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## **A Case of Uncontrolled Asthma**

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## **ABSTRACT**

A 50y/o female patient with severe uncontrolled asthma was presented to our hospital for anti-IgE therapy. She complained of persistent dyspnea and wheezing after a severe asthma attack five months before. Her asthma had not been controlled with adequate asthma treatment, including budesonide + formoterol b.i.d. combination, montelukast at 10 mg/day, and oral steroids (30–40 mg daily of prednisolone), during this period. She was hospitalized for evaluation of anti-IgE therapy. Chest X-ray revealed a left-sided hilar opacity. Fiberoptic bronchoscopy was done and showed an endobronchial lesion obstructing the left lower bronchus lumen. Computed tomography(CT) revealed a nodular lesion at the same site. The patient has undergone left lower lobe lobectomy and lymph node dissection (mediastinal lymphnode). Pathological examination was done and confirmed the diagnosis of typical carcinoid tumor. After surgery, her symptoms subsided, and she had no recurrence. A diagnosis of severe asthma requires confirmation of asthma to r/o other conditions. Uncontrolled symptoms that linger despite aggressive therapy need proper evaluation to rule out other etiologies, such as a carcinoid tumor, before selecting new treatment options.

**Keywords:** asthma, tumor, budesonide, formoterol

## **INTRODUCTION**

Approximately 10% to 15% of asthma patients have refractory or severe asthma to regular medications. A careful workup should be done in these patients to exclude other comorbidities contributing to their uncontrolled asthma problems. In addition, there are various treatment options available to consider once underlying conditions are ruled out. This case represents a patient with uncontrolled asthma that remains refractory to medications despite using standard-of-care therapeutic options. Here is a case of 50y/female who complained of persistent wheeze and dyspnea. There is a need for an extensive workup to assess for comorbidities, confirm the diagnosis, and consider different treatment options (Dipaolo and Stull, 1993).

### **Case Report**

A 48-year woman was admitted to our hospital complaining of dyspnea and wheezing. She has been a known case of asthma for 12 years on regular medication and was well controlled using budesonide at 160 µg + formoterol at 4.5 µg b.i.d. combination therapy until five months back. However, five months back, she had a severe asthma attack associated with wheezing and had persisted for several months. She was treated with budesonide at 320 µg + formoterol at 9 µg b.i.d. combination, oral steroids (30–40 mg/day of prednisolone), and montelukast at 10 mg/day during that period, which was unsuccessful. Because her asthma had failed to come back under control, she was referred to our hospital and hospitalized for evaluation for anti-IgE therapy. In addition, she is taking thyroid hormone for Hashimoto's thyroiditis and calcium tablets for osteoporosis.

Her vitals were stable with a pulse rate of 86 bpm, a temp of 36.5°C, BP of 120/70 mmHg, and respiratory rate of 18/min on physical examination. Her examination was normal with except for decreased auscultation in the left lung.

### **Investigations and Management**

Patient CBC showed normal values. Spirometry revealed an obstructive pattern (forced expiratory volume in 1 second [FEV<sub>1</sub>], 82%; forced vital capacity [FVC], 110%; FEV<sub>1</sub>/FVC, 60%). spirometric reversibility was not present, but she had a reversible airway obstruction at previous hospital admission. (prebronchodilator FEV<sub>1</sub>, 64%; postbronchodilator FEV<sub>1</sub>, 75%; reversibility, 17%). Her skin-prick test was positive for house-dust mites. The total IgE level

was 115 kU/L. All data about the patient suggested that she could be a candidate for anti-IgE therapy. Chest X-ray revealed a left-sided hilar opacity. CT was performed for further evaluation and revealed a 15-mm nodular lesion at the left lower lobe bronchus. The radiological findings changed management and diagnosis from asthma to a chest mass. Fiberoptic bronchoscopy was done, which showed an endobronchial lesion obstructing the left lower bronchus lumen. As the lesion was highly vascularized and due to risk of bleeding biopsy was not performed. Bronchial lavage fluid was done from the left bronchus. Cytological examination of the lavage fluid revealed normal. She has undergone left lower lobectomy and mediastinal dissection.

Focal tumour invasion of the lung parenchyma through the bronchial wall was also noted. In addition, immunohistochemical staining revealed cytoplasmic positivity of pancytokeratin, CD56, chromogranin A and synaptophysin. These findings suggested the diagnosis of a typical carcinoid (TC) tumor.

After surgical resection, the patient is asymptomatic with budesonide at 160 µg + formoterol at 4.5 µg combination therapy and had a better pulmonary function (FEV<sub>1</sub>, 95%, FVC, 138%; FEV<sub>1</sub>/FVC, 59%). In addition, the patient had no recurrence for two years and her asthma is presently well controlled.

## **Discussion**

Despite asthma patients treated with regular medications, many cases show recurrent attacks /flares. Proper workup to be done to evaluate other comorbidities that aggravate the symptoms of asthma-like carcinoid tumors, GERD, etc., and reconfirmation of asthma as diagnosis is required for appropriate treatment (Schrevens *et al.*, 2004). Here we have a case of asthma with persistent wheeze and dyspnea after an acute flare of asthma, which on further evaluation diagnosed as carcinoid tumour. Pulmonary carcinoid tumours are mostly misdiagnosed with asthma. The symptoms of pulmonary carcinoid tumours include hemoptysis, cough, wheeze, lower respiratory tract infections, only a few cases are diagnosed as carcinoid tumours co-existing with asthma. In this case, carcinoid tumour was diagnosed while working up the case (Marty *et al.*, 1995). As it is a case of carcinoid tumour co-existing with asthma, and IgE are raised, the patient needs treatment with Anti-IgE therapy. The patient had recurrent attack of asthma after 8 months of surgery, hence the patient's diagnosis of asthma can be confirmed (Hurt and Bates, 1984; Turktas *et al.*, 2010). Further

detailed evaluation of the any uncontrolled asthma in spite of proper treatment is required to evaluate the cause and to provide appropriate treatment. Currently, the patient is symptomatically better and is on regular treatment for asthma.

#### **Author contribution**

Yogarajan R, Jayakumari S, Sumathi K and Mohan Kumar P R encouraged and supervised the findings of this work. All authors discussed the results and contributed to the final manuscript.

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**Conflict of interest:** Nil

#### **Study significance**

Further detailed evaluation of any uncontrolled asthma despite proper treatment is required to evaluate the cause and to provide appropriate treatment. Currently, the patient is symptomatically better and is on regular treatment for asthma.

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