

# Spontaneous hemopneumothorax

## Hemoneumotórax espontáneo

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**ABSTRACT.** Primary spontaneous hemopneumothorax is a rare but potentially mortal entity that is not commonly described in the literature. The most suggestive symptoms are dyspnea, chest pain and anemia. We present a rare case of primary spontaneous hemopneumothorax due to a tear near to the emergence of the subclavian artery, treated with video-assisted thoracoscopic surgery procedure.

**Keywords:** Primary, spontaneous, Hemopneumothorax, subclavian artery, adhesion.

## INTRODUCTION

Primary spontaneous hemopneumothorax is a rare pathology, which requires the patient to stay at the hospital to determine the nature of the disease.<sup>1</sup> It is defined as the accumulation of >400 mL of blood in the pleural cavity in association with spontaneous pneumothorax.<sup>2</sup>

## CASE REPORT

26 years old male, smoker, enters the emergency ward with coughing, left-sided pleuritic chest pain and shortness of breath which developed while he was doing intense physical activity. He had a history of two left spontaneous pneumothorax in the last 8 years which were resolved with a pleural chest tube. On physical examination, the patient

**RESUMEN.** El hemoneumotórax primario espontáneo es una entidad rara y potencialmente mortal que no es comúnmente descrita en la literatura. Los síntomas más sugestivos son disnea, dolor torácico y anemia. Nosotros presentamos un caso raro de hemoneumotórax primario espontáneo por el desgarro de la arteria subclavia, tratado con cirugía toracoscópica video-asistida.

**Palabras clave:** Primario, espontáneo, hemoneumotórax, arteria subclavia, adhesión.

was polypneic with dyspneic sounds in the left side of the chest and tympanic percussion. Chest radiography showed complete left lung collapse with hydro-aerial level in the lower zone of the left side (figure 1).

We performed a VATS procedure which required intubation with left Robert Shaw 39 and right side decubitus. There were 400 mL of defibrinated blood, clots and a tear near to the emergence of the subclavian artery with active bleeding (figure 2). Additionally, we found two zones with bullae in the upper and lower lobe (figure 3).

Hemorrhage was managed with absorbable hemostat and drainage, furthermore, we performed a wedge resection in the upper and lower lobes with a stapler device in order to treat the bullae. The patient was discharged on the fourth day of hospital stay in good conditions.

## DISCUSSION

The clinical findings of SHP are perilous, they hinge on persistent air quantity in the cavity and blood loss. The most suggestive symptoms are dyspnea, chest pain, anaemia and occasionally shock due to massive intrapleural tension.<sup>3,4</sup> The symptomatology can be very similar to primary pneumothorax.

Chest radiography is the most useful diagnostic tool, however, 10% of patients with HNP only display pneumothorax. These patients usually show radiological

### Glossary:

VATS = Video-assisted thoracoscopic surgery.  
SHP = Spontaneous hemopneumothorax.  
HNP = Hemopneumothorax.

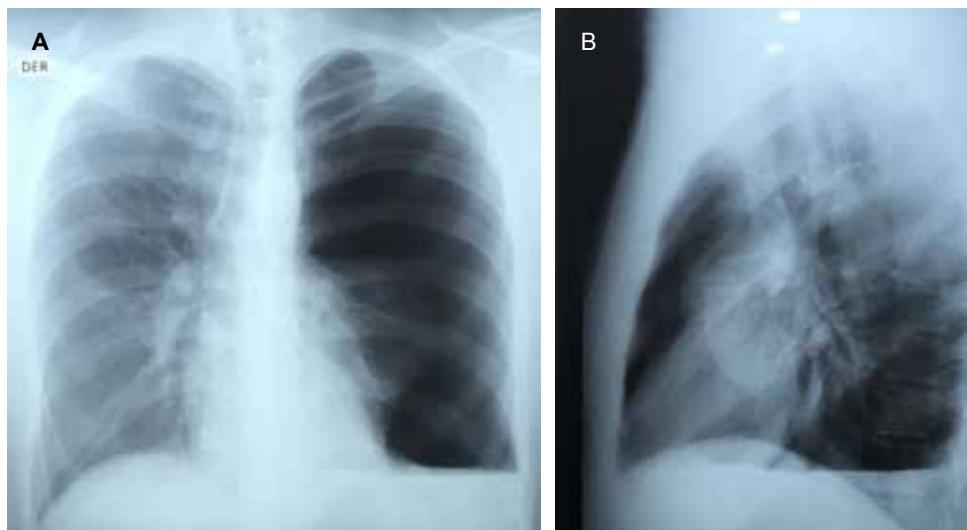
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**Figure 1:**

**A)** Chest radiography showing full collapse of the left lung; **B)** Hydro-aerial level in the basement of left lung.

evidence of hemothorax after the insertion of a pleural catheter.<sup>5</sup> This phenomenon can be explained by the early timing of the chest radiograph or the possibility of late hemorrhage due to vascular adhesion.

