showed extensive pneumomediastinum, a small pneumopericardium and dissecting air in the deep spaces of the neck and chest wall (Figures 2,3 and 4). No rib fractures were detected.



Figure 2

CT of the chest, axial view, revealing pneumomediastinum free air around the pericardium

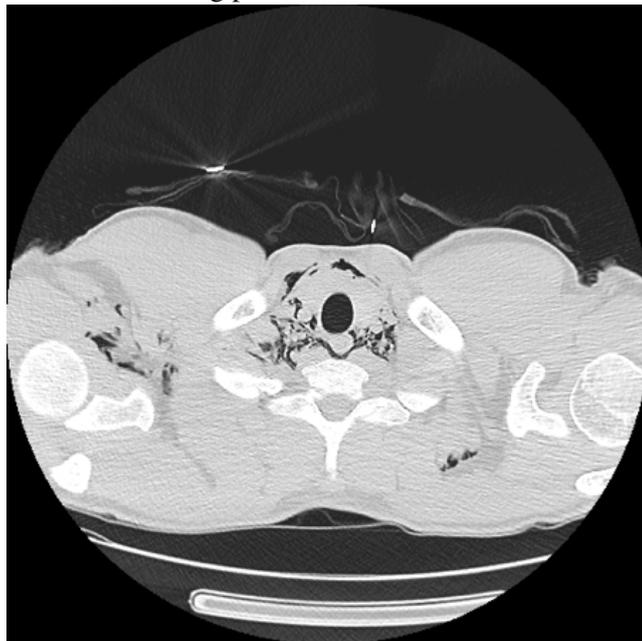


Figure 3

CT of neck, axial view, showing emphysema in the deep spaces of the neck and the right shoulder



Figure 4

CT of the chest, coronal view, showing pneumomediastinum around the heart and in the deep spaces of the neck and the right shoulder

The patient, was then admitted to the Thoracic Surgery Ward for observation, no intervention was performed. He was treated with supplemental oxygen, bronchodilators and analgesics. His symptoms relieved and control chest X-ray was stable. He was discharged in good condition after 2 days.

Case Discussion

PM and subcutaneous emphysema are often a consequence of bronchial or esophageal rupture⁶. Also, peptic ulcer, or perforations secondary to diverticulitis, intestinal perforation or abdominal surgical interventions may be the reason of air dissecting through the diaphragm into the mediastinum. Alveolar rupture may occur usually during positive pressure ventilation in patients with infections, aspiration, acute respiratory distress syndrome, emphysema, interstitial lung disease or Valsalva maneuver, vomiting, coughing, illicit drug inhalation, childbirth, seizure, forceful straining during exercise and diving⁷. However, PM can occur spontaneously, which is a rare condition with an incidence of 1/30000 presenting to ED⁸. It can also be harbinger to severe injury of mediastinal structures and should be further evaluated⁹.

Traumatic PM was first described by Laennec in 1819¹⁰. The most commonly accepted pathophysiology of PM was first described by Macklin and Macklin, the underlying factor was alveolar rupture secondary to increased alveolar pressure or overdistention or decreased interstitial perivascular pressure¹¹⁻¹³. The most common presenting complaint is chest pain, other presenting complaints consist of coughing, neck pain and dyspnea^{6,8}. The most common clinical finding is the crunching sound in time with the heartbeat¹⁴. Subcutaneous emphysema is the most common clinical finding which has a low sensitivity and high specificity in diagnosis of pneumothorax¹⁵. In our case, chest pain was the presenting complaint as in other series^{2,6,8}, and subcutaneous emphysema was the presenting finding on physical examination.

There have been reports of PM case series after barotrauma during pulmonary function tests and inflation of party balloons⁸. A history of asthma and illicit drug use, especially inhalational drugs, also have been reported¹. The

etiology of our case was thought to be increased alveolar pressure and terminal alveolar rupture secondary to trauma to the neck or chest while wrestling.

Plain chest radiography or CT are the most common investigations performed for the diagnosis of PM. Kaneki et al.¹⁶ reported in their case series that plain chest radiography has 30% sensitivity in detection of PM cases and chest X-ray should be combined with a CT scan. Also, Caceres et al.¹⁷ showed in their case series that only 69% of cases were diagnosed by plain films and the remaining 31% were discovered by CT scan. Ryoo et al.⁷ reported that CT is the most reliable diagnostic modality in PM patients. CT scan is important to exclude or diagnose other pathologies and has become the gold standard for diagnosing PM. In our case, we primarily performed a chest X-ray, proceeding to a CT scan of the thorax.

PM and subcutaneous emphysema usually follow a self-limiting and benign course, and the required treatment is bed rest, oxygen therapy and analgesics. Patients with PM should be observed for a period to exclude the complications. Antibiotics are not needed unless suspicion of viscus perforation¹⁷.

What makes this case remarkable are despite the late presentation, the clinical findings and symptoms of the patient are milder than expected. This case report serves to emphasize the importance of the thorough clinical examination and the fact that detailed history may be the cornerstone of the etiology.

A recent history of drug use in a PM patient could be misleading and cause the overlook of further severe injuries. CT is a useful tool in diagnosing PM and quantifying the amount of free air. All these patients should be observed for at least for 24 hours.

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