A Rare Cause of Massive Hemoptysis: Bilateral Endobronchial Lesions Secondary to Metastatic Gestational Choriocarcinoma in a Post-Menopausal Woman

Abstract
Massive hemoptysis is a challenge in the patient with neoplastic lung disease due to its high mortality and the demand of a multidisciplinary approach. Its management entails intensive care, interventional pulmonology, hemodynamics, radiology and surgery. We present the case of a patient with obstructive endobronchial lesions and severe hemoptysis diagnosed as metastatic gestational choriocarcinoma, who was successfully treated with endoscopic intervention and chemotherapy.

Keywords: Hemoptysis; Choriocarcinoma; SRY; Gene amplification

Introduction
Massive hemoptysis is a fearsome complication of lung cancer which is found in 7-10% of the patients. It is more frequent in the cases of central lesions in the airway and can lead the patient to severe compromise of the general status, respiratory failure and death, with a mortality rate estimated between 59-100% [1]. The therapeutic algorithm of massive hemoptysis involves hemodynamic stabilization and airway protection followed by endoscopic assessment. The endoscopic evaluation is undertaken to look for endobronchial lesions susceptible to endoscopic management with therapeutic Bronchoscopy or to execute the blockade of the sites with more bleeding. Bleeding control is performed with embolization. Resection surgery is not indicated in advanced-stage disease [2,3].

We present the case of a patient with recent diagnosis of advanced lung adenocarcinoma who presented severe hemoptysis and respiratory failure. She received palliative manage of the bleeding with endoscopic resection of multiple lesions which obstructed the central airway. Interestingly, the tumoral lesions corresponded to a choriocarcinoma, a malignant βhCG-producer epithelial tumor, formed by cytrophoblast-like cells and multinucleated syncytiotrophoblast-like regions. Two types of choriocarcinoma have been described: gestational and non-gestational. Usually, gestational choriocarcinoma occurs in a reproductive-age woman following a gestational event. It arises from the uterine cavity, mostly within a year of the preceding pregnancy [4,5]. However, in this case, genotyping contributes to the deduction that it was a metastatic gestational choriocarcinoma arising in a post-menopausal woman with out evidence of uterine after 20 years of her last pregnancy.

Case Report
A 53-year-old woman presented to the emergency department with massive hemoptysis and respiratory failure. She had had history of intermittent hemoptysis and worsening shortness of breath during the last year. Her past medical history was remarkable for recently diagnosed lung cancer, two months previous to the admission. A metastatic poorly differentiated lung adenocarcinoma was reported in pathology from another medical center. On admission she required or tracheal intubation. The physical examination was, otherwise, unremarkable. She was hemodynamically stable and did not require vasopressor. Platelets and coagulation studies were in the normal range. A chest CT-scan with contrast showed evidence of a 6-cm-diameter right perihilar tumor, with extension to bilateral main-bronchi (Figure 1). There was secondary 70% left-main-bronchi obstruction and right-main-bronchi almost obliteration. Endobronchial obstruction due to advanced lung cancer was considered. A therapeutic bronchoscopy was performed. It showed 90% obstruction of bilateral main-bronchi by easily bleeding polypoid mass. Resection by cauterization was performed, allowing bleeding control and permeabilization of the airway. Samples were sent to pathology.

Bronchoalveolar lavage was negative for bacterial cultures, as well as for mycobacterial PCR, KOH, and Ziehl-Neelsen stain. The cytology reported inflammatory cells, with no evidence of malignant cells. The patient was extubated 24-hours after the bronchoscopy. The absence of previous studies for lung cancer staging, complementary radiological imaging was done. The CT-brain with contrast showed no abnormality. A photopenic defect in the right sacroiliac-junction compatible with a metastatic lytic lesion was seen in a bone-scan. The abdominopelvic-MRI showed no significant findings. The pathology report of the resected tissue showed a malignant
epithelial neoplasm composed of pleomorphic cells compatible with a pure choriocarcinoma (Figure 2A). Immunohistochemistry was positive for βhCG and negative for TTF-1 (anti-Thyroid Transcription Factor-1), p63, cytokeratin-20, and calretinin. A primary pulmonary or gastrointestinal neoplasm was ruled out. The tumor was diagnosed as a metastatic choriocarcinoma. The patient was G3P2A1. She had history of two male births, the last one 30 years ago. The miscarriage had been 20 years before the admission. Menopause had been at 45-year-old, with no abnormal vaginal bleeding afterwards. There was no history of gestational trophoblastic disease.

![Figure 1: A, B. Chest Ct-Scan showing bilateral endobronchial obstruction secondary to an infiltrative parahiliar right mass involving the carina and extending to bilateral main-bronchi.](image)

The plasma β-hCG level was 122,416 mIU/ml [0-2 mIU/ml]. The gynecological examination and pelvic MRI showed no evidence of disease.

In order to determine the gestational or nongestational tumor origin, PCR looking for Y chromosome specific regions was performed. The PCR amplified the SRY (sex-determining region Y), as well as the following Short Tandem Repeats (STR): DYS19, DYS392, and DYS439. The molecular studies identified the genetic origin of choriocarcinoma with the analysis of STR mainly when the karyotype is XX [7].

Determining the origin of choriocarcinoma is important to select the most appropriate treatment. The patient had stage IV choriocarcinoma according to FIGO, requiring an aggressive chemotherapeutic regimen. Low-risk and low-stage gestational choriocarcinoma could be treated with a single agent therapy (i.e. methotrexate). But, irrespective of the stage, nongestational choriocarcinoma should be treated with multi-agent chemotherapy due to its lower response to treatment and poor prognosis compared with the gestational type [8].

We presented a metastatic gestational choriocarcinoma in a postmenopausal woman, manifested clinically 20 years after her last pregnancy. Systemic chemotherapy must be started immediately after the diagnosis, due to the high chance to achieve a complete response.

**Conflict of Interest**

The authors declare they have no conflict of interest. This study was carried out with resources from the Fundación Valle del Lili.
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