

Isolated Sore Throat as the Sole Manifestation of Pneumomediastinum

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Abstract

Sore throat, usually related to pharyngitis, is a common presenting symptom in primary care and emergency medicine departments. We describe a patient with pneumomediastinum and retropharyngeal emphysema in whom the only presenting symptom was sore throat, with no physical findings. The pathogenesis, diagnosis and treatment of this rare condition are discussed. Awareness of this presentation of pneumomediastinum and a high index of suspicion are required for a correct diagnosis.

MeSH Words: Ectopic pregnancy, tubal pregnancy, emergency department, diagnosis

Introduction

Pneumomediastinum, or mediastinal emphysema, is characterized by the presence of air in the mediastinum. It may occur spontaneously, with no apparent precipitating cause, or secondary to trauma, surgery, and diagnostic and therapeutic procedures. In some cases, it is related to a preceding pulmonary pathology (emphysema, chronic bronchitis, lung cancer) [1]. Spontaneous pneumomediastinum is frequently confused with cardiac or pericardial disease because chest pain is the most common presenting symptom. Odynophagia and/or sore throat due to retropharyngeal emphysema are common in pneumomediastinum but rarely

reported as isolated complaints [2]. Given that sore throat is often encountered in primary care and emergency medicine as a symptom of pharyngitis, when it is the sole presenting symptom of pneumomediastinum, high clinician awareness of this atypical presentation and a high index of suspicion are necessary for the correct diagnosis.

The aim of this report was to describe a patient with retropharyngeal emphysema associated with spontaneous pneumomediastinum who presented only with pain localized to the throat, with no other remarkable physical findings. The pathogenesis, diagnosis, and treatment of this rare condition are discussed.

Case Report

A 15-year-old boy presented to the Department of Emergency Medicine with sudden sore throat and odynophagia. There was no fever, chest

pain, dyspnea, or cough. On physical examination, the patient appeared to be in good general condition. Body temperature measured 36.6°C p.o., blood pressure 135/77 mmHg, and pulse rate 77 bpm. Respiratory rate was 16 breaths/min with oxygen saturation 96% in room air. No abnormalities were detected on examination of the mouth, throat, and speech. There was no fullness of the neck, jugular vein distention, tracheal deviation, or subcutaneous emphysema. Chest percussion was normal, and auscultation of the lungs and heart revealed normal sounds. The remainder of the physical examination was unremarkable.

The severe and sudden throat pain in the absence of abnormal findings in the throat and neck prompted additional studies. Laryngoscopy revealed no foreign body, wound, or abnormalities in the throat. Radiography of the neck soft tissue revealed retropharyngeal emphysema (Fig 1). A chest radiograph showed abnormal mediastinal gas or pneumomediastinum. The lungs were well expanded, without evidence of subcutaneous emphysema, rib fracture, or pneumothorax (Fig 2).

performed in order to rule out secondary pneumomediastinum and severe underlying disease and complications, showed pneumomediastinum and subcutaneous emphysema in the neck (Figs. 3, 4).

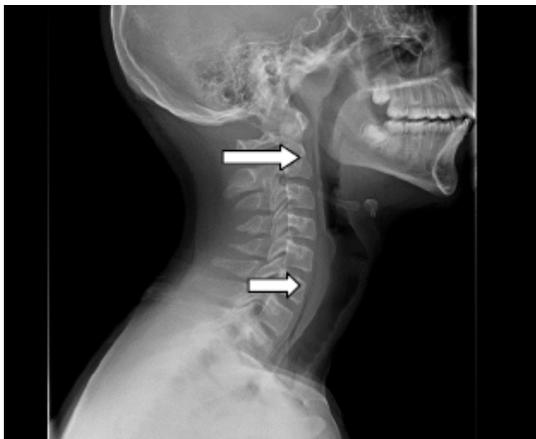


Figure 1. Neck radiograph showing retropharyngeal free air (arrows).

The patient had no history of trauma, Valsalva maneuver, cough, retching, vomiting, or illicit drug inhalation, and he had never gone scuba diving. Computed tomography of the chest,

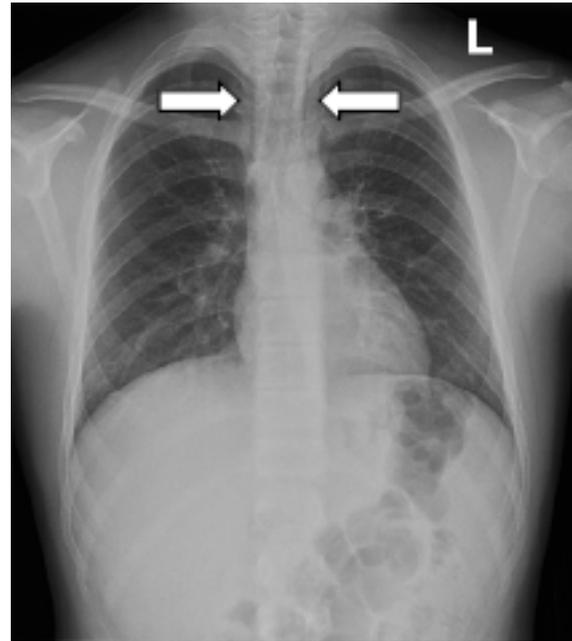


Figure 2. Chest radiograph showing radiolucent strips along the mediastinal fascial planes, indicating free air in the mediastinum.



