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Chronic Cavitary Pulmonary Aspergillosis with Aspergilloma in a Previously Healthy Teenager

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Introduction: Hemoptysis is a rare and dangerous complication of chronic pulmonary aspergillosis. This is a unique case of a previously healthy teenager presenting with chronic cough, hemoptysis and cavitary lung lesion.

Case Presentation: A previously healthy 16 year-old male was admitted with chronic cough and hemoptysis. He was previously treated with antibiotic for right upper lobe (RUL) pneumonia. On admission, he was found to have a RUL cavitary lung lesion on chest CT (Fig 1). Sputum culture for tuberculosis and quantiferon gold were negative. Immune work up and ACE level were normal. Serology for coccidioides, histoplasma, and blastomyces were negative. Serum galactomannan was normal at 0.063. Aspergillus fumigatus IgG was elevated at 168 mg/L. Cultures from bronchoalveolar lavage (BAL) was unremarkable but showed an elevated galactomannan at 2.73. Histopathology of the resected mass from the RUL showed aspergilloma and patchy pulmonary necrosis. Fungal culture from the resected lesion confirmed aspergillus fumigatus.

Discussion: Chronic pulmonary aspergillosis refers to a spectrum of diseases from simple aspergilloma to progressive cavitary aspergillosis. Chronic cavitary pulmonary aspergillosis (CCPA) describes a pattern of disease in immunocompetent patients in whom one or more pulmonary cavities are formed. [1] Aspergilloma, on the other hand, is a fungus ball that can arise in preexisting pulmonary cavities that have been colonized with Aspergillus [1]. Diagnostic criteria for CCPA include pulmonary symptoms or progressive radiographic abnormalities over a three month period, elevated Aspergillus IgG antibody which is seen in over 90% of patients, typically in an immunocompetent host with 1 or more underlying pulmonary disorders [1, 2]. Since aspergilloma may occur in the context of CCPA, the distinction between the two relies in symptomatology, evidence of inflammation and radiologic appearance. This case is unique in that our patient did not have underlying pulmonary disease or immune deficiency. There is little data that exists regarding the prevalence of these diseases in the pediatric population, as the majority of reported cases occur in adults. Surgical resection of aspergilloma can prevent or treat life threatening hemoptysis and is usually curative. In contrast, vast majority of patients with CCPA would require antifungal therapy with the exception of asymptomatic patients with radiographically and serologically stable disease. [1,2]

Conclusions: CCPA with aspergilloma formation is rare diagnosis in immunocompetent patients especially in the absence of an underlying lung disease. The clinical presentation can mimick pulmonary tuberculosis, therefore, should be considered in patients with chronic cough, hemoptysis and cavitary lung lesion.

References:

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Fig 1: RUL cavitary lung lesion

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