A Case of Nontuberculous Mycobacteria Highly Suspected as Lung Cancer Invading the Aortic Arch

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CASE PRESENTATION

A 65-year-old man presented with cough and hoarseness for 3 months and was admitted to our hospital. Chest computed tomography revealed tumor around the aortic arch. Fluorodeoxyglucose positron emission tomography showed an accumulation in the same area of maximum standardized uptake value of 10.8 (Figs. 1, 2). Although endobronchial ultrasound-guided transbronchial needle aspiration failed to obtain a histological diagnosis, mediastinal type lung cancer with aortic invasion was strongly suspected. Therefore, video-assisted thoracoscopic surgery was conducted. Because of lung adhesions, both the aortic arch and left main pulmonary artery were difficult to identify. Therefore, to avoid aortic injury, biopsy sites were restricted. We obtained two puncture biopsies, but could not obtain a histological diagnosis. Moreover, we could not obtain a diagnosis by permanent specimen. However, polymerase chain reaction using a biopsy specimen revealed the presence of *Mycobacterium intracellulare* deoxyribonucleic acid. Mycobacterial culture also showed the same result. Thus, we started to treat the patient for nontuberculous mycobacteria (NTM) with clarithromycin 800 mg, rifampicin 450 mg, and ethambutol 750 mg on a daily basis. As shown in Figure 3, the abnormal shadow was significantly improved.

Mycobacterium intracellulare is one cause of NTM. Polymerase chain reaction can lead to a rapid confirmation of the pathogen.

NTM is an atypical mycobacterial infection that can occur in both immunocompromised and immunocompetent patients. The prevalence of NTM in Japan is 5.7 people for a population of 100,000 people. Every year approximately 1000 human deaths are reported, and the NTM is the disease that we usually see in Japan.[1] As Maekawa et al.[2] already reported, soil exposure is one of the environmental risk factors in immunocompetent patients. As a therapeutic drug for NTM, unlike tuberculosis, multidrug therapy containing clarithromycin or azithromycin, ethambutol and rifamycin is used without using isoniazid. The sputum conversion rate in clarythromycin and azithromycin were 68 and 56%, respectively, and the efficacy is more restrictive than tuberculosis.[3] We experienced a case that was highly suspected as mediastinal type lung cancer[4] invading the aortic arch based on computed tomography images but turned out to be NTM. Not only malignancy but

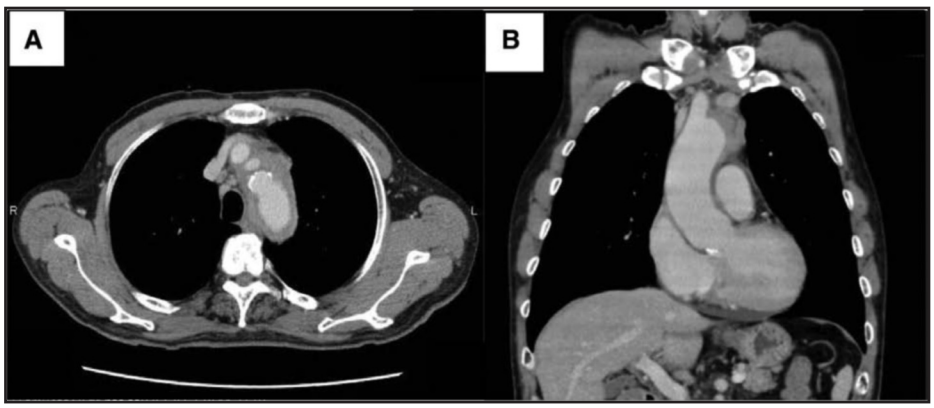

FIGURE 1. Chest CT at first visit. *A*, Axial view, *B*, coronal view. Around the aortic arch, left common carotid artery and left subclavian artery, there was an abnormality that was highly suspected as cancer. CT, computed tomography.