Three mechanisms have been described (1) tearing of adhesion between the parietal and visceral pleura, (2) rupture of vascularized bullae and underlying lung parenchyma, (3) ripped congenital aberrant vessels attached to parietal pleura.<sup>6</sup> The tear of the adhesion at the intrathoracic emergence of the subclavian artery is an almost unique circumstance; in fact there has been only one case report of the literature that is similar to our case.<sup>7</sup>

Patients with SHP tend to have inefficient hemostasis, given that there are hindering factors that disable correct vasoconstriction. As an example of this event, there have been reported cases of thick, aberrant vessel walls and

presence of fibrosis of the intima and middle layer, which contribute to an incomplete vessel closure. Another determining factor is the negative intrapleural pressure due to blood and air stress, which interferes with intraluminal pressure of arteries and veins, which then leads to hemorrhaging that is not proportional to the caliber of the vessel.<sup>8</sup>

Hemostasis can be obtained by applying pressure in the bleeding site by insufflating the collapsed lung. This principle cannot be applied in the case of hematoma, since the blood does not allow a sufficient lung expansion.<sup>9</sup>

It has been shown that the most probable bleeding site is the left superior mediastinum and it is relevant to observe this area along with the superior thoracic opening.

The literature reports an incidence of spontaneous hemopneumothorax between 0.5% and 12%.<sup>6</sup> However, we



**Figure 2:** Active bleeding of the subclavian artery due to a tearing.



**Figure 3:** Bullae near to the bleeding zone (white arrows).

only found one case of SHP due to a complete lesion of the left subclavian artery which required hemostatic handling with suture.<sup>7</sup> In this case we observed bleeding at the lesion site near to the left subclavian artery that was solved with a hemostatic agent (Surgicel fibrillar™). There was evidence in both cases of adhered bullaeas near the bleeding zone. The minimal severity of the lesion allowed a minimally invasive resolution with an excellent post operatory evolution and early discharge.

## REFERENCES

1. Hsu CC, Wu YL, Lin HJ, Lin MP, Guo HR. *Indicators of haemothorax in patients with spontaneous pneumothorax*. Emerg Med J 2005;22(6):415-417. <https://doi.org/10.1136/emej.2003.013441>.
2. Azfar Ali H, Lippmann M, Mundathaje U, Khaleeq G. *Spontaneous hemothorax: a comprehensive review*. Chest 2008;134(5):1056-1065. <https://doi.org/10.1378/chest.08-0725>.
3. Wu YC, Lu MS, Yeh CH, et al. *Justifying video-assisted thoracic surgery for spontaneous hemopneumothorax*. Chest 2002;122(5):1844-1847. <https://doi.org/10.1378/chest.122.5.1844>.
4. Najah L, Jabri H, Elkhettabi W, Afif H. *Hémopneumothorax : à propos de 22 cas*. Rev Mal Respir 2017;34(6):A110-A111. Doi: 10.1016/j.rmr.2016.10.252.
5. Tay CK, Yee YC, Asmat A. *Spontaneous hemopneumothorax: our experience with surgical management*. Asian Cardiovasc Thorac Ann 2015;23(3):308-310. <https://doi.org/10.1177/0218492314561502>.
6. Chiang WC, Chen WJ, Chang KJ, Lai TI, Yuan A. *Spontaneous hemopneumothorax: an overlooked life-threatening condition*. Am J Emerg Med 2003;21(4):343-345.
7. Behr N, Alpert EA, Silberman S, Fink D. *A rare case of spontaneous hemopneumothorax due to left subclavian artery tear*. Isr Med Assoc J 2016;18(12):768-769.
8. Tatebe S, Kanazawa H, Yamazaki Y, Aoki E, Sakurai Y. *Spontaneous hemopneumothorax*. Ann Thorac Surg 1996;62(4):1011-1015. [https://doi.org/10.1016/0003-4975\(96\)00445-6](https://doi.org/10.1016/0003-4975(96)00445-6).
9. Tulay CM, Aygün M. *Emergency surgery for spontaneous hemopneumothorax*. J Coll Physicians Surg Pak 2014;24(6):435-437. <https://doi.org/10.1016/j.jcp.2014.06.001>.

**Conflict of interest:** The authors certify that they have no involvement in any organization with any financial or non-financial interest, in the subject matter discussed in the manuscript.