Endobronchial hamartoma with obstructive pneumonia due to *Nocardia asiatica*

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Abstract A 60-year-old man who had diabetes had a history of hospitalization for pneumonia in the right lower lobe at the age of 57 years. He visited our facility complaining of fever and cough. He was admitted owing to pneumonia in the right lung. Computed tomography and bronchoscopy performed after admission revealed a tumor in the right basal bronchus. *Nocardia asiatica* was detected in a sputum culture. Complete resection of the bronchial tumor could not be achieved with a high-frequency snare, although the patient was preoperatively diagnosed as having hamartoma. The patient subsequently underwent resection of the right lower lobe due to his deteriorated clinical condition. The postoperative course was favorable, and there has been no recurrence of nocardiosis or bronchial hamartoma for 3 years.

Key words Endobronchial hamartoma · High-frequency electrosurgical snaring · Obstructive pneumonia · Nocardiosis · *Nocardia asiatica*

Introduction

Hamartoma comprises most of the benign pulmonary tumors but rarely occurs in the bronchial lumen. Transbronchoscopic treatments using a high-frequency snare and a laser for hamartoma in the bronchial lumen have been reported, and a favorable prognosis after resection has been obtained in many cases.1-3 *Nocardia*, which appears as a fungus-like growth, is an aerobe whose major pathological condition is formation of a necrotic abscess and granuloma. Pulmonary nocardiosis has rarely been reported.

We present a case in which endobronchial hamartoma was diagnosed through partial tumor resection using a high-frequency snare. Lobectomy was performed for the purpose of treating complicated nocardial pneumonia.

Case

The subject was a 60-year-old man whose major complaint was fever. He had a history of chronic hepatitis C infection at age 40 and diabetes mellitus at age 53. He had smoked 50 cigarettes per day for 25 years and stopped smoking at age 45. At age 57, he had been admitted for pneumonia of the right lower lobe. At age 60, he visited our facility as an outpatient because he had continuous coughing with an onset of fever. An infiltrative shadow was observed in the right lower lung field,
and he was diagnosed as having inflammation of the right lung and admitted.

On admission, his height was 170 cm, weight 76 kg, blood pressure 140/68 mmHg, and body temperature 37.3°C. Coarse crackles were present throughout the right lung. The white blood cell (WBC) count was 16.9 × 10^3 cells/μl with 81.3% neutrophils. Blood chemistry measurements revealed that the blood glucose was 415 mg/dl, hemoglobin A1c (HbA1c) was 8.7%, and C-reactive protein (CRP) was 20.8 mg/dl. A non-rebreather face mask was required to maintain adequate oxygen saturation. Arterial blood gas analysis with oxygen inhalation of 4 l/min showed the following: pH 7.499, PaO_2 73.3 mmHg, and PaCO_2 33.0 mmHg.

After admission, he was treated with panipenem/betamiprom (PAPM/BP) and minocycline hydrochloride (MINO), and his glucose level was controlled by insulin injection. Because pneumonia in the same region had been treated 3 years previously, we performed a bronchoscopic examination. Bronchoscopy showed that the lower bronchus was almost completely occluded by a polypoid tumor with a smooth surface and vascularized capillaries (Fig. 1). The purulent sputum spewed out from the space between the mass and bronchial wall. The tumor was biopsied to collect bronchial epithelium, but a definitive diagnosis could not be made. Computed tomography (CT) revealed an endobronchial tumor 15 mm in diameter, and consolidation at the distal portion of S8-S9 (Fig. 2).

In addition, Nocardia was detected in the culture of sputum and bronchial lavage fluid, and it was identified as *Nocardia asiatica* (*N. asiatica*) by 16S ribosomal DNA analysis (Fig. 3). On a drug susceptibility test, the organism was sensitive to sulfamethoxazole/trimethoprim (TMP/SMX) combination, but resistant to amoxicillin/clavulanate (AMPC/CVA).

We tried to resect the bronchial tumor with a high-frequency snare, but because it was a smooth polyp on a broad stalk only partial resection was performed. The histological diagnosis was cartilaginous hamartoma. For nocardial pneumonia, administration of TMP/SMX and meropenem (MEPM) was started. However, the obstructive pneumonia in the distal portion of hamartoma continued and the patient died on postoperative day 20.

Fig. 1 Bacterial thread of *Nocardia* is revealed by Kinyoun stain (×40)

Fig. 2 Bronchoscopic findings reveal a polypoid tumor obstructing the orifice of the right lower bronchus

Fig. 3 Computed tomography scanning of the chest reveals atelectasis of the right lower lobe