A Complication of Thoracic Surgery: A Late-onset Chylomediastinum Resulting from a Left Upper Lobectomy and Lymph Node Dissection through a Median Sternotomy

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A 63-year-old male with lung cancer underwent a left upper lobectomy and mediastinal lymph node dissection through a median sternotomy. Postoperatively, he received 4 cycles of adjuvant chemotherapy with cisplatin and gemcitabin. Chest computed-tomography (CT) scan after the adjuvant chemotherapy showed a large cystic mass originating from the tracheal bifurcation. Fiberoptic bronchoscopy (FOB) revealed chylomediastinum during the aspiration biopsy of the mass. The chylous effusion was first removed by aspiration under FOB, though 2 weeks later the patient returned with a fever, and the CT lead us to suspect mediastinitis. After performing primary surgery for the removal of chylomediastinum, there was no recurrence thus we concluded that it was the better method.

Key words: complication, chylomediastinum, late-period-onset, median sternotomy

Introduction

Late-onset chylothorax is a rare complication associated with thoracic and cardiac surgery. Chylothorax is usually right-sided because most of the ducts are within the right hemithorax. Occasionally, it occurs in the mediastinum after thoracic surgery. We experienced a case of postoperative dysphagia due to late-onset chylomediastinum after a pulmonary resection.

Case Report

A 63-year-old male presented to his family physician with cough and left-sided back pain, and during the clinical examination, the chest roentgenogram showed a mass shadow in the left upper lung field. Chest computed tomography (CT) scan showed a solid tumor, measuring 6.5 cm in diameter, originating from the left upper lobe. The tumor invaded the thoracic wall, so he was admitted to Kyushu Medical Center. The fiberoptic bronchoscopy (FOB) showed almost normal findings, though the biopsy from B1 + 2 revealed squamous cell carcinoma. The diagnosis was clinical T3N1M0 lung cancer. He underwent a left upper lobectomy and systematic mediastinal lymph node dissection through a median sternotomy, and we inserted two drainage tubes into the pre-mediastinal and left thoracic space. The final diagnosis was pathological T3N0M0 squamous cell lung cancer. He began oral intake of liquid foods on postoperative day (POD) 1. The drainage discharge was serous, but not milky. The amount of effusion was a maximum of 700 mL/day, and from POD 2, the output volume steadily decreased day by day. The final amount of effusion from the mediasti-
nal tube was 70 mL/day, removed on POD 8, and from the chest drainage tube, 190 mL/day, removed POD 12. The patient was discharged on POD 15. Thereafter, he received 4 cycles of adjuvant chemotherapy: cisplatin and gemcitabine. After 3 cycles, he experienced mild dysphagia. At the end of cycle 4, he experienced continuous dysphagia and underwent chest CT. The chest CT showed a large cystic mass originating below the carina, and its contents were homogenous and pressed on the esophagus (Fig. 1A). Thereafter, he underwent an aspiration biopsy from the tracheal bifurcation under FOB (Fig. 1B). The drainage was a yellowish milky effusion, and approximately 140 mL was removed (Fig. 1C). The effusion triglyceride level was 922.3 mg/dL, and the cholesterol level was 90.8 mg/dL, which was used to identify the chylomediastinum. There were no malignant cells or non-bacilli in the effusion, and tumor markers such as carcinoembryonic antigen (CEA) and squamous cell carcinoma antigen (SCC) were all negative. After the drainage, the dysphagia had clearly improved, and he came for follow-up visits as an outpatient. One month later, he returned to Kyushu Medical Center because of a worsening of the dysphagia and underwent an aspiration biopsy under FOB. During the biopsy, we removed 144 mL of chylous effusion. However, 2 weeks later he presented with a spiked fever and we suspected mediastinitis by CT, which was treated by video-assisted thoracic duct ligation and mediastinal drainage through the right thoracic space (Fig. 2A). In this effusion, we did not observe bacilli or malignant cells; however, we could not rule out mediastinitis, so we followed the condition of the patient. He made an uneventful recovery and was discharged on POD 11. The postoperative chest CT showed a small mediastinal cyst (Fig. 2B). Thereafter, he returned for visits as an outpatient and did not show any signs of infectious disease.

Fig. 1 A: A chest CT taken after 4 cycles adjuvant chemotherapy. A large cystic mass, 9.3 cm in diameter, is revealed at the bifurcation of the trachea, and its contents were homogenous and pressed on the esophagus. B: The fiberoptic bronchoscopic finding, showing aspiration from the tracheal bifurcation of the left main bronchus. The surface of the membrane of the left main bronchus slightly compressed by a cystic mass and evidenced distension of capillary vessels. C: The discharge of the aspirated effusion from the cystic lesion. The yellowish milky effusion removed totaled approximately 140 ml.
Discussion

Chylomediastinum after thoracic surgery is a more rare complication than chylothorax because the leak is usually from a tributary of the main duct as a result of a lymph node dissection. Furthermore, in this case, leakage of chylous was considered to be a late-period-onset symptom because no chylous discharge was detected from the thoracic drain after the operation, and no increasing pleural effusion was noted on the postoperative roentgenograms after the removal of the thoracic drain. The patient experienced dysphagia during cycle 3 of adjuvant chemotherapy, about 3 months after the primary operation, and therefore we considered the possibility of chylo-leakage in the sealed space of the mediastinum at that time. In this case, the approach of the subcarinal lymph node dissection was as follows: pericardiectomy was carried out between the aorta and the superior vena cava, and was extended beyond the left main pulmonary artery in the posterior wall of the pericardium. The right main pulmonary artery was exposed, when we carried out pericardiectomy of the pericardium in the anterior of the right pulmonary artery with traction of the ascending aorta. Next, the subcarinal lymph nodes were dissected by exposing the bifurcation, pulling the right pulmonary artery to the below. In a series of this procedure, we did not detect thoracic duct, and also a major branch of thoracic duct connected with chyloma was not found out when a video-assisted thoracic duct ligation. We thought that the cause of the chylomediastinum was subcarinal lymph node dissection and an injury of an anomalous thoracic duct near the carina.

First of all, we tried to remove the chylomediastinum by aspiration under FOB, though the treatment was not complete. After performing primary surgery for the removal, we found that this was the better method because chylomediastinum was entirely removed with no recurrence. We did not observe any bacilli in either the effusion from the aspiration during FOB or effusion collected during the primary surgery, though it is more common for the FOB procedure than primary surgery to induce a retrograde infection. In conclusion, we found that aspiration during FOB was useful for identifying the chylomediastinum though it might not be the best method for its removal.

Chylomediastinum is a relatively rare complication of thoracic surgery; however, thoracic surgeons should be aware of the possibility of this rare complication occurring after thoracic surgery, especially after a median sternotomy.

References