

HYPERTENSIVE PNEUMOMEDIASTINUM ASSOCIATED WITH EXTENSIVE SUBCUTANEOUS EMPHYSEMA IN CHEST TRAUMA: CASE REPORT

Beatriz Dias Rosa

Former Resident of General Surgery at: Santa Casa de Misericórdia de Ribeirão Preto
Ribeirão Preto – SP

Fabio Augusto Brassarola

Adjunct Professor of the Discipline of Surgery at: Centro Universitário Barão de Mauá
Ribeirão Preto – SP

Nelson de Araujo Vega

Department of Thoracic Surgery - Santa Casa de Misericórdia de Ribeirão Preto
Ribeirão Preto – SP

Fabio Cesar Domingues Favara

Department of Thoracic Surgery - Santa Casa de Misericórdia de Ribeirão Preto
Ribeirão Preto – SP

All content in this magazine is licensed under a Creative Commons Attribution License. Attribution-Non-Commercial-Non-Derivatives 4.0 International (CC BY-NC-ND 4.0).



Abstract: Pneumomediastinum is a condition characterized by the presence of air in the mediastinum, generally has a benign evolution, and is sometimes underdiagnosed. In the current study, the authors describe a case of traumatic pneumomediastinum, associated with extensive subcutaneous emphysema, with unfavorable evolution and rapid progression to respiratory failure, however treated with upper airway drainage, with a successful outcome, without the need for surgical procedures. more invasive and morbid.

Keywords: Pneumomediastinum; Chest trauma; Subcutaneous emphysema

emergency department hemodynamically stable, 93% saturated in room air, with extensive subcutaneous emphysema from the face to the thighs (photos 1 and 2). Chest and cervical tomography scans were requested, which showed fractures of 3 costal arches, subpleural bullae, extensive subcutaneous emphysema, large pneumomediastinum and small bilateral pneumothorax. Hospitalization and absolute bed rest were indicated, but the patient escaped and returned in less than 24 hours, with significant worsening of the edema (photo 3), associated with dyspnea. Within 6 hours, the patient developed obstructive respiratory failure.

INTRODUCTION

Pneumomediastinum is the presence of air in the mediastinum and can be classified as spontaneous or traumatic ³. It usually presents with dyspnea, and may be associated with chest pain or even be oligosymptomatic. Air can reach the mediastinum due to a sudden increase in intra-alveolar pressure, with alveolar rupture, passing into the peribronchovascular interstitium, dissecting the hilum, reaching the mediastinum, in search of pressure balance, an episode known as Macklin's phenomenon, described for the first time in 1944 ².

Treatment can be conservative in mild cases, or surgical depending on the extent and severity of the condition. The authors describe a case of traumatic pneumomediastinum with an unfavorable clinical outcome, but with a good outcome under conservative treatment.

CASE REPORT

Man, 45 years old, 30 pack-year smoker, treated for tuberculosis 13 years ago, victim of a fall from a roof 3 meters high. After 24 hours, he presented facial edema and dysphonia. He denied dyspnea, chest pain or other symptoms. He was admitted to the



(1) and (2) - Admission



(3) Return after 24 hours

Sedation and orotracheal intubation were chosen. Subsequently, an early tracheostomy (TQT) was performed, aiming to reduce airway pressure and drain the emphysema through the TQT orifice. He presented early weaning from mechanical ventilation,

progressive reduction of subcutaneous emphysema (photo 4), and was discharged after 13 days for outpatient follow-up.



(4) Discharge from hospital

DISCUSSION

Subcutaneous emphysema is usually a self-limiting situation ⁶ with more aesthetic than hemodynamic repercussions. However, in some rare cases they can progress quickly,

progressing to dysphagia, dysphonia, compression of the upper airways or large vessels, sometimes requiring invasive approaches, such as cervical or parasternal mediastinostomy, with placement of a mediastinal drain ¹.

When available, exams such as chest radiography and computed tomography help in the diagnosis and identification of complications, allowing the brief implementation of measures and the initiation of appropriate treatment, although in most cases it is only expectant, for progressive reabsorption of air.

It is noted that knowledge of the pathophysiology can be essential in managing the case, allowing conservative measures to be taken that can produce good results in severe cases, as in the report presented, as well as early recovery and discharge.

REFERENCES

1. Barbosa PNVP, Stefanini FS, Bitencourt AGV, Gross JL, Chojniak R. **Drenagem percutânea de pneumomediastino hipertensivo guiada por tomografia computadorizada.** Radiol Bras. 2022 Jan/Fev;55(1):62–63
2. Clancy DJ, Lane AS, Flynn PW, Seppelt IM. **Tension pneumomediastinum: A literal form of chest tightness.** J Intensive Care Soc. 2017 Feb;18(1):52-56. doi: 10.1177/1751143716662665. Epub 2016 Aug 3. PMID: 28979537; PMCID: PMC5606356
3. COURTNEY, M. TOWNSEND, Jr. et al. **Sabiston Tratado de Cirurgia**, 20 ed, v. 1, 2009. Rio de Janeiro: Elsevier, 2019
4. SAAD, ROBERTO Jr. et al. **Cirurgia Torácica Geral**, 2 ed, v. 1, 2011. São Paulo. Atheneu, 2011
5. SUCENA M.; et al. **Enfisema subcutâneo maciço: Tratamento com drenos subcutâneos.** Rev Port Pneumol, v.16 n. 2, abr. 2010. DOI: 10.1016/S2173-5115(10)70039-7
6. Williams DJ, Jaggar SI, et al. **Upper airway obstruction as a result of massive subcutaneous emphysema following accidental removal of an intercostals drain.** British Journal of Anaesthesia 2005; 94(3):390 -392