

## Case Report

# A rare cause of hemoptysis in patient with chronic kidney disease: pseudoaneurysm of pulmonary vein related to lung malignancy

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### ABSTRACT

Hemoptysis is a common presentation of underlying pulmonary or bronchial artery aneurysm. Amongst the causes of non-life-threatening hemoptysis are old healed pulmonary Koch's, aspergilloma, bronchogenic carcinoma, blunt or penetrating trauma. Pseudoaneurysm of pulmonary vein has not been reported in the literature as a cause of hemoptysis in nontraumatic patients. A very rare case of pulmonary vein pseudoaneurysm as a cause of hemoptysis in patient with lung malignancy along with chronic kidney disease is presented in current report.

**Keywords:** Hemoptysis, Chronic kidney disease, Pseudoaneurysm of vein

### INTRODUCTION

Pulmonary vein pseudoaneurysm is rare with very few case reports in the literature. Multiple causes of hemoptysis have been mentioned in the literature including airway disease (bronchitis, bronchiectasis, bronchial neoplasm, foreign bodies, broncholiths, fistulas, Dieulafoy lesion etc.) pulmonary parenchymal disease, pulmonary vascular disorder (pulmonary arterial hypertension, pulmonary arteriovenous malformation, pulmonary or bronchial artery aneurysm, pulmonary embolism), bleeding disorder, airway or parenchymal trauma.<sup>1</sup> Hemoptysis may be life threatening in high pressure system (bronchial arterial system) and non-life threatening in low pressure system (pulmonary arterial system) depending on source of bleeding.<sup>2,3</sup> Abnormalities and malformation (aneurysm, pseudoaneurysm) of both these systems are commonly detected as a cause of hemoptysis. Pulmonary vein pseudoaneurysm is reported as a rare cause of hemoptysis in blunt or penetrating trauma of chest.<sup>4</sup> A case of

pulmonary vein pseudoaneurysm in non-traumatic patient with underlying chronic kidney disease is being illustrated in current case report.

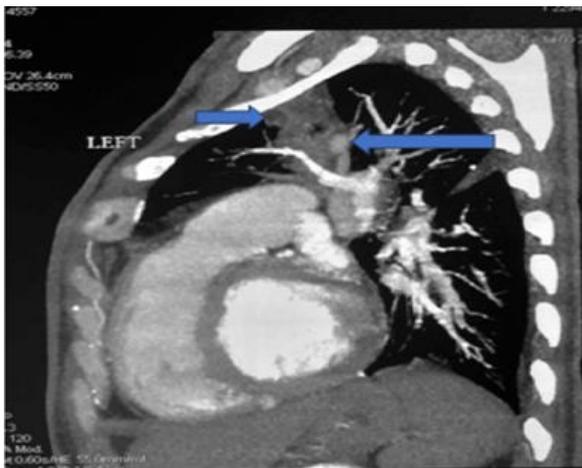
### CASE REPORT

A 62 years old male; known case of diabetes mellitus type 2, hypertension, smoker and chronic kidney disease on maintenance hemodialysis twice weekly for last 6 months was admitted with complaints of massive hemoptysis (500 ml per day) for last 2 days, there was no history of trauma, bleeding diathesis, coagulation disorder and use of anticoagulants. He was hemodynamically un-stable with blood pressure of 90/60 mm Hg and pulse rate of 130 per minute. On lab investigations there was significant hemoglobin drop (initial Hb was 7.9 gm/dl later on it become 5.5 gm/dl), renal functions were suggestive of advanced azotemia (urea 139 mg/dl, creatinine 10.16 mg/dl) liver functions showed mild degree of transaminitis (SGOT 75, SGPT 55) with normal level of bilirubin, no coagulopathy (INR

1.37), thrombocytopenia (platelets counts 2.5 lakhs) and evidence of hemophilia. Computed tomographic Bronchial angiography (CTBA) was done to localize cause of massive hemoptysis which revealed pulmonary vein pseudo aneurysm (Figure 1-2) in left upper lobe lung arising from anterior segmental branch of pulmonary vein and mass like consolidation with cavitation and surrounding centrilobular nodule in left upper lobe with definitive possibility of malignant etiology and biopsy was suggestive of Lung adenocarcinoma. Patient was managed medically with intra-venous antifibrinolytics and antitussives and transfused 3 units of packed red blood cells. Patient was assessed for percutaneous embolization of pseudoaneurysm which was not feasible, therefore surgical consultation was taken and planned for left upper lobectomy and ligation of upper lobe pulmonary vein, but patient succumbed due to massive hemoptysis and hemorrhagic shock.



**Figure 1: Left upper lobe mass like consolidation (upper arrow) and pseudoaneurysm of left upper lobe vein, coronal plain (lower arrow).**



**Figure 2: Left upper lobe pulmonary vein forming pseudoaneurysm (sagittal plane), upper arrow shows mass (adenocarcinoma of lungs) and lower arrow shows pseudoaneurysm.**

## DISCUSSION

Hemoptysis usually results due to bleeding from pulmonary arteries and/or bronchial arteries.<sup>5</sup> Hemoptysis is categorised as mild, moderate, severe and massive. Massive hemoptysis is described as blood in sputum from 100ml to more than 600ml over 24 hours with respiratory or hemodynamic un-stability.<sup>6,7</sup> The reported mortality ranges from 7% to 30% for non-massive hemoptysis, to up to 80% for massive hemoptysis.<sup>8</sup> Few studies in literature have shown pseudoaneurysm of pulmonary vein as a result of blunt trauma.<sup>4,9</sup> In one study, metastatic angiosarcomas in the lung presented with massive hemoptysis and on evaluation, erosion of vein due to pulmonary vein pseudoaneurysm had been reported.<sup>10</sup> In another similar case, patient with high-grade soft tissue sarcoma and bilateral metastatic soft tissue lesions to the lungs presented with massive hemoptysis and had erosion of a right lower lobe and metastatic mass into an adjacent right inferior lower lobe pulmonary vein with formation of a pseudoaneurysm but in this index case, lung adenocarcinoma was perpetrator for formation of pseudoaneurysm which is very rare cause of hemoptysis and has not been earlier reported in literature.<sup>11</sup> Lung adenocarcinoma has strong association with smoking and in Asian population as comprehended in our case.<sup>12</sup>

## CONCLUSION

Though a very rare cause, pulmonary vein pseudoaneurysm should be suspected in patients with massive hemoptysis in relation with lung malignancy after excluding other common causes.

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