

Management of large traumatic pneumothorax: when the patient is an experienced Internist

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ABSTRACT

Traumatic pneumothorax is traditionally treated with tube thoracostomy. We report a case of conservative management of a large traumatic pneumothorax, due to the close collaboration between the physician, a Thoracic Surgeon and the patient, a retired Internist.

Introduction

Traumatic Pneumothorax (PNX) is the presence of air in pleural space after a trauma with subsequent lung collapse, and is traditionally managed with hospitalization

and tube thoracostomy, in order to promote lung expansion and keep the patient under observation, in particular to promptly diagnose a possible tensive PNX. However, few data are available in literature about the management of traumatic PNX.

Case Report

A 73-year-old man, a retired Internist, was evaluated in the Emergency Department (ED) of a Ligurian Hospital. The previous day, the patient had accidentally fallen, violently hitting his left hemithorax on the floor of his home. His access to ED was determined by important pain in the site of trauma: the patient reported intense pain in case of deep breathing, and coughing, and sneezing when moving from a sitting or supine position to an upright position. There was nothing significant in his medical history, only reflux esophagitis and prostatic hypertrophy; he was an ex-smoker, and smoked for about 40 years. His medications were pantoprazole and tamsulosin. His vital signs were: external skin temperature 36.3°C, blood pressure 120/70, heart rate 68/bpm, respiratory rate 24/min, arterial oxygen saturation 91%. There was no subcutaneous emphysema. Electrocardiography (ECG) and common blood tests were normal. A Chest X-Ray (CXR) (Figure 1) and subsequently a chest Computed Tomography (CT) scan (Figure 2) were performed. Diagnostic imaging test demonstrated significant non-hypertensive PNX on the left lung (maximum thickness of 4 cm at the apical site) extending from the apex to the base, small ipsilateral pleural effusion (non-blood density fluid compatible with transudate), compressive atelectasis of the left lower lobe. An immediate chest tube placement was proposed by the thoracic surgeon called for consultation. The patient refused and asked to be re-evaluated after three days with another CXR. The patient assumed full responsibility for the choice, which he declared to be motivated by the relative risk of a hospital infection during hospitalization and by the rare but possible complications caused by the thoracic drainage such as intercostal artery laceration and empyema. After three days, a new CXR showed a substantially unchanged situation: in particular, no signs compatible with tensive PNX. The patient again

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refused hospitalization and tube thoracostomy. After ten days, a next CXR demonstrated a complete resolution of PNx (Figure 3). In the meantime, the respiratory rate had also decreased (9-10/min.), and the arterial oxygen saturation had increased to 98%. When questioned by colleagues about the therapeutic measures that he had adopted at home, the Internist replied that he had taken opioids to better control the pain and carry out deep breathing, had maintained an upright position as much as possible during the day, taken long walks and slept on his right side (opposite side of the PNx). Furthermore, to monitor the situation, he had checked his arterial blood

saturation twice a day. The doctors asked him finally “what was the discipline in which you worked?”, he replied “I have been a Hospitalist for forty years, in the last fifteen years as the Director of the Division of Internal Medicine”.

Discussion

PNx is defined as the presence of air in the pleural space, and is classified as spontaneous or traumatic. Traumatic PNx can be classified as iatrogenic (e.g., after thoracostomy) and non-iatrogenic, caused by penetrating or blunt trauma. Air from the PNx may enter the soft tissues (subcutaneous emphysema), or mediastinum (pneumomediastinum). Hemothorax may be also present (hemopneumothorax). Traumatic PNx has traditionally been managed with chest tube placement. Authors and Guidelines suggest tube thoracostomy in spontaneously breathing patients with a traumatic PNx identified on CXR in the following situations: PNx size greater than 2.5 cm on CXR or greater than 35-mm rule based on chest CT, respiratory distress, hypoxia, or hemodynamic instability or increased size of PNx on serial imaging. However, about the management of traumatic PNx, there are few data available in the literature, and large randomized trials are needed. Tensive PNx is the only absolute indication for chest tube placement to avoid obstructive shock and death.¹⁻⁵

Conservative ambulatory management of large traumatic PNx is possible in special conditions, such as a close collaboration between the thoracic surgeon and the patient. The patient must be instructed to communicate immediately any warning symptoms that may be an expression of worsening of PNx or, in the worst cases, of tensile PNx, which therefore require immediate treatment. However, serial radiological examinations are still necessary in any case.

