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CASE REPORT

Spontaneous Hemothorax Revealing a Bronchial Carcinoid Tumor

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ABSTRACT

Introduction : Spontaneous hemothorax is an uncommon pathology. The majority of hemothorax are a result of open or closed thoracic traumas. Thus, spontaneous hemothorax caused by a carcinoid tumor is an exceptional case that has only been reported once in the literature.

Case report : We report the case of a 58 years old Moroccan male patient. The patient was admitted to the emergency room for a sudden left chest pain associated dyspnea and low abundance hemoptysis. The chest radiography revealed an opacity of the left lower lobe. Chest CT scan revealed an effusion of an average abundance mottled with pulmonary atelectasis. Flexible bronchoscopy was not conclusive. After the thoracentesis failure, a thoracotomy exploration was decided. Spontaneous hemothorax and the presence of a 5cm tumor etiology was intraoperative. Two surgical biopsies were performed with inconclusive extemporaneous readings. A left pneumonectomy with lymphadenectomy was decided to ensure both hemostasis and oncologic resection. The results of histological examination and immune-histo-chemical study were in favor of a carcinoid tumor. The post-operative results were simple.

Conclusion : Spontaneous hemothorax due to the atypical carcinoid tumor is an extremely seldom situation making this case only the second one to be reported in literature. The peripheral location of the tumor, and the presence of passive pulmonary atelectasis and blood clots, were the factors that made the diagnosis difficult.

KEYWORDS : Spontaneous Hemothorax ; Bronchial Carcinoid Tumor

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INTRODUCTION

Hemothorax is defined as a pleural effusion of blood where the hematocrit is > 50% of the blood hematocrit [1]. The majority of hemothorax are either a result of a thoracic trauma or from iatrogenic origin [1]. Spontaneous hemothorax is a rare clinical case. Its principal causes are majorly spontaneous pneumothorax, coagulopathies and vascular pathologies [2]. Primitive broncho-pulmonary tumors rarely cause spontaneous hemothorax without associated pneumothorax [3]. Therefore, the presence of a hemothorax caused by a lung carcinoid tumor is a special case that has only been described once in the Anglo-Saxon medical literature [3]. In this article, we report the case of a patient with a spontaneous hemothorax due to an atypical carcinoid tumor that was intraoperatively discovered.

CASE PRESENTATION

It is the case of a 58 years old Moroccan male patient, a university professor without any notable medical history and no notion of recent trauma. The patient was admitted to the emergency room for a sudden left chest pain associated with MRC dyspnea scale 3 and low abundance hemoptysis. Physical examination was normal. The blood tests demonstrated a hemoglobin rate of 12.2 g/dl (normal value 13 to 17 g/dl), a hematocrit of 35.1% (normal value 42 to 54%), a prothrombin rate of 91% (normal value 70 to 100%), and a 33,7s rate of active thromboplastin

(normal value 30 to 35s) with INR (International Normalized ratio) 1.06. The electrocardiogram did not reveal any abnormality. The chest radiography revealed an opacity of the left lower lobe. Chest CT scan also showed a pulmonary condensation of the left lower hilum mass with a partitioned contralateral liquid effusion of an average abundance. Furthermore, a flexible bronchoscopy was performed showing a diffuse inflammatory condition of first degree with thickening of the pericardial spur of the left inferior lobar bronchus. However, multiple biopsies were performed, and did not show any specific lesion. A second chest CT scan was made (Figure 1) revealing an effusion of an average abundance mottled with pulmonary atelectasis. After the thoracentesis failure, a thoracotomy exploration was decided. The first way was through the left postero-lateral, where the surgical exploration showed an hemothorax of great abundance with blood clots. After cleaning and removing the clots, a sulcus mass of tumor shape has been demonstrated. The sulcus mass was about 5 cm, it was open, friable with a blood dissection that exceeds the fissure to reach the left upper lobe. Two surgical biopsies were performed with inconclusive extemporaneous readings.

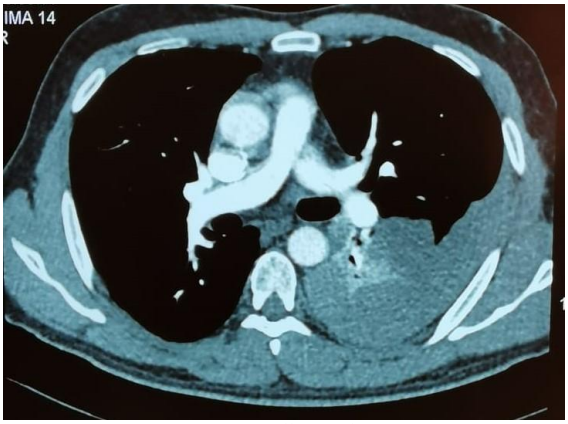

Figure 1 : Chest scan revealing an effusion of an average abundance with pulmonary atelectasis.

