Spontaneous pneumomediastinum in a child as a rare cause of chest pain

Bir çocukta nadir bir göğüs ağrısı nedeni olarak spontan pnömomediastinum

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Spontaneous pneumomediastinum is a rare disorder in children occurring mostly due to some triggering events. In general, no underlying cause is found. A 10-year-old boy was admitted with chest pain of acute onset, suggestive of pericardial effusion. His body temperature, blood pressure, pulse rate and respiratory rate were normal. Femoral pulses were palpable and he did not have cyanosis. Cardiac auscultation was normal except for a crunching sound. Electrocardiography showed no abnormality. There was no subcutaneous emphysema over the chest, neck or face. On the chest radiogram, suspected mediastinal air was noted. A left lateral chest X-ray revealed apparent presence of air in the anterior mediastinum. No etiologic cause could be documented. Pneumomediastinum resolved spontaneously within a week.

Key words: Chest pain; child; mediastinal emphysema/diagnosis/radiography.

Spontan pnömomediastinum çocuklarda nadir bir hastalıktır; çoğunlukla tetikleyici olaylar sonucunda meydana gelir. Genellikle altta yatan neden bulunmaz. On yaşında bir erkek çocuk, perikard efüzyonunu akla getiren ani başlangıçlı göğüs ağrısı ile yatırıldı. Vücut sıcaklığı, kan basıncı, nabzı, solunum hızı normaldi. Femoral nabızlar alınabiliyordu ve siyanoz yoktu. Kalp dinlemesinde, hışırtılı bir ses dışında anormalliik bulunmadı. Elektrokardiyografisi de normaldi. Göğüs, boyun ve yüzde subkutan amfizem bulguları yoktu. Göğüs radyografisinde şüpheli bir mediastinal havaya rastlandı. Sol yandan çakilen göğüs grafisi ön mediastinumda belirgin hava basıncını gösterdi. Hastada herhangi bir etyolojik neden bulunamadı. Pnömomediastinum bir hafta içinde kendiliğinden geçti.

Anahtar sözcükler: Göğüs ağrısı; çocuk; mediastinal amfizem/tanı/radyografi.

Pneumomediastinum is the presence of air or gas in the mediastinum. It has been reported after dental extractions, normal menses, obstetric delivery, diabetes mellitus with ketoacidosis, acupuncture, and acute gastroenteritis. It can also result from esophageal perforation, penetrating chest trauma, or inhaled foreign body. Occasionally, no underlying cause is found.[1] Spontaneous pneumomediastinum is a rare entity seen in younger patients without a history of specific etiology. It mostly presents as chest pain and dyspnea.[2] In this paper, a case of spontaneous pneumomediastinum is presented, in which the leading symptom was chest pain mimicking that of pericardial effusion.

CASE REPORT

A 10-year-old boy was admitted to the pediatric emergency department with a complaint of chest pain of acute onset that increased in the supine position, and decreased in the sitting position. Pericardial effusion was considered, and the patient was consulted with the pediatric cardiology division. On physical examination, body temperature, blood pressure, pulse rate and respiratory rate were normal. Femoral pulses were palpable and he did not have cyanosis. Cardiac auscultation was normal except for a crunching sound. His electrocardiogram was evaluated by the pediatric cardiologist and reported as normal. There was no subcutaneous emphysema over the chest, neck or face. On re-evaluation of the chest radiogram, suspected mediastinal air was noted (Fig. 1a). A left lateral chest X-ray revealed apparent presence of air in the anterior mediastinum (Fig. 1b). He did not have a history of an etiologic cause such as vomiting, forcefully coughing, or intense physical activity. In the following week, pneumomediastinum resolved spontaneously.

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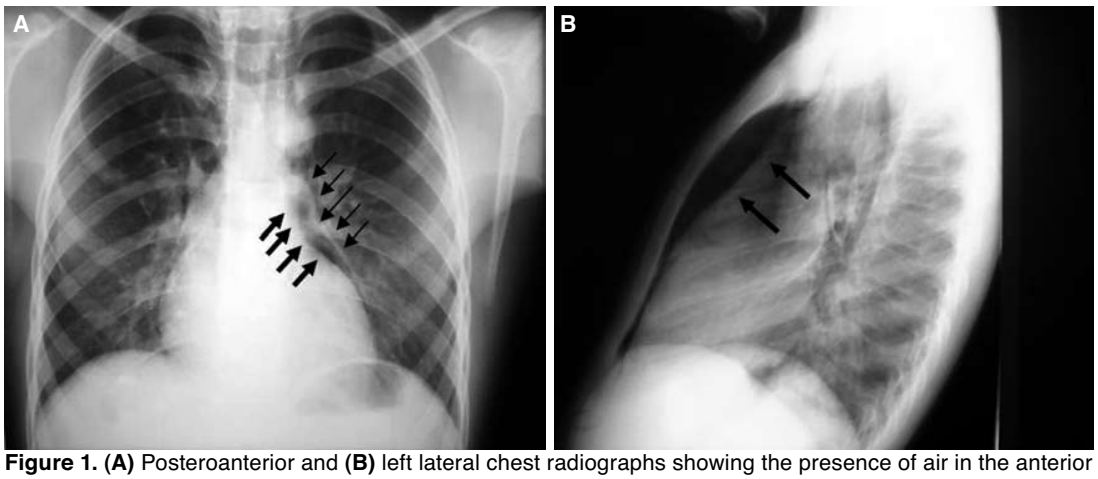

Figure 1. (A) Posteroanterior and **(B)** left lateral chest radiographs showing the presence of air in the anterior mediastinum.

Respiratory function tests performed for asthma were found to be normal.

DISCUSSION

Spontaneous pneumomediastinum is a rare, self-limited disorder that usually affects young adult males.[3] It is rarely seen in children, mainly affecting male adolescents. Its incidence ranges from 1 in 800 to 42,000 patients presenting to hospital emergency units.[4]

It is usually secondary to alveolar rupture in the pulmonary interstitium, followed by dissection of gas towards the hilum and mediastinum. Although pneumomediastinum may appear spontaneously in some children, a trigger can be found in 70% to 90% of cases. Among the most frequent triggers in pediatric patients are asthma, vomiting, forceful reactions resulting in the Valsalva maneuver (e.g., shouting, coughing), and intense sport activities. Esophageal rupture (usually due to vomiting) can also cause pneumomediastinum.[4-6] The most common cause in children is asthma.[4] It may occur in patients with subclinical or clinical asthma,[5] and approximately 0.3% of children with asthma develop pneumomediastinum.[7] In our patient, no triggering factor could not be detected.

The clinical diagnosis of pneumomediastinum is based on the symptom triad of chest pain, dyspnea, and subcutaneous emphysema, and also on the presence of Hamman's sign.[4] It sometimes presents with atypical symptoms.[3,4,8] In our patient, there was no subcutaneous emphysema, and the presenting symptom was chest pain mimicking clinical signs of pericardial effusion.

The diagnosis is almost always confirmed by frontal chest radiography. As in our case, lateral views may be necessary when there is doubt or the clinician is not familiar with the appearance of pneumomediastinum on the frontal chest X-ray.

In conclusion, it should be borne in mind that children with spontaneous pneumomediastinum can present with chest pain mimicking that seen in pericardial effusion, and that a lateral chest radiogram may be necessary if frontal radiograms fail to provide clear visualization.

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