

PNEUMOMEDIASTINUM: A BRIEF REVIEW OF LITERATURE APROPOS OF A CASE REPORT

Flávia Fernandes¹, Gonçalo Paupério², Ana Rodrigues³

¹ Serviço de Radioterapia, IPO-Porto

² Serviço de Cirurgia Torácica, IPO-Porto

³ Serviço de Oncologia Médica, IPO-Porto

* Corresponding author: flavia.machado.fernandes@ipoporto.min-saude.pt

Abstract

The authors present a case of a 72-year-old man diagnosed with pneumomediastinum in a positron emission tomography scan (18F-FDG PET-CT) to assess the tumor response to palliative chemotherapy. The patient was asymptomatic and had no special findings in physical examination. Conservative approach was decided by the multidisciplinary team. The patient had an uneventful recovery.

INTRODUCTION

The pneumomediastinum is a condition in which air is present in the mediastinum due to alveoli rupture.¹ It is a rare condition that usually occurs in young males, with an incidence of 1/25.000-30.000.^{2,3}

The most common symptoms are chest pain, dyspnea, cough, and cervical/thoracic subcutaneous emphysema.^{2,4} Pneumomediastinum appears as a radiolucent line outlining the mediastinal structures in the chest X-ray.⁵ This clinical entity can be spontaneous or secondary.¹ A conservative treatment is recommended in the absence of secondary causes that implicate an invasive approach.^{2,4}

CASE REPORT

We present a case of a 72-year-old man with an

oropharyngeal squamous cell carcinoma, currently treated with palliative chemotherapy. A pneumomediastinum was diagnosed in an 18F-FDG PET-CT to assess the tumor response to the treatment.

The patient denied any symptom. On admission his vital signs were stable, and he had no signs of acute respiratory failure. A PCR SARS-COV-2 test was performed, and the result was "not detected". The computed tomography (CT) scan showed a thin line of air dissecting into anatomical structures and separating the mediastinal pleura from the mediastinum (figure 1). A line surrounding the mediastinal structures and the "continuous diaphragm" sign were observed in the chest X-ray (figure 2).

The case was discussed by a multidisciplinary team and the patient was admitted for a conservative approach. After a clinical review, the patient told that,

in the days before the 18F-FDG PET-CT, he performed several periods of apnea in order to train for underwater fishing. This was a self-limited event and he was discharged on day 5.

DISCUSSION

The pneumomediastinum was described for the

first time in 1827 by Laenek. It is defined as the presence of air in the mediastinum mainly due to alveoli rupture, as result of increased internal pressure (Macklin effect).^{1,6,7} Pneumomediastinum is classified as spontaneous when there is no evidence of trauma or iatrogenic injury. A secondary pneumomediastinum can be caused by endoscopic procedures or intubations.^{1,8}

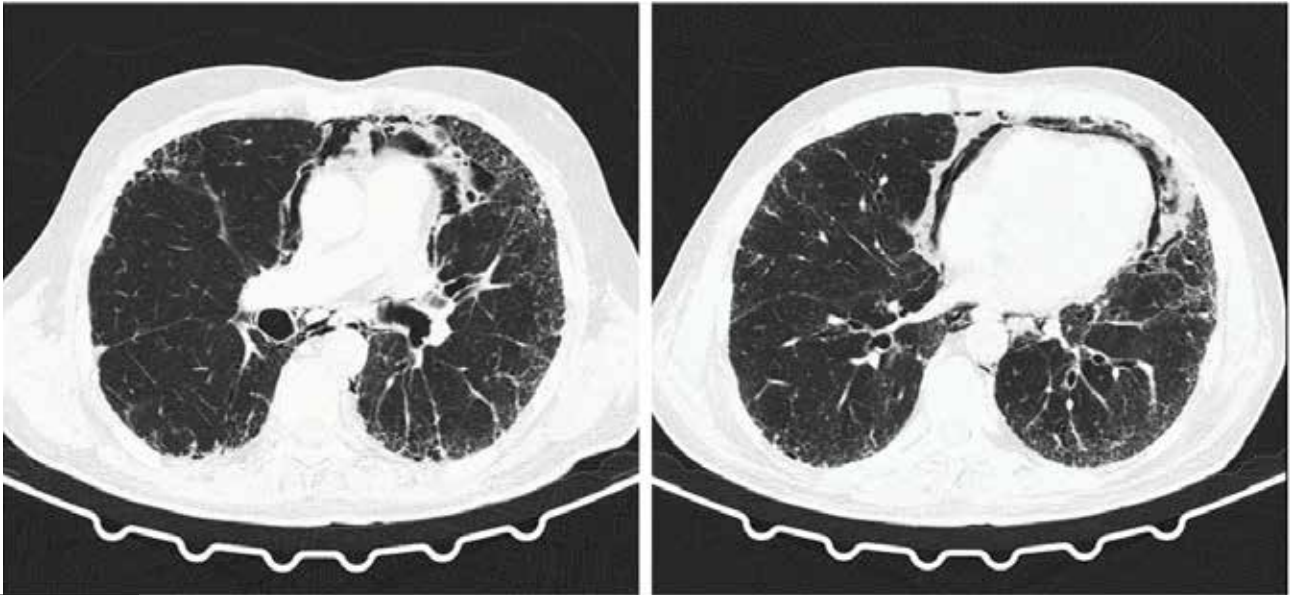


Figure 1

Computed tomography images of pneumomediastinum.

