Primary systemic amyloidosis. a rare cause for Persistent pleural effusion

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Rational: Pleural effusion is a common clinical problem which can be caused by many medical conditions. Exams most commonly used to diagnose pleural effusion include imaging studies such as x-ray or CT scan, ultrasound, most importantly thoracentesis, and fluid analysis. However, if thoracentesis is not enough to diagnosis, we may consider invasive prosedure, such as thoracoscopy or surgical pleural biopsy. Here we report a very rare case of persistent pleural effusion. Even after surgical VATS pleural biopsy, we could not find the cause of the pleural effusion. After the 2nd surgical biopsy, we finally could diagnosis the disease; it was primary systemic amyloidosis, eventually confirmed to plasma cell myeloma.

Patient concerns: A 73-year-old man was referred for the evaluation of recurrent bilateral pleural effusion. The patient has history of COPD and bladder cancer. There was no clinical symptom, and the pleural effusion was the incidental finding of chest CT, which was performed as one of the pre-op evaluation.(Figure 1A, 1B)

Diagnosis: Left thoracentesis and VATS pleural Biopsy was performed, however biopsy result was the chronic inflammation and fibrosis, non specific. About 7 month later, pleural effusion was aggravated and the patient was admitted via ER due to dyspnea. This time, we perfomed second surgical biopsy and VATS pleura & wedge lung biopsy.(Figure 2). After all, Congo red stain demonstrated amyloid deposition in the pleura (Figure 4A, 4B, 4C). Also echocardiogram revealed biventricular hypertrophy with diffuse speckles on the myocardium, suggesting cardiac amyloidosis. Thus, we performed a bone marrow biopsy, and the finding revealed Plasma cell myeloma.

Lessons: In summary, we present a rare manifestation of pleural amyloidosis with persistant pleural effusion. This case teaches us a important lesson, if we just focused on symptom controls like effusion drainage, and not tried 2nd look surgical biopsy, the patient would missed the opportunity to treat the hematologic malignancy, and myomardial complication could be lethal. In case pleural effusion of unknown origin persists, repeated surgical biopsy should be done.