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Spontaneous pneumomediastinum long-term follow-up

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Summary
Background: Spontaneous pneumomediastinum (SP) is a rare disorder.
Methods: The objective of this study is to examine a series of patients treated during 19 years, analyzing risk, clinical, and diagnostic factors as well as treatment and long-term follow-up.
Materials and methods: A descriptive, retrospective study was done from 1984 to 2003 on 32 patients admitted to the hospital with SP.
Results: The average age was 21.4 ± 6.1 years, 24 (75%) males. 34.4% had developed some strain before arriving at the hospital. Nine of the cases were asthmatic (28.1%) and another nine were smokers (28.1%).

The most frequent complaint was thoracic pain, 25 (78.1%). In the physical examination, subcutaneous cervical emphysema was observed in 25 patients (78.1%). A simple X-ray of the thorax was used in the diagnosis of 32 cases. In two patients, radiological signs of pneumothorax were discovered. An esophagogram was done on two patients but there were no significant findings. All of the cases were treated conservatively. The average hospital stay was 3.2 ± 1.6 days. No relapses were noted in the follow-ups.
Conclusion: SP is an entity that evolves correctly without treatment and has no long-term relapses. Once other occasionally associated entities are ruled out, outpatient management can be employed.

Introduction

Spontaneous pneumomediastinum (SP), also known as mediastinal emphysema is defined as the presence of air in the mediastinum without an obvious preceding cause. It was described by

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Hamman in 1939,[1] however, more than a century earlier Laennec had described traumatic pneumomediastinum.[2] This is produced by a rupture of the alveolar septa and alveoli which causes the interstitial air to extend along the peribronchial and perivascular space up to the mediastinum. Frequently, it extends to the cervical zone by the mediastinum–cervical fascia. Abolnik found an incidence of 1:32,896.[3]

It more frequently affects young males, with muscular effort standing out as a triggering factor (physical exercise, asthmatic crisis). It is a largely unknown process and can very often be confused with other diseases, or go completely unnoticed. Its management is not very clear, either, even up to current times. Bibliographic references to SP are scarce with many doubts as to diagnostic focus, whether or not to admit the patient to the hospital, the treatment, and the necessary outpatient follow-up. In this work, we gather our experiences to address these questions.

Patients and methods

This is a descriptive, retrospective study of a series of 32 patients admitted to our department of Thoracic Surgery. Personal antecedents were collected and considered, as well as clinical characteristics, possible triggering factors, diagnostic tests, treatment, and long- and short-term evolution. Cases where there was a recent antecedent of trauma were excluded from the study.

Diagnostic and treatment protocol were not complicated: clinical history, physical examination, basic general analysis and simple thoracic X-ray. Other tests were indicated only when there was doubt about the diagnosis. All of the patients were admitted to the hospital to undergo clinical, radiological, and analytic tests in order to rule out the possibility of secondary pneumomediastinum or an esophageal perforation. Patients do not receive prophylactic antibiotic unless a hollow viscera perforation was detected. Discharge criteria were favorable clinical and radiological evolution, even if the mediastinal emphysema persisted. Patients were given a check-up in the outpatient clinic 1 month after discharge.

Follow-up was done by means of a telephone questionnaire for each of the patients that could be located. This was carried out between 1 and 19 years after the SP episode, enquiring as to the following:

- Sequelae after SP episode,
- Relapses,
- Persistence of factors that could provoke an episode (drugs, tobacco, asthma).

Data collection and statistical analysis were carried out with EPI info 2000.

Results

Between January 1984 and December 2003, 32 patients (24 males; 75%) were admitted for SP to our department. The average age was 21 ± 6.1 years with a range of between 14 and 36 years. As to personal antecedents, asthma accounted for nine cases (28.1%). Smokers took up the same percentage. The precipitating factor in 11 cases (34.4%) was some form of muscular effort before the episode (physical exercise, asthmatic crisis). Three cases (9.4%) were due to the inhalation of drugs (two cocaine, one hashish).

The most frequent motive for seeking medical attention was thoracic pain in 25 patients (78.1%), followed by dyspnea in 13 (40.6%), and cough in only three. In the physical examination, the predominant finding in 25 patients (78.1%) was the presence of subcutaneous supraclavicular and cervical emphysema. Two of those cases presented dysphagia.

In all cases a simple thoracic X-ray was done, and this was always the determining factor in confirming the diagnosis of the entity. A concomitant bilateral pneumothorax was also found in one patient, and an apical bilateral pneumothorax in another. In a case from another hospital, a computerized thoracic tomography was done (CT), confirming the diagnosis of SP without other findings. In the patients with dysphagia, an esophagogram was done and came back normal. Biochemistry and blood gas analysis in the hemogram were normal.

Conservative treatment was carried out on all, except the pneumothorax case which required left pleural drainage and had good evolution. The average hospital stay was 3.2 ± 1.6 days, with a minimum of 1 day and a maximum of 9 (the pneumothorax treated with drainage).

During the long-term follow-up, 10 patients were lost (31.2%). There were no relapses in the rest, but one patient developed a spontaneous pneumothorax. All of the asthmatic patients had suffered at least one crisis dating from the SP diagnosis and all of the smokers had continued smoking.

Discussion

SP is a benign process which affects mostly young asthenic males, as in primary spontaneous