

111 年奇美醫院胸腔內科臨床病例討論會

日期：中華民國 111 年 11 月 08 日(星期二)

時間及地點：16:00-17:00

課程活動題目：**Allergic bronchopulmonary aspergillosis**

主講人:謝俊民主任

主辦單位：奇美醫院胸腔內科

課程地點:10 樓討論室

教育積分：台灣胸腔暨重症加護醫學會

參加對象：主辦單位所屬院內醫師

聯 絡 人：蘇靖涵 (06-2812811-57115)

摘要:

Introduction:

The diagnosis of ABPA is based on clinical, laboratory, and radiologic criteria. The symptoms include cough, hemoptysis, fever, pleuritic pain, wheezing, and dyspnea. Bronchiectasis with ABPA is a sequel to mucoid impaction of central airway. Aspergillus proliferates in proximal bronchi, acting as an Ag stimulus for production of IgE and IgG Ab. The inflammatory reaction then results in mucosal irritation, and eventually, damage to bronchial wall. Pathologically, central bronchi are distended with thick mucus, mixed with cellular debris and eosinophils. The bronchial wall shows inflammatory cell infiltrate without evidence of fungal invasion. The characteristic radiologic findings are a result of dilated bronchi with or without mucoid impaction. "Finger-like densities" usually involve the upper lobes and segmental or subsegmental bronchi. These opacities are described as "gloved-finger" or "inverted Y or V" appearance. Hypersensitivity reactions to Aspergillus organism can take three forms. The first is granulomatous inflammation of the distal airways and pulmonary parenchyma, probably related to inhalation of spores and considered to be a form of alveolar hypersensitivity. The second form is asthma. The third and most common form is a condition characterized by long standing asthma, eosinophilia, mucoid impaction of segmental bronchi, and serologic evidence of sensitization to Aspergillus organism. This complex condition is known as Allergic BronchoPulmonary Aspergillosis (ABPA).

In ABPA the fungus resides and proliferates in the patient's airways, producing a continual supply of fresh antigen that is responsible for precipitating antibodies, an immediate and often delayed type hypersensitivity, the production of IgE, and both bronchial and blood eosinophilia. In most cases, the mucus plugging occurs in one or more orders of bronchi distal to a lobar bronchus, with resultant dilatation and severe distortion. The pathogenesis of mucus plug formation is unknown but it has been

postulated that some constitutional defect exists in these patients that results in impaction of abnormal bronchial secretions.

There are a number of clinical, roentgenographic, and laboratory findings that should alert a physician to the possibility of ABPA. Some of these criteria are more dependable than others and are considered here in order of relative importance:

1. Roentgenographic manifestations often reflect active or previous mucoid impaction of proximal bronchi. Previous impaction will present on plain film as proximal bronchiectasis that can be confirmed by CT.
2. Spasmodic Asthma
3. Eosinophilia of blood ($>1,000$ per cu mm) and sputum is common but not invariable; it is often absent in children and is not necessarily in every acute attack.
4. Levels of total serum IgE are almost invariably elevated, constituting a reliable screening test for acute attacks
5. Levels of serum IgE and IgG to *Aspergillus* are elevated.
6. There is immediate and/or delayed cutaneous reaction to *Aspergillus* antigen
7. Bronchial plugs maybe expectorated.
8. Sputum culture maybe positive for *Aspergillus* species.

Pathologically, segmental and proximal sub-segmental airways are dilated and filled with thick inspissated mucus. Surrounding parenchyma may show variable degrees of consolidation. Microscopically, the intraluminal material consists of mucus admixed with cellular debris, eosinophils, and fungal hyphae (seen with silver stain). Bronchial walls are inflamed and infiltrated with inflammatory cells including eosinophils and surrounding parenchyma shows

eosinophilic pneumonia. In suspected cases of ABPA, expectorated mucus plugs or intraluminal material removed by bronchoscopy should always be examined histologically as a diagnosis can be confirmed by identifying fungal hyphae.

Chest x radiography

The roentgenographic pattern of mucus plugs demonstrates homogeneous finger-like shadows in a precise bronchial distribution, usually involving the upper lobes and almost always in the more central segmental bronchi. These bifurcating opacities have been classically described as "gloved-finger", inverted Y or V, or "cluster-of-grapes" appearance. Distal atelectasis however is often absent due to the "collateral air drift" phenomena. These mucus plugs tend to be transient, but may persist unchanged for weeks or even months, or may enlarge. Resolution of these lesions leaves cylindrical or saccular dilatation of the bronchi (bronchiectasis). Severely dilated bronchi may contain an air-fluid level or an aspergilloma. Occasionally the mucus plug calcifies. Subsequently mucoid impactions tend to occur in the same bronchi.

Studies have shown that most patients with ABPA over 30 years of age are very allergic. Manifestations include rhinitis, conjunctivitis, asthma, eczema, urticaria, anaphylaxis, drug allergy, and food allergy. Acute episodes of ABPA are sometimes associated with increased cough, hemoptysis, fever, pleuritic pain, wheezing, and dyspnea. However perhaps just as often there is little change in the clinical state of the patient. With recurrent attacks, almost half the patients expectorate plugs.