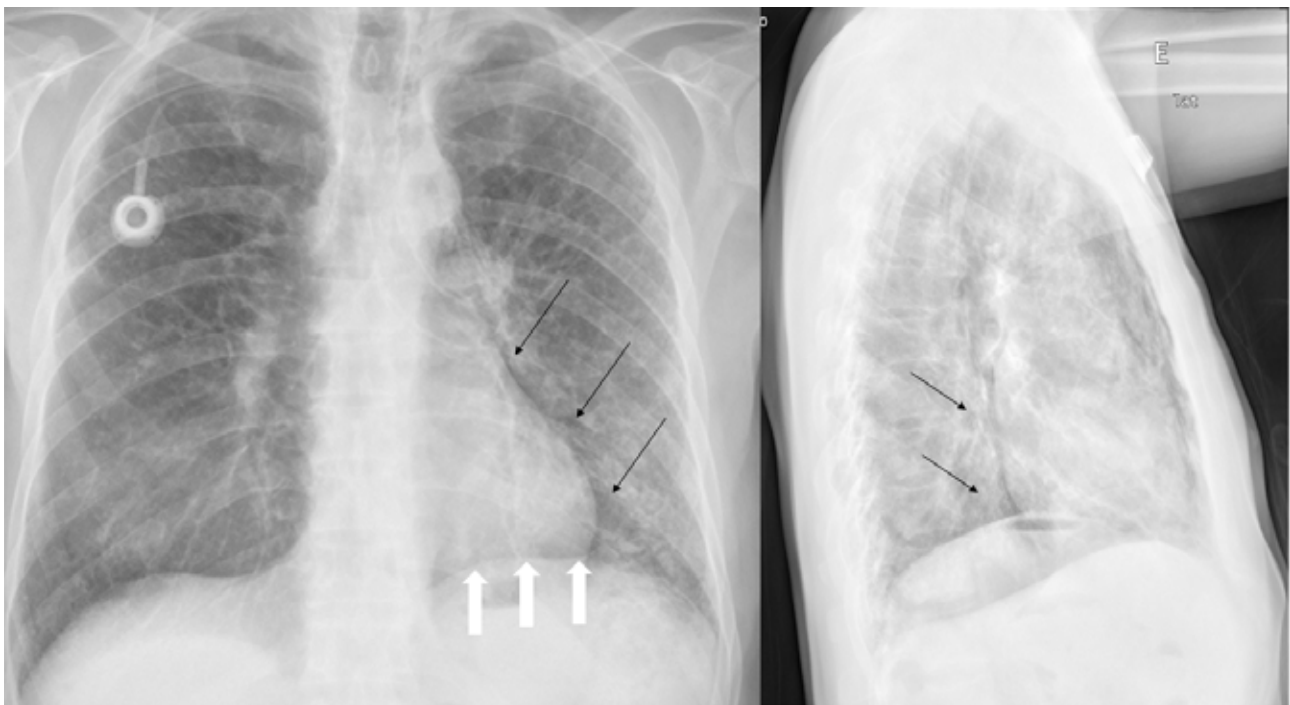


Figure 2

Chest X-ray images of a pneumomediastinum line surrounding the mediastinal structures (black arrows) and the "continuous diaphragm" sign (white arrows).

Spontaneous pneumomediastinum, also known as Hamman's syndrome, mainly occurs in 10- to 19-year-old males and is reported as a benign condition.^{2,3,9} Cough, vomiting and underlying diseases such as COPD, bronchiectasis or asthma are related with the development of this disease.^{1,8}

Several studies report Valsalva maneuver as factor precipitating the pneumomediastinum, associated for example to laboring, defection, scuba diving and drug abuse.^{1,2,7} There are no studies relating the prognosis with the cause of pneumomediastinum.

The most frequent symptoms include sudden chest pain, dyspnea, cough, and subcutaneous emphysema (cervical and thoracic). In 21-51% of the cases the patients have no obvious symptoms¹, that's why a high degree of suspicion is necessary to diagnose this disease.^{2,4}

Tension pneumomediastinum, pneumopericardium, cardiac tamponade and pneumothorax can be caused by pneumomediastinum and for that reason the initial approach in symptomatic patients should take place in the emergency room.^{5,10}

The chest X-ray can detect up to 70% of the cases⁴ and there are several radiographic signs already described.⁵ In order to exclude tracheal/esophageal rupture, exams as thorax CT, bronchoscopy and upper GI endoscopy could be performed, after the diagnosis.^{1,5,10} A conservative approach should be the option, in the absence of major complications. In the literature, there are references of admission for 5-9 days, even in asymptomatic patients.^{2,4} After discharge, a healthy lifestyle, the management of respiratory diseases and avoiding precipitating factors are recommended.

Our patient had no symptoms and had an uneventful recovery, which agrees with the bibliographic review. In the future, unnecessary intentional Valsalva maneuvers should be discouraged.

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