Endobronchial tumours presenting as asthma

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INTRODUCTION

Primary tracheobronchial tumours are quite rare neoplasms. They frequently develop in the trachea, carina, and endobronchial regions (1). Because they are rare, and because of the variation in their histogenesis, their chest X-ray findings and clinical and operational outcomes have not been well elucidated (2,3). Endobronchial tumours may be benign or show low- or high-grade malignancy (4-6). Affected patients generally present with symptoms of either asthma or infection that has developed as a result of obstruction (2,4,6). However, these symptoms are nonspecific. We herein report four such affected patients in our clinic and discuss their symptoms, pathological findings, and treatments.

CASE SUMMARY

CASE 1

A 31-year-old female patient had been treated for asthma for 5 years. Although she was using high doses of inhaled steroids, beta mimetics, montelukast, and theophylline, her symptoms continued. Physical examination revealed decreased breath sounds on the left side. Thoracic computed tomography (CT) was performed to follow up the observed radiolucency in the left lung on her chest X-ray. Endobronchial narrowing of the left main bronchus and resultant air trapping was found on thoracic CT. Rigid bronchoscopy revealed a lesion completely occluding the left main bronchus. A biopsy was performed, and the pathological findings revealed an adenoid cystic carcinoma (Figure 1). She was treated with open surgery. Her symptoms and physical examination findings improved after surgery. We discontinued asthma treatment.

CASE 2

A 23-year-old male patient with a five-pack-year cigarette history had been treated for asthma for 4 years. He was using asthma medications irregularly. Physical examination revealed bilateral rhonchi. His chest X-ray was normal. Thorax CT revealed an endobronchial lesion in the right main bronchus, and follow-up bronchoscopy revealed a pedunculated, haemorrhage-prone mass lesion almost completely occluding the right main bronchus. A biopsy revealed a typical carcinoid tumour (Figures 2, 3). He was treated with interventional bronchoscopy with electrocautery.

CASE 3

A 55-year-old male patient had been treated for asthma for 2 years. Although he was using high doses of inhaled steroids, beta mimetics, and montelukast, his symptoms continued. Physical examination revealed decreased breath sounds on the right side. Chest X-ray
revealed right hilar enlargement, and thoracic CT showed an approximately 2-cm lesion in his right main bronchus. Bronchoscopy showed a mass lesion almost completely occluding the right main bronchus. The biopsy result revealed adenoid cystic carcinoma (Figure 4). He was treated with open surgery.

CASE 4

A 30-year-old female patient had been treated for asthma for 4 years. Her symptoms continued despite her regular use of asthma medications. Her chest X-ray was normal. Thoracic CT revealed an endobronchial lesion in the right main bronchus that did not entirely occlude the lumen. The pathological result was adenoid cystic carcinoma. She was treated with open surgery.

DISCUSSION

Clinically, endobronchial tumours cause air trapping or secondary lung infections (2-6). Their diagnosis is usually delayed because they do not appear on chest X-rays. CT and bronchoscopy are beneficial for obtaining a diagnosis in these cases (4). In affected patients, interventional bronchoscopy is critical for timely treatment and diagnosis. All of our patients were being treated for asthma but did not respond adequately to treatment. None of our patients presented with secondary infection.

Tracheobronchial tumours may be benign or show low- or high-grade malignancy. Therefore, CT is useful in revealing lesions not expected to be associated with these tumours. Solitary papillomas, mucous tissue adenomas, inflammatory myofibroblastic tumours, schwannomas, leiomyomas, hamartomas, haemangiomas, and chondromas from benign tumours have been reported (3,4,7-10).

Squamous cell cancer of the tracheobronchial tree, carcinoid tumours, adenoid cystic carcinomas, and mucoepidermoid carcinomas from low-grade malignant tumours have also been reported (2-4,6,11,12). These tumours are low grade but can recur after treatment or can result in distant metastasis. Three of our patients had adenoid cystic carcinomas, and one had a carcinoid tumour. CT revealed no lymph node metastasis or distant metastasis in any patient. Because our patients were identified in 2012 and 2013, we believe that it is too early to evaluate them for recurrence; however, recurrence has not been found in any of the four patients to date.

Most of the 14 patients with endobronchial and adenoid cystic carcinoma examined by Albers et al. (13) had nonspecific breathing complaints such as cough and dyspnoea due to narrowing of the airways; however, few patients had asthma anamnesis with long-term wheezing and stridor complaints. Nine of these patients were female, and five were male. Of our patients, two were female, and two were male.

Dewan et al. (15) reported that the right side was most frequently affected among 31 patients with tracheobronchial carcinoid tumours. The tumour was present in a main bronchus in 30 of these 31 patients; 1 patient had a tracheal tumour. Most of these cases had typical carcinoid tumours. In our patient with a carcinoid tumour, the tumour was located at the entrance of the right main bronchus, and its pathology was consistent with a typical carcinoid tumour.
Moran et al. (14) reported that 11 of 16 patients with adenoid cystic carcinoma were male, and 5 were female. Of these patients, seven underwent pneumonectomy, six underwent lobectomy, and two underwent lobectomy + chemotherapy. One patient underwent only chemotherapy because of disease progression. In our patients, mass excision only during open surgery was performed in cases 1, 2, and 3 of our patients with no resection. Case 2 also underwent interventional bronchoscopy with electrocautery. The symptoms and physical examination findings of all of our patients improved after intervention.

In conclusion, tracheobronchial tumours, endobronchial adenoid cystic carcinomas, and carcinoid tumours should be suspected in patients with chronic coughing or frequent lung infections who undergo long-term treatment for asthma and who do not respond well to asthma medications. Even if the chest X-ray findings are normal, thoracic CT and, if necessary, bronchoscopy should be performed.

TEACHING POINTS

1- Chest CT should be performed in treatment-resistant asthma patients, even in those with a normal chest X-ray normal, as well as bronchoscopy.

2- Endobronchial tumours should be suspected in patients with chronic coughing or frequent lung infections who undergo long-term treatment for asthma.

REFERENCES


Figure legends

Figure 1: Histopathological image of adenoid cystic carcinoma of the lung (haematoxylin & eosin, ×100). (Case 1)

Figure 2: Mass lesion almost entirely blocking the right main bronchus. (Case 2)

Figure 3: Bronchoscopic finding of pedunculated mass lesion almost entirely blocking the right main bronchus. (Case 2)

Figure 4: Two mass lesions blocking the right main bronchus. (Case 4)
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