Figure 3. Computed tomography scan showing pneumomediastinum.



Figure 4. Free air in fascial planes of the neck.

The diagnosis was spontaneous pneumomediastinum with retropharyngeal emphysema. Treatment consisted of analgesics and oxygen therapy. The patient was discharged home after 2 days. Follow-up computed tomography scan of the chest demonstrated complete resolution of the pneumomediastinum. The patient had no recurrences.

Discussion

Spontaneous pneumomediastinum is a relatively rare disease and was poorly recognized until the 1939 report by Hamman of a finding of

crunching precordial sounds synchronous with the heart beats (mediastinal crepitation or Hamman's sign), which he related to the presence of free air within the mediastinal compartment. Hamman's sign is accentuated in the left lateral decubitus position and during expiration [3].

Spontaneous pneumomediastinum occurs most frequently in otherwise healthy, tall and thin young men and in parturient women in whom an increase in intra-alveolar pressure leads to rupture of the marginal alveoli. The trigger is usually Valsalva maneuver, asthma, cough, emesis, athletic competition, or inhalation of illicit drugs [4]. The air ascends along the bronchi to the mediastinum and the subcutaneous space of the neck, causing cervicofacial subcutaneous emphysema [1]. Occasionally, it enters the pericardial space through the pericardial reflection on the pulmonary vessels, producing spontaneous pneumopericardium [4].

Classically, the clinical diagnosis of spontaneous pneumomediastinum is based on the triad of chest pain, dyspnea, and subcutaneous emphysema [1]. Acute-onset substernal chest pain, usually radiating to the neck, shoulders, or back, is the predominant symptom and must be differentiated from other causes of chest pain. It tends to be exacerbated by deep inspiration, coughing, or supine position [3]. Subcutaneous emphysema is the most consistent symptom, found in nearly all patients. Other signs and symptoms include rhinolalia, sore throat, neck pain, cough, tachycardia, dysphagia, odynophagia, and anxiety, all of which are secondary to the dissection or compression of the mediastinal organs by air.

Isolated pain localized to the neck or sore throat, in the absence of chest pain, subcutaneous emphysema, or Hamman's sign, as in our patient, has been rarely described as a presenting symptom of pneumomediastinum [2]. Our case shows that even such a common complaint as sore throat warrants a differential diagnosis when the pharynx appears normal. Physicians must depend on the clinical history and physical examination to determine which patients require further studies.

To confirm a suspected diagnosis of pneumomediastinum, plain chest films should be performed for evidence of mediastinal

emphysema. Free air in the mediastinum appears as a thin radiolucent strip along mediastinal fascial planes and outlining the cardiac silhouette on the posteroanterior projection. The aorta and other posterior mediastinal structures are highlighted, and a defined radiolucency around the right pulmonary artery may be seen in lateral view ("ring around the artery" sign) [3]. The definitive study, however, is computed tomography. There is a good correlation between the plain chest film and the computed tomography scan in moderate and severe spontaneous pneumomediastinum, but plain films can miss up to 30% of mild cases [5]. Chest computed tomography is also necessary to rule out underlying severe disease and to monitor progression of the pneumomediastinum. If emesis or retching is part of the presenting picture, a meglumine-barium swallow study should also be performed to check for possible esophageal tear. Otherwise no additional diagnostic tests are required [3].

Although severe complications are possible, the course of spontaneous pneumomediastinum is usually benign and, in most cases, self-limiting [6]. Because the air in the mediastinum is absorbed spontaneously within 2 to 4 days, in mild cases, outpatient follow-up may be appropriate. Nevertheless, the usual recommendation is to admit the patient for conservative treatment with rest and analgesics. The administration of 100% oxygen to facilitate the reabsorption of air in the mediastinum is recommended [3]. Follow-up chest x-ray should be performed at 24 hours. If the film shows no progression of the pneumomediastinum and no evidence of mediastinitis, the patient may be discharged home. However, if the disease has progressed, decompression of the

pneumomediastinum may be necessary, in addition to placement of a chest tube if pneumothorax has occurred, or airway management if airway compromise has developed [3]. In patients with a history of trauma or esophageal rupture, the diagnosis is not true spontaneous pneumomediastinum and the treatment should be modified accordingly.

In conclusion, spontaneous pneumomediastinum is a benign, self-limiting disorder that occurs primarily in young previously healthy individuals. The disease may atypically present as isolated sore throat with normal findings on physical examination and, occasionally, even on

chest x-ray. Clinician awareness of this rare presentation combined with a high index of suspicion is necessary to avoid misdiagnosis, especially in milder cases.

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