CLINICAL VIGNETTE

Solitary Pulmonary Papilloma Presenting with Massive Hemoptysis

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Solitary Pulmonary Papillomas are rare benign tumors of the lower respiratory tract with an estimated incidence of 3.95 cases/100,000 patient/yr.[1] Hemoptysis has been reported in some cases, with 18% incidence estimated in patients with these rare tumors.[1] We present a patient with massive hemoptysis due to a solitary respiratory papilloma which was diagnosed with endobronchial biopsies and successfully ablated with Argon Plasma Coagulation (APC).

Case Presentation

A 62-year-old male with history of cigarette smoking, Global Initiative for Chronic Obstructive Lung Disease (GOLD) Group E Chronic Obstructive Pulmonary Disease (COPD) and end stage renal disease on hemodialysis presented to the emergency department with two days of dyspnea, cough, and hemoptysis. He described his cough as productive of bright red blood, and blood clots expectorated every 30 minutes. The patient was afebrile with a heart rate of 88 beats/min, blood pressure of 148/75 mmHg, and respiratory rate of 18 breaths/min. His oxygen requirements increased from his chronic baseline requirement of 2 LPM to 6 LPM of nasal cannula to achieve a saturation of 93%. His physical exam did not show active bleeding in the nasopharynx or oropharynx. Pulmonary exam was notable for subtle expiratory wheezing in bilateral upper lung fields without any use of accessory muscles. The rest of his examination was unremarkable.

His hemoglobin significantly dropped from his baseline of 12 g/dl to 10 g/dl on admission, with continued decrease to a nadir of 5.9 g/dl with no other evidence of bleeding. Chest x-ray revealed new multifocal bilateral lung opacities most prominent in the left lower lobe. Computed tomography (CT) of the chest with pulmonary angiography excluded pulmonary emboli but demonstrated bilateral consolidations greatest in the left lower lobe.

He was intubated for airway protection. Flexible video bronchoscopy revealed a 5mm endobronchial lesion in the lateral subsegment of the left lower lobe, with smooth overlying mucosa, increased vascularity and slow ongoing bleeding (Figure 1). Endobronchial forceps biopsies were obtained from the lesion. Pathology returned consistent with squamous papilloma, negative for malignancy. Human Papillomavirus (HPV) stains were negative for high or low risk HPV subtypes on in situ hybridization (Figure 2). The lesion was successfully ablated with argon plasma coagulation (APC), thereby controlling the source of bleeding. Complete resolution of hemoptysis was noted three days after initial bronchoscopy. He was successfully extubated and his oxygen requirements returned to baseline. During this admission he also underwent treatment for potential pneumonia and COPD exacerbation.

Discussion

Pulmonary papillomas are rare benign tumors of the lungs that can be classified as squamous, glandular, or mixed based on the histology of the epithelial lining. They represent less than 0.4% of all pulmonary tumors.[2,3] Solitary pulmonary papillomas typically affect adult male smokers and can present with significant morbidities such as cough, post obstructive pneumonia, bronchiectasis, or hemoptysis.[1-3] Patients with multiple endobronchial papillomas are usually HPV mediated, whereas only about half of solitary squamous papillomas are associated with HPV.[3,4] A small number of cases involve malignant, transformation of squamous papillomas.[1]

Our case demonstrates the potential for solitary pulmonary papillomas to lead to massive hemoptysis. We were unable to find another case of solitary respiratory papilloma presenting with severe hemoptysis in the literature. This case also highlights the utility of bronchoscopy for localizing the source of hemoptysis, with the potential for diagnostic sampling and local hemostatic treatments. We considered early arteriography with embolization after the initial thoracic CT angiography localized the bleeding to the left lower lobe. However, the need for embolization was obviated by identification of an endobronchial lesion and successful thermal ablation.

Solitary pulmonary papillomas are usually treated with surgical resection with a good prognosis.[5] However, there is risk of recurrence if the tumor is not completely removed.[4]

Conclusion

This case illustrates that Solitary pulmonary papillomas may cause severe hemoptysis and the utility of bronchoscopy in patients with massive hemoptysis. Bronchoscopy allowed us to

identify the cause of hemoptysis, diagnose a respiratory papilloma and complete long-term treatment for the bleeding pulmonary papilloma.

Figures

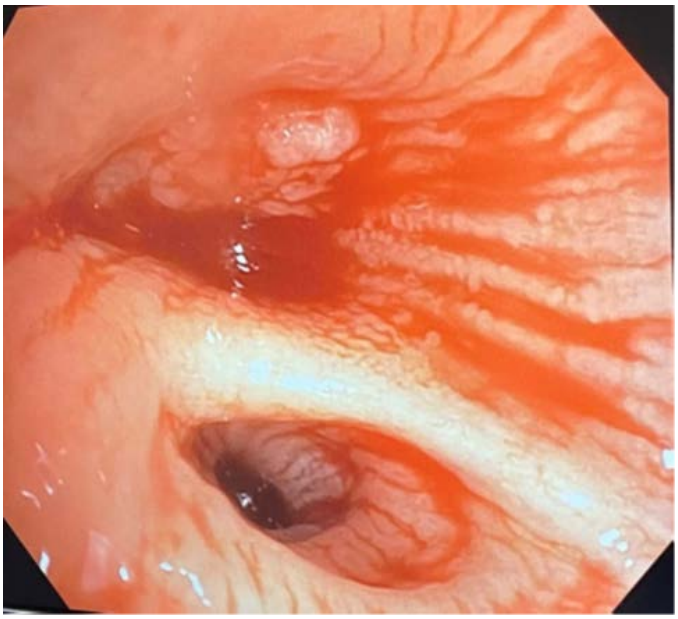

Figure 1. Five mm endobronchial lesion in the lateral subsegment of the left lower lobe with ongoing bleeding.

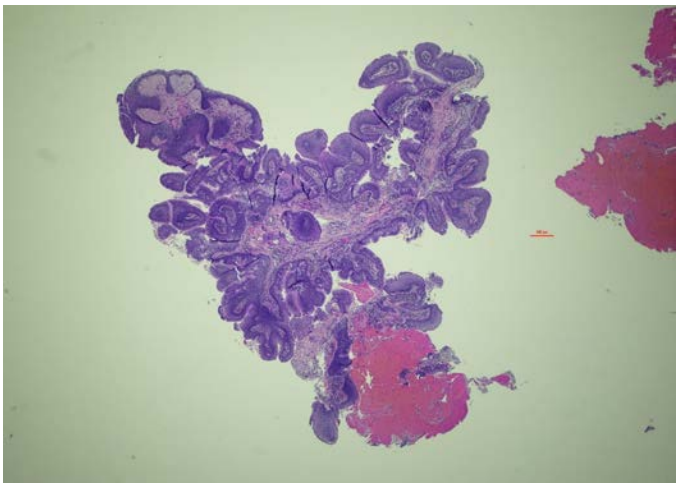

Figure 2. Pathology slides consistent with squamous papilloma negative for malignancy.

Abbreviation List

GOLD: Global Initiative for Chronic Obstructive Lung Disease
COPD: Chronic Obstructive Pulmonary Disease
CT: Computed Tomography
APC: Argon Plasma Coagulation
HPV: Human Papillomavirus

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