

Bronchomediastinal Fistula During Durvalumab Therapy After Chemoradiotherapy in Stage III NSCLC



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A 75-year-old man underwent endobronchial ultrasound-guided transbronchial needle aspiration of station 10L for a left lower lobe mass with associated intrathoracic adenopathy. Histology revealed adenocarcinoma, and subsequent imaging established a diagnosis of stage IIIB NSCLC. Driver mutations were negative, and the tumor proportion score was 55%. The patient underwent chemoradiotherapy. Chemotherapy consisted of carboplatin (area under the curve 2) and paclitaxel (40 mg/m²) on days 1, 8, and 15 every 3 weeks for two cycles. Once-daily thoracic radiotherapy was administered at a total dose of 60 Gy, 5 days a week, in 30 fractions. After chemoradiotherapy, the tumor regressed, and therapy evaluation was partial response. He was then followed-up as an outpatient and continued to receive maintenance chemotherapy with durvalumab (10 mg/kg every 2 weeks). After five cycles of durvalumab, he was admitted to an outside hospital with the chief complaint of hemoptysis. Bronchoscopy revealed blood emanating from the left mainstem bronchus and a mucosal defect (Fig. 1). Computed tomography (CT) scan revealed a bronchomediastinal fistula with an aberrant tract between the left mainstem bronchus and the great vessels (Figs. 2 and 3). The fistula was also confirmed by volume-rendering reconstructions (Fig. 4). Moreover, CT scan revealed a new infiltrate in the left lower lobe, consistent with pneumonitis, which was possibly due to the aspiration of necrotic debris. The patient refused additional therapeutic interventions and opted for palliative care.

A bronchomediastinal fistula is a serious and fatal complication of cancer and cancer therapy, and it is very rarely reported. Therefore, the incidence is unknown.¹ Regarding advanced lung cancer, a tracheal-mediastinal-parenchymal-pleural fistula and tracheoesophageal fistula have been described as rare complications of

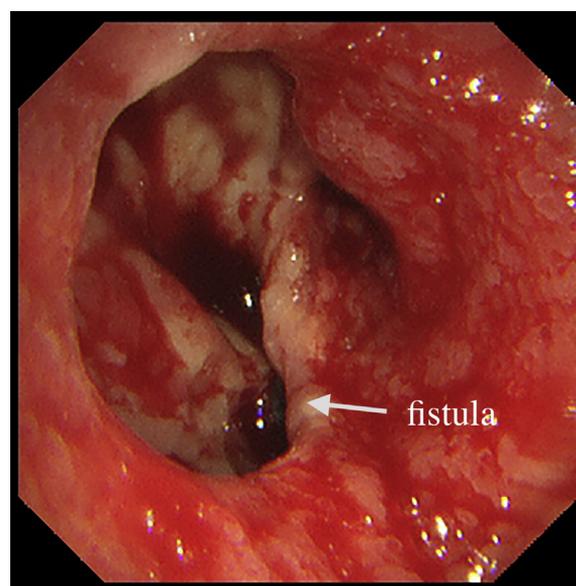


Figure 1. Bronchoscopy shows a fistula entrance (arrow) and a hemorrhagic mucosa in the proximal left main trunk.

antiangiogenic drugs, such as bevacizumab, and concurrent mediastinal radiation.^{1,2} However, to the best of our knowledge, no data exist on a bronchomediastinal fistula caused by immune checkpoint inhibitor therapy (both

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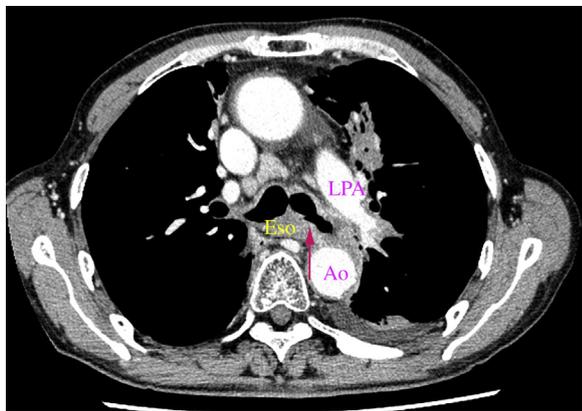


