Case report

Delayed post-lobectomy pulmonary artery stump thrombosis

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Keywords:
Lobectomy
Pulmonary artery
Thrombosis
Embolism
Anticoagulation

Abstract

We present a 67 year old male patient who underwent VATS right upper lobectomy with en bloc chest wall resection and right lower lobe superior segmentectomy for atypical Ewing Sarcoma. Serial chest CT scan done more than two years after the initial resection showed a new filling defect in the right upper pulmonary artery stump. A repeat chest CT scan after three months of oral anticoagulation showed complete resolution of the filling defect.

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Introduction

While post pneumonectomy pulmonary artery stump thrombosis is a known entity, post lobectomy pulmonary artery stump thrombosis is rare. The importance of stump thrombosis after lobectomy remains unclear. It is conceivable that a clot could extend from the stump thrombosis centrally and this central extension could then lead to embolization to the remaining lung. Our case report demonstrates that three months of oral anticoagulation lead to complete resolution of post lobectomy pulmonary artery stump thrombosis.

Case report

A 67 year old male patient with a past medical history of severe COPD and hypertension was noted to have a right upper lobe nodule in 2012. A CT guided lung biopsy at that time was suggestive of an anaplastic neoplasm of undetermined origin. The patient underwent VATS right upper lobectomy with en bloc chest wall resection and right lower lobe superior segmentectomy. The final tissue diagnosis was small round cell sarcoma most consistent with atypical Ewing Sarcoma likely arising from the chest wall. His post-operative course was complicated with a loculated pneumothorax in the right upper chest without evidence of broncho-pleural fistula and it remained stable on follow up. There was no evidence for residual disease. The patient was followed for recurrence with serial CT scans.

A CT scan of the chest done more than two years after the lung resection, showed a filling defect in the right upper lobe pulmonary artery stump (Figs. 1 and 2) that was not present on prior scans. He had no change in his baseline shortness of breath at that time and was completely asymptomatic. A venous duplex of his lower extremities was negative for deep vein thrombosis. He was started on Coumadin for right upper pulmonary artery stump thrombosis. His oral anticoagulation was discontinued after three months when a follow up chest CT scan showed complete resolution of the previously noted filling defect (Figs. 3 and 4).

Discussion

The prevalence of pulmonary artery stump thrombosis after pneumonectomy is approximately 12% [1]. It is usually discovered as an incidental finding on routine follow-up chest CT scans. It is important to distinguish in situ stump thrombosis from pulmonary embolism as the prognosis and treatment of these two conditions differs [2]. The importance of stump thrombosis after lung resection remains unclear. Our review of the English literature revealed one other case of post-lobectomy pulmonary artery stump thrombosis [2]. Barbetakis et al. reported a 59 year old patient who developed an asymptomatic right descending pulmonary artery stump filling defect six months after a right lower lobe resection for adenocarcinoma of the lung. His oral anticoagulation was discontinued after six months when a new CT scan revealed no change in the filling defect. It is uncertain whether the literature available about post pneumonectomy stump thrombosis can be extrapolated to post lobectomy stump thrombosis. Most authors regard stump thrombosis post pneumonectomy as a benign entity.
The incidence of pulmonary embolism in patients with documented post pneumonectomy stump thrombosis seems low [1,3]. However, it is conceivable that clot could extend from the stump thrombosis centrally and this central extension could then lead to embolization to the remaining lung. In support of this possibility, Thomas et al. reported a 51 year old man who developed a pulmonary artery stump thrombosis which produced microemboli to the remaining lung which, in turn, led to chronic pulmonary hypertension [4].

We reasoned that central clot extension and/or embolization to the remaining portion of the lung could also happen with a lobar stump thrombosis. Given the patient’s low bleeding risk, we elected to anticoagulate our patient although he was completely asymptomatic. After three months of therapy we repeated his CT scan and the clot had completely resolved. In the prior case report, the authors also anticoagulated the patient but stopped therapy after 6 months when there was no change in the filling defect. They reasoned that central extension and/or pulmonary embolization was unlikely after this period of time. We don’t know why the thrombus developed two years after the lung resection rather than earlier. However, late development of stump thrombosis has been reported after pneumonectomy. Indeed, Joshi et al. reported a 68 year old patient who developed a pulmonary artery stump thrombosis ten years after pneumonectomy [3].

**Conclusion**

Unlike pulmonary artery thrombosis after pneumonectomy, lobar stump thrombosis appears to be uncommon. Whether it requires anticoagulant treatment particularly if the patient is asymptomatic remains uncertain. However, our case report demonstrates that if anticoagulation is started, it can lead to complete resolution of lobar stump thrombosis.
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