A Case of Desmoid Tumor Mimicking Pleural Recurrence after Curative Resection of Lung Adenocarcinoma

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Background: Desmoid tumor (DT) is a rare mesenchymal soft tissue tumor arising from myofibroblast. Lacking metastatic capacity, it is infiltrative and possesses a high risk of local recurrence even after adequate resection with negative margins. We report a rare presentation of DT mimicking pleural recurrence of previously resected lung adenocarcinoma and a possible utility of next-generation sequencing (NGS) for the diagnosis and treatment of this tumor.

Case: A 42-year-old male was found to have a pleural mass on chest computed tomography at his routine follow-up 1 year after left upper lobe lingular segmentectomy for T1bN0M0 lung adenocarcinoma. The tumor was 34 x 25 mm in size and located in the lateral chest wall and positron emission tomography revealed mild 18F-fluorodeoxyglucose uptake with a maximal standardized uptake value of 2.7. To exclude pleural recurrence of lung adenocarcinoma, we performed exploratory thoracotomy. A well-circumscribed ovoid mass was found in the parietal pleura around the fifth intercostal space which was the previous thoracotomy site. Histopathology showed fibroblastic proliferation appearing as small bundles of spindle cells in abundant fibrous stroma, which is characteristic of desmoid tumor. NGS showed a missense mutation c.133T>C resulting in p.S45F substitution was detected at codon 45 of the CTNNB1 gene. Based on the previous studies reporting the high recurrence rate in tumors harboring this mutation, the patient received adjuvant radiotherapy at a dose of 56Gy in 25 daily fractions of 2G at the resection bed. He is currently followed up in our outpatient clinic without recurrence of both lung cancer and desmoid tumor 18 months after the surgery.

Discussion: Our case highlights that DT should be included in the differential diagnoses when clinicians encounter a chest wall mass at a previous thoracotomy site, and that NGS may be useful for the risk stratification of those patients who require more aggressive treatment, although the factors influencing clinical outcome and the optimal therapeutic strategy need to be established.

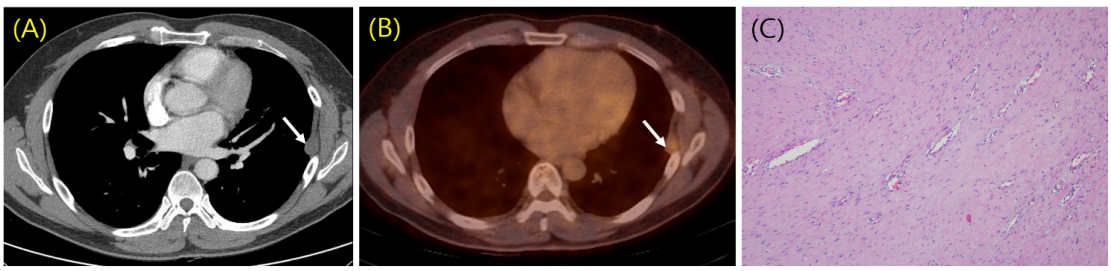

Figure 1. (A) Chest CT at a 1-year routine follow-up after left upper lobe lingular segmentectomy for T1bN0M0 lung adenocarcinoma, which revealed a well-circumscribed, 34-mm-in-diameter solid tumor (arrow) attached to the left lateral chest wall, which was the prior thoracotomy site for lung cancer. (B) PET/CT showed mildly increased metabolism with a maximal standardized uptake value of 2.5 for the chest wall tumor (arrow). (C) The tumor was composed of fibroblastic proliferation appearing as small bundles of spindle cells in abundant collagenous tissue, which was consistent with desmoid tumor (x 200, hematoxylin and eosin staining).