

## Clinical imaging diagnosis

### Case 381

#### 5. Allergic bronchopulmonary aspergillosis

##### 【Progress】

Twelve days later when his symptoms worsened, he was given steroid and anti-fungal medicine.

##### 【Discussion】

Pulmonary aspergillosis is categorized into three types: Allergic bronchopulmonary aspergillosis (ABPA), chronic aspergillosis, and invasive aspergillosis (1-4). Of the three, the stage of ABPA is the initial stage. Asper mycosis is commonly resident in soils. When it enters the bronchial system in healthy person, it is usually excluded by immune system. However, although in rare cases, excessive immune response or weak immune system to asper mycosis injures respiratory system. ABPA probably occurs in excessive immune response. Repeated asper mycosis infection irritates mast cell, inducing secretion of IgE followed by eosinophils infiltration to abate and cooperate mast cells. Both of IgE and complex of IgG with asper mycosis antigen injure bronchial wall inducing bronchial ectasis and mucus accumulation (5-7). Strong immune reaction causes allergic mucus formation, necrosis of immune cells and asper mycosis, and IgG infiltration to pulmonary parenchyma.

The criteria items of ABPA by Research group on Allergic bronchopulmonary mycosis is as follows; 1. Past illness of asthma or asthmatic symptoms; 2. Eosinophils count 500 or greater/ $\text{mm}^3$ ; 3. Serum non-specific IgE 417 or greater; 4. Positive specific IgE to mycotic phylae; 5 Positive specific IgG to mycotic phylae; 6. Positive mycotic phylae in sputum or bronchial lavage; 7. Positive mycotic phylae stain; 8. Central bronchus dilatation on CT; 9. Muroid impaction in central bronchus on CT or bronchoscopy; 10. High attenuation mucus on CT. Diagnosis of ABPA meets in case of fulfilling at least 6 items of the ten items above (1).

In our patient, he suffered from persistent cough like asthma, laboratory test revealed that eosinophils  $473/\text{mm}^3$ , IgE  $668 \text{ IU}/\text{mm}^3$ , chest CT depicted positive central bronchus dilatation, muroid impaction in middle and lower bronchus, high attenuation mucus on CT. Six of the ten items are positive, meeting criteria of ABPA.

High attenuation mucus is composed of probably mucin or mycotic accumulation. Massive consolidation is composed of necrosis of immune cells, mycosis proliferation, infiltration of IgG, surfactant and plasma (8-12).

When you meet a CT image of bronchopneumonia, it is imperative to check attenuation of bronchial tree lumens. When the high attenuation of muroid impaction in bronchus is encountered, diagnosis of ABPA might be probable.

Continuous steroid and antimycotic medicine are given to patients with ABPA (4).

## 【Summary】

We presented a sixty-six-year-old male for persistent cough. He had experienced hemoptysis due to mycotic infection. Laboratory test revealed eosinophils 30.3% (4173/ $\text{mm}^3$ ), and non-specific IgE 668 IU/mL. Bronchopneumonia and high-attenuation mucoid impaction in right lower and middle bronchus. These findings are compatible with allergic bronchopulmonary aspergillosis. It is borne in mind that high attenuation mucoid impaction with bronchiectasis or bronchopneumonia on CT is one of the diagnostic items of allergic bronchopulmonary aspergillosis.

## 【References】

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