Figure 2. Axial computed tomography shows a fistulous tract of the left main bronchus (arrow) between the aorta (Ao) and left pulmonary artery (LPA). Eso, esophagus.

anti-programmed death 1 and anti-programmed death ligand 1 inhibitors) in a patient with lung cancer. It has been reported that bronchial necrosis caused by radiation therapy or chemoradiation therapy can occur at 3 to 7 months^{1,3}; however, our patient developed a fistula 2 months after radiation therapy, which is relatively early. CT scan before durvalumab therapy did not reveal an obvious mucosal defect or air density in the mediastinal lymph nodes. The tumor and lymph node sizes after durvalumab therapy indicated maintenance of partial response. Furthermore, no malignant cells were found in a

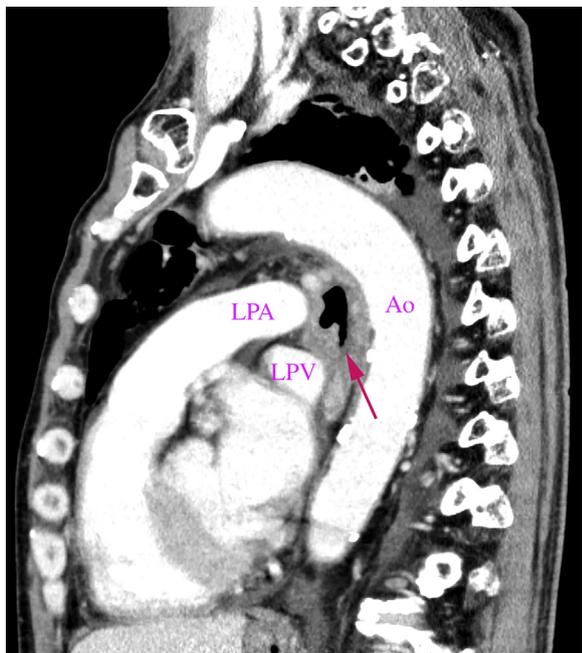


Figure 3. Sagittal view of a computed tomography image shows a bronchomediastinal fistula (arrow) between the aorta (Ao) and left main bronchus. LPA, left pulmonary artery; LPV, left pulmonary vein.

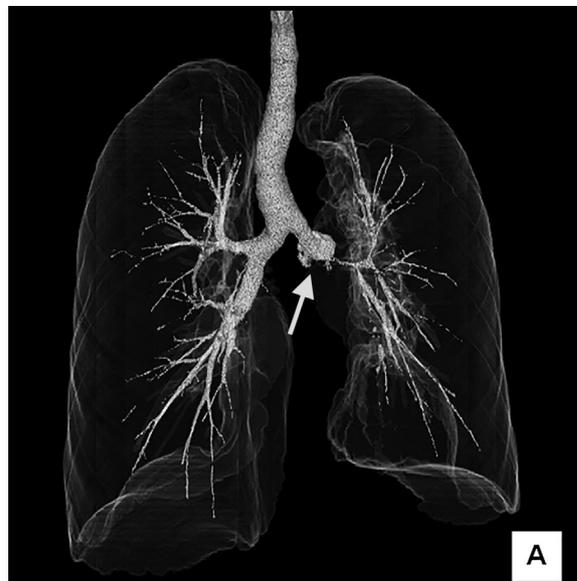


Figure 4. Volume-rendering reconstruction shows a fistula (arrow) at the left mainstem bronchus.

biopsy specimen of the fistula. Therefore, although the possibility of chemoradiation-induced necrosis cannot be completely ruled out, effective durvalumab therapy was more likely associated with the mucosal defect. The treatment of a tracheobronchial fistula is challenging, and various approaches have been reported, including stent placement and autologous stem cell therapy.^{1,4} Durvalumab is indicated for stage III NSCLC after definitive chemoradiotherapy, and its use is expected to increase. Close monitoring clinically and with imaging is necessary in cases of chemoradiotherapy and durvalumab therapy for lung cancers with mediastinal lymphadenopathy adjacent to the trachea, considering the possibility of a bronchomediastinal fistula.

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