Endobronchial aspergilloma mimicking bronchogenic carcinoma removed through flexible fiber-optic bronchoscopy

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Abstract:
Endobronchial aspergilloma is a rare, noninvasive aspergillosis. It may be associated with a parenchymal lesion and/or cavity. We describe a case of endobronchial aspergillosis mimicking bronchogenic carcinoma subsequently removed completely through fiber-optic bronchoscope itself. This case report, while highlighting the existence of this unique clinical entity, also throws light on potential treatment option which can be curative.

Keywords:
Aspergillosis, endobronchial aspergilloma, fiber-optic bronchoscopy

Introduction
Endobronchial aspergilloma is a noninvasive form of aspergillosis. It is characterized by massive intrabronchial overgrowth of the aspergillus species, mainly aspergillus fumigates. It may be associated with a parenchymal lesion and/or cavity. We report a case of 57-year-old male patient with a history of chronic cough who was diagnosed to have endobronchial aspergillosis and was subsequently removed completely through fiberoptic bronchoscope itself.

Case Report
A 57-year-old male, nonsmoker, asthmatic, diabetic, and hypertensive, presented with the complaints of a cough and wheeze of 6 months. He was taking on and off medications for wheeze with no prior hospitalization. On examination, he was hemodynamically stable with an arterial blood pressure of 130/70 mmHg, heart rate of 78/min, respiratory rate of 18/min, and temperature of 37.6°C. On chest auscultation, air entry was bilaterally equal with a bilateral wheeze. Examination of other systems was noncontributory.

Laboratory findings were as follows: White blood cell count: 10,600/mm3, erythrocyte sedimentation rate: 50 mm/h, and total IgE: 3.11 IU/ml. Eosinophil count was normal. Spirometry values were in normal range. The patient's initial chest X-ray showed right lower zone linear band-like opacity. HIV serology was negative.

A computerized tomography of the thorax revealed middle lobe bronchiectasis with intraluminal lesion-lobulated soft tissue mass in right bronchus [Figure 1].

Diagnostic fiber-optic bronchoscopy was performed. An irregular fleshy intraluminal mass obstructing the right bronchus intermedius was seen. Histopathology of the endobronchial lesion was consistent with aspergillosis [Figure 2a-c].

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The patient was treated with itraconazole 100 mg twice a day and tapering dose of oral steroids for 8 weeks. Even though he reported a slight improvement in respiratory symptoms, chest signs persisted. Repeat bronchoscopy after 8 weeks of medical treatment revealed the persistence of the intraluminal lesion [Figure 3a]. Hence, the same was removed in piecemeal using biopsy forceps and giving good saline lavage ultimately achieving complete clearance and luminal patency [Figure 3b]. The distal orifices were inspected which were found to be normal. Subsequently, he was discharged on inhaled medications (inhaled corticosteroids and long-acting beta-agonists). Follow up after 1 month revealed significant improvement in respiratory symptoms and signs. Repeat bronchoscopy showed no recurrence. The patient is maintained on inhaled medications with periodic follow up.

Discussion

In 1952, Hinson et al. categorized pulmonary aspergillosis based on host immunity, into invasive aspergillosis, allergic bronchopulmonary aspergillosis (ABPA) and aspergilloma.[1] In 1981, Gefter et al. described a fourth entity characterized by limited invasion of lung parenchyma— termed as “semi-invasive aspergillosis, an intermediate form in between invasive aspergillosis and aspergilloma.”[2] In 1969, Sawasaki et al. described bronchial stump aspergillosis, a lung resection sequelae caused by secondary infection of the silk suture material used to close the bronchus.[3] Endobronchial aspergilloma is rare and does not fit into any of the above-mentioned categories. It is usually detected incidentally as a necrotic mass causing bronchial obstruction. In 1991, Denning et al. first described endobronchial aspergilloma in three patients with AIDS.[4,5]

Air flow stasis to colonize the bronchial lumen is essential for endobronchial aspergilloma. Hence, a nidus or structural change that induces air flow stasis is a predisposing factor for aspergillosis in immunocompetent individuals. The patients may have an underlying lung disease such as asthma, chronic bronchitis, or cystic fibrosis. Endobronchial aspergilloma is usually asymptomatic. However, it can also present with a cough and hemoptysis.

Endobronchial aspergilloma sometimes mimic an endobronchial lung cancer.[6] A superimposed endobronchial aspergilloma can mask an endobronchial carcinoid or a lung cancer.[7] It can be often associated with a foreign body[8] and can cause a bronchomediastinal fistula.[9]

Endobronchial aspergilloma may be a sole manifestation of pulmonary aspergillosis. It can also be associated with pulmonary aspergillosis including chronic necrotizing pulmonary aspergillosis or ABPA.[10] The approach to endobronchial aspergilloma includes bronchoscopic biopsy followed by histopathology examination.

Endobronchial aspergilloma may be a simple colonization of airway lumen of aspergillus species in the immune-competent host and hence does not require
any specific treatment. Anti-fungal therapy has usually no benefit. Surgical resection may be considered as an alternative treatment strategy in patients with a favorable pulmonary reserve.[11,12]

In conclusion, endobronchial aspergilloma is usually an incidental finding. It can mimic an endobronchial malignancy. It usually occurs in immunocompromised individuals and in patients with underlying lung disease but can also occur otherwise. It is a necrotic mass obstructing bronchus. Bronchoscopy is the tool for diagnosis and can be confirmed by biopsy. This case is more than just a bronchoscopic curiosity, as it helps us to understand the wide variety of pulmonary aspergillosis. Optimal treatment strategy has not yet been established.

We describe a rare entity (endobronchial aspergillosis) mimicking a common medical condition (bronchogenic carcinoma). Complete removal of this intrabronchial lesion through flexible fiber-optic bronchoscopy and mild sedation obviating the need for more invasive procedures such as rigid bronchoscopy and general anesthesia makes our case more interesting. This case report, while highlighting the existence of this unique clinical entity, also throws light on potential treatment option which can be curative.

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Conflicts of interest
There are no conflicts of interest.

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