Chronic Aortic Dissection Complicated by Recurrent Obstructive Pneumonia

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SUMMARY
A 68-year-old man with aortic aneurysm who had repeated episodes of obstructive bronchopneumonia is reported. Serial chest X-rays revealed infiltrative shadows in the left lower lung field. A thoracic computed tomogram demonstrated a dissecting descending aorta compressing the left lower bronchi and abnormal shadows, probably inflammatory, distal to the obstructions. Because of signs of impending rupture of the dissected aorta, surgical repair was performed and there has been no recurrence of respiratory infection since. (Jpn Heart J 34: 377–381, 1993.)

Key Words: Aortic Dissection Obstructive Pneumonia Computed Tomogram

In patients with aortic dissection, bronchial compression caused by the distended aorta is unusual, especially in those with distal aortic dissection. We have observed a patient with chronic dissecting aneurysm of the thoracic aorta complicated by repeated episodes of obstructive pneumonia. The patient was successfully treated by surgical repair with no recurrence of pneumonia since.

CASE REPORT
A 68-year-old male was admitted to our hospital for the evaluation of abnormal lung shadows seen on chest X-ray. He had a ten year history of hypertension. Six years ago, he had an episode of acute low back pain which progressed upward to the middle back. The pain subsided in about three days with rest, and he was referred to a university hospital where he was diagnosed as having an aortic aneurysm. There was no sign of dissection and it was decided not to operate. At that time aortic dissection was not found by thoracic computed tomography. Six months later, he suffered from broncho-pneumonia with left-sided lung infiltration. For the last twelve months prior to the present admission

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he had recurrent episode of bronchopneumonia in his left lung.

On admission, the chest X-ray (Fig. 1A) revealed an infiltrative shadow in the left lower lung field. The computed tomogram disclosed dissection of the descending aorta originating 6 cm below the level of the carina to the left common iliac artery (Fig. 2A). The outer diameter of the dissected descending thoracic aorta was about 5 cm. The patent false lumen was visualized in the proxi-
mal portion of the dissection by contrasted computed tomography. The distal portion of the false lumen was occupied by an organized thrombus in which deposition of calcium was observed. These findings were compatible with chronic aortic dissection (DeBakey type III b). The left lower lobe bronchi were compressed by the dissecting aneurysm and infiltrative opacities were observed in the peripheral lung fields (Fig. 2B). The fiberoptic bronchoscopic study (Fig. 3) revealed that the left lower bronchial lumen was filled with suppurative secretions, and after drainage the left lower bronchus, B10, was stenotic and B8, B9 were compressed.

He was treated intensively with postural drainage, oral expectorants and intravenous antibiotics (PIPC 4 g/day, CLDM 600 mg/day etc.). In about six weeks the lung infiltrates almost disappeared (Fig. 1B). Both systolic and diastolic blood pressure were well controlled by oral antihypertensive drugs. Eight weeks after admission, while taking light physical exercise in the hospital, he had left-sided chest pain. The chest X-ray showed a left pleural effusion. He was transferred to the Department of Thoracic Surgery of a university hospital with a diagnosis of impending rupture of the aortic dissection. At surgery the descending thoracic aorta showed an aneurysmal dilatation which was 6 cm in diameter and 10 cm in length and adhered to the left lower lobe bronchi and the surrounding tissue. To remove the bronchial compressions, the left lower lobe bronchi were carefully detached from the dilated descending thoracic aorta. Following the

Fig. 3. Fiberoptic bronchoscopic study demonstrated the left lower lobe bronchial lumen was filled with suppurative secretions (black arrow). After drainage the left lower bronchus B10 was severely stenotic and B8, B9 were compressed.
aortic clamping, the dilated descending thoracic aorta was longitudinally incised. The entry of the dissection, from which the patent false lumen extended in the retrograde fashion, was found at the ostium of the intercostal artery just above the diaphragm. Postoperative course was uneventful and the patient was discharged from the hospital without complication. There has been no recurrence of obstructive pneumonia.

**DISCUSSION**

There are several reports of pleuro-pulmonary lesions complicating with aortic dissection; for example, rupture into the lung parenchyma, pulmonary trunk or main pulmonary arterial wall, compression of peripheral pulmonary arteries causing stenosis\(^1\) and extravasation of serosanguineous fluid into the pleural space\(^2\). However, to our knowledge there has been no report of recurrent obstructive pneumonia with lung infiltration caused by compression of bronchi. Usually the distended thoracic aorta caused by aortic dissection does not compress or obstruct the bronchial branches, but displaces them, because the bronchial branches are resistant to the compressive pressure by their structural dynamics. In this case the left lower lobe bronchi, mainly B10, were severely compressed by the distended descending thoracic aorta and there was a tight adhesion between them, which probably occurred after the extravasation of blood or serosanguineous fluid from the acute aortic dissection. During the healing process, the extravasation of blood or serosanguineous fluid after acute aortic dissection was thought to adhere the distended aorta to the surrounding tissue and bronchial branches. The bronchial compression was removed by detaching the left lower lobe bronchi from the dilated descending aorta and also by closing the entry of the false lumen at surgery.

In the case of chronic distal aortic dissection, medical treatment is a choice, unless dissection is complicated by leakage, rupture or extension of dissection, hypoperfusion to vital organs or limbs, uncontrolled pain or hypertension\(^3\). In this case surgical repair of aortic dissection was considered because, 1) aortic dissection was thought to be complicated by leakage with chest pain and pleural effusion, 2) obstructive broncho-pneumonia recurred and became resistant to medical therapy, 3) a patent false lumen was revealed by contrasted computed tomography.

We speculate that the aortic dissection, which first occurred six years ago when he had an acute back pain, extended in the retrograde fashion compressing the left lower lobe bronchi and causing obstructive pneumonia. The pneumonia became more and more difficult to treat medically and the last time it took as long as six weeks for recovery despite intensive treatment. Although surgical
treatment is not usually indicated in type III aortic dissection, the situation is quite different when the pneumonia becomes more frequent and difficult to treat as in our present case.

In conclusion, obstructive pneumonia may have developed during the course of the chronic aortic dissection and when it becomes resistant to medical therapy, surgical treatment should be considered without delay.

REFERENCES