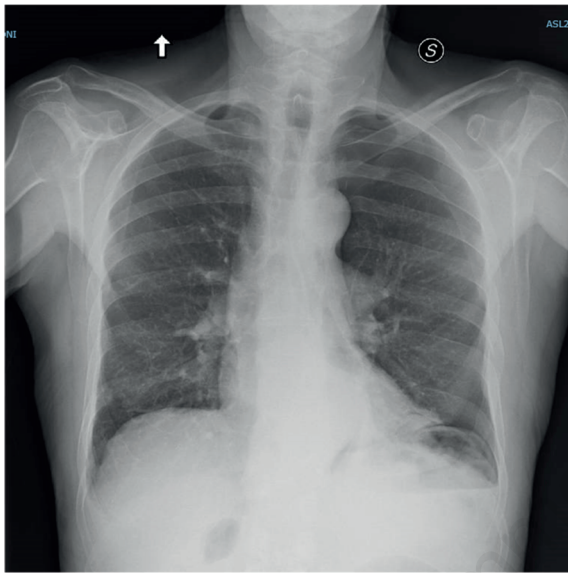


Figure 1. CXR, performed on day 1, which showed large left PNx.

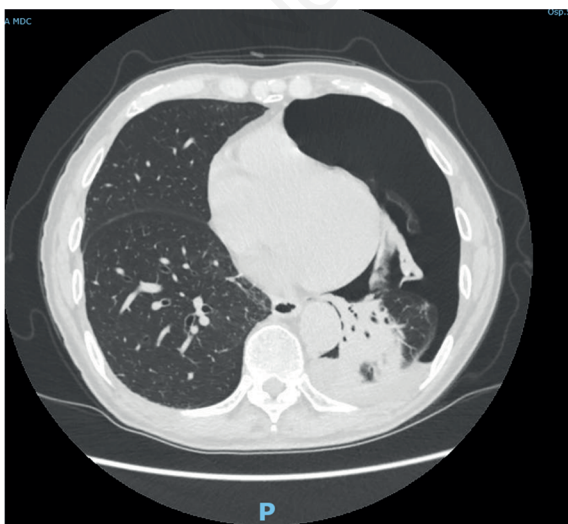


Figure 2. CT performed on day 1.

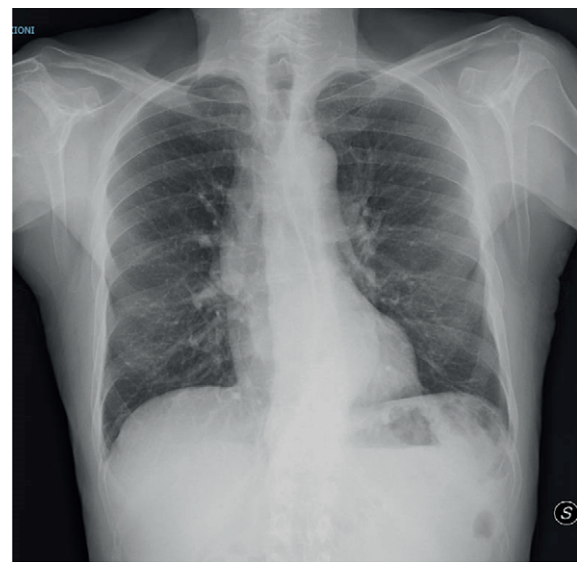


Figure 3. CXR, performed on day 14, which showed complete resolution of PNx.

Conclusions

This case highlights how, if managed by an experienced physician together with a compliant patient, even a large traumatic PNx can be managed conservatively. However, it is essential to closely monitor the patient by checking for warning symptoms/signs and doing serial radiological examinations.

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