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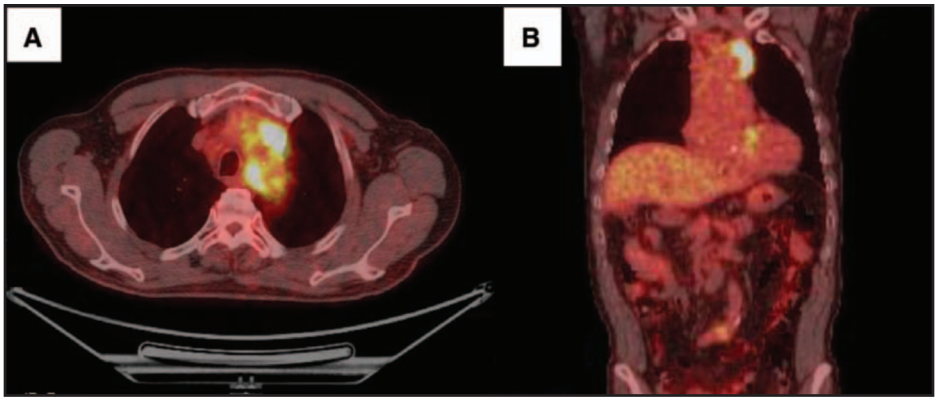

FIGURE 2. FDG-PET at first visit. *A*, Axial view, *B*, coronal view. There was significant uptake (maximum standardized uptake value = 10.8) at the tumor site. FDG-PET, fluorodeoxyglucose positron emission tomography.

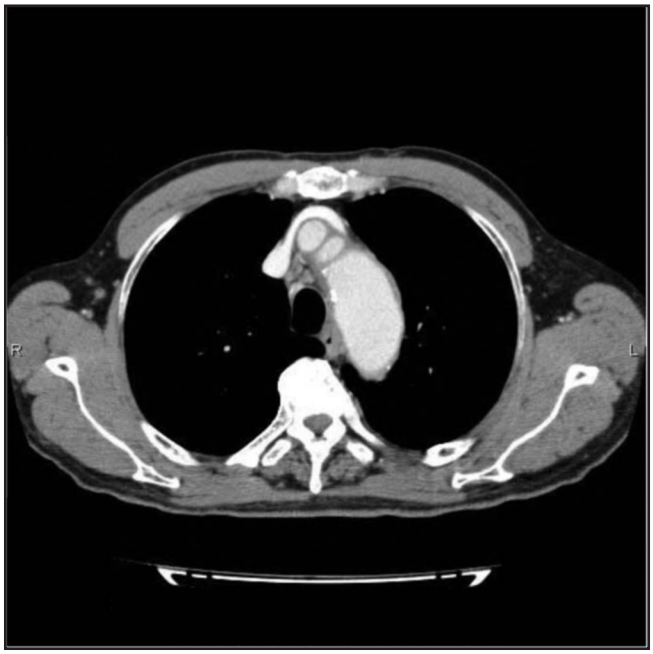

FIGURE 3. Chest CT 18 months after the treatment. The tumor around the aorta is significantly improved. CT, computed tomography.

also NTM should be included as one of the candidates for differential diagnosis of mediastinal masses.

REFERENCES

1. Morimoto K, Iwai K, Ohmori M, et al. Nontuberculous mycobacteriosis mortality in Japan. *Kekkaku* 2011;86:547–552.
2. Maekawa K, Ito Y, Hirai T, et al. Environmental risk factors for pulmonary Mycobacterium avium-intracellulare complex disease. *Chest* 2011;140:723–729.
3. Field SK, Fisher D, Cowie RL. Mycobacterium avium complex pulmonary disease in patients without HIV infection. *Chest* 2004;126:566–581.
4. Spaggiari L, Tessitore A, Casiraghi M, et al. Survival after extended resection for mediastinal advanced lung cancer: Lessons learned on 167 consecutive cases. *Ann Thorac Surg* 2013;95:1717–1725.