A left pneumonectomy (Figure 2) with lymphadenectomy was decided to ensure both hemostasis and oncologic resection. The post-operative results were simple. The result of the histological examination was in favor of a neuroendocrine tumor measuring 5,5x5x5cm, infiltrating peripheral location of the visceral pleura, with vascular emboli. The lymph node dissection did not reveal metastatic lymph node localization. The immune-histo-chemical study was in favor of an atypical carcinoid tumor.

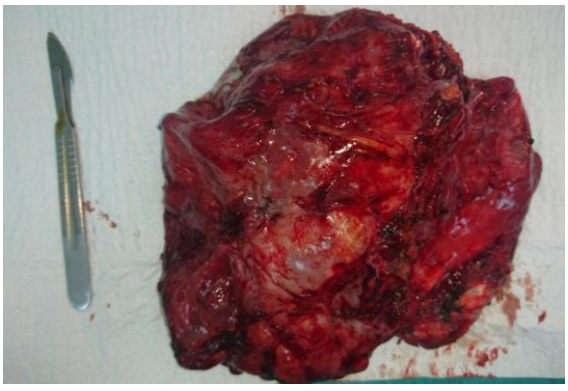

Figure 2 : Left pneumonectomy.

DISCUSSION

Spontaneous hemothorax is a pleural effusion of blood with a hematocrit 50% higher than blood hematocrit, in the absence of associated aerial effusion [1], and in the absence of any traumatic or iatrogenic cause [2]. Therefore, this is a less common condition than traumatic hemothorax. Among multiple etiologies, bronchopulmonary tumors remain a rare cause of hemothorax without associated pneumothorax [4,5]. The case of spontaneous hemothorax due to an atypical carcinoid tumor was only reported once in the English literature [3].

Carcinoid tumors are a rare type of tumors of neuroendocrine origin, they represent 1 to 5% of all bronchial cancers [6]. According to the W.H.O. a carcinoid tumor is considered atypical when the number of mitosis per 2mm² is between 2 to 10 with or without necrosis [7]. In this case, the histopathological study had revealed an infiltrating cancerous proliferation of neuroendocrine phenotype, peripheral and infiltrating the visceral pleura.

The clinical expression of bronchial carcinoid tumors is usually dominated by signs of bronchial obstruction with cough, recurrent obstructive pulmonary diseases, chest pain and hemoptysis [6,8]. Spontaneous hemothorax without associated pneumothorax is an exceptional indicator that has only been described once in the literature [3]. Several mechanisms have been evoked to explicate its occurrence: compression and ischemic necrosis of the pleura and the lung tissues, the invasion of vascular elements, or tumor rupture into the pleural cavity [9]. Nevertheless, the peripheral location of the tumor could be a favorable factor for the emergence of hemothorax [3].

In this case the size of the tumor (5,5x5x5 cm), and its peripheral location could explain the intra pleural rupture noticed during the surgical exploration that was the origin of the hemothorax.

Based on radiological considerations, carcinoid tumors are usually hyper vascular and centrally located. The peripheral location is rarely found [3]. In this case, the peripheral location and the passive collapse of the lung explicate the difficulty of demonstrating the tumor on preoperative CT scan.

The prognosis of atypical carcinoid tumors after surgical resection is good with a long survival. Lobectomy with lymph node dissection remains the reference intervention [7]. In this case anew, the sulcus location with with invasion of the artery and the upper lobe were the reasons behind the decision of pneumectomy curettage.

CONCLUSION

Spontaneous hemothorax due to the atypical carcinoid tumor is an extremely seldom situation making this case only the second one to be reported in literature.

The rarity of this situation and the peripheral location of these tumors explain the difficulty of the diagnosis.

AUTHORS' CONTRIBUTIONS

The participation of each author corresponds to the criteria of authorship and contributorship emphasized in the Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly work in Medical Journals of the International Committee of Medical Journal Editors. Indeed, all the authors have actively participated in the redaction, the revision of the manuscript and provided approval for this final revised version.

COMPETING INTERESTS

The authors declare no competing interests with this case.

PATIENT CONSENT

Written informed consent was obtained from the patient for publication of this case report.

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