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CASE REPORT

PULMONARY HYALINIZING GRANULOMA IS A POSSIBLE CAUSE OF LUNG MASS

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CASE PRESENTATION

A 34-year-old man without symptoms was referred to our Hospital presenting by fever, shortness of breath, hemoptysis and chest pain. He had a 20 pack-year history of cigarette Smoking but denied any inhalational occuptional exposure. Ten years ago patient complained of blood tinged sputum, dyspnea and chest pain, chest X-ray revealed a right middle lobe opacity; physical examination was normal except presence of dullness and diminished intensity of breath sounds in right infra-scapular region of the chest.

Routine blood studies, sputum analysis and urine analysis were normal. The sedimentation rate and serum C-reactive protien were normal.

The chest radiography revealed elevated right copula. CT scans demonstrated a mass with irregular borders, located in the lower lobe of the right lung. No mediastinal lymphadenopathy was observed (Fig. 1). Pulmonary function tests showed mild obstructive ventilatory defect. Laboratory data, including rheumatoid factor and antinuclear antibody, were normal.

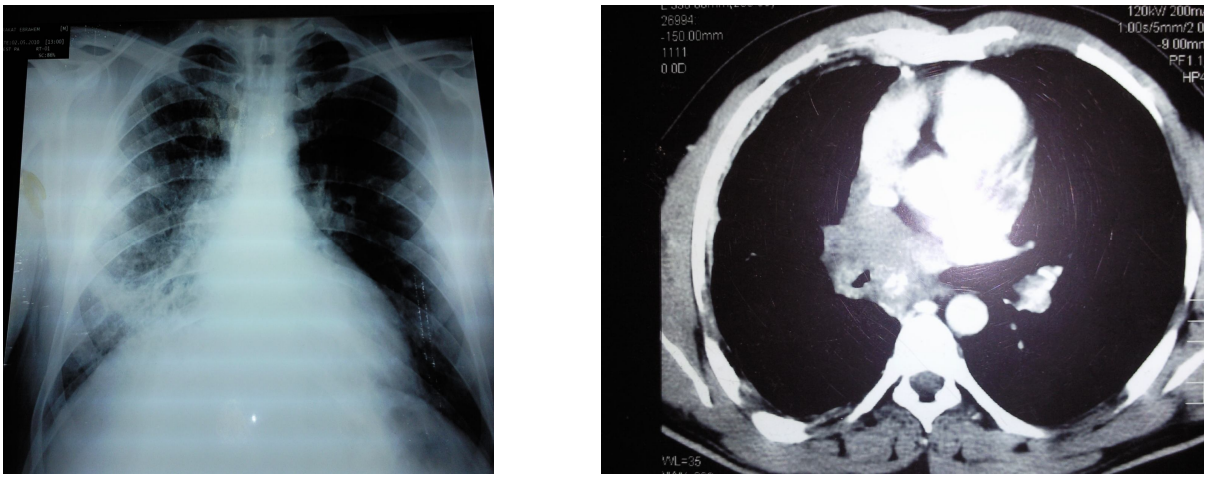

Fig 1. Shows chest X-ray and CT shows elevated right copula of diaphragm and right lower lobe soft tissue mass.

Bronchoscopy was done which revealed a stenosed right main bronchus with abnormal mucosa but no endobronchial lesion. Bronchial mucosal biopsy showed mild bronchial inflammation. Mycobacterial and fungal cultures of bronchoalveolar lavage fluid were negative. Cytological evaluation was negative for aberrant malignant cells. CT-guided percutaneous transthoracic fine needle aspiration cytology of the pulmonary lesion was nondiagnostic.

An open lung biopsy revealed a mass in the right lower lobe which infiltrated right phrenic nerve and fibrous exudate, which was adhered to the pleural surface. The histopathological findings mainly consisted of deposition of hyaline tissue masses accompanied by sparse lymphocytic infiltrate. There was no histological evidence for infectious agents such as TB and fungal organisms. These features were consistent with a diagnosis of pulmonary hyalinizing granuloma.

DISCUSSION

Pulmonary hyalinizing granuloma is a rare benign lesion, the etiology and pathogenesis of which have yet to be well defined. Initially described in 1977, pulmonary hyalinizing granuloma presents as multiple, mostly bilateral, recurrent pulmonary nodules that affect patients of both genders with equal frequency. Clinically, pulmonary hyalinizing granuloma can be asymptomatic (25% of the patients) or can manifest as dry cough, chest pain, fever, dyspnea, and hemoptysis.[1]

Extra-pulmonary involvement occurs in some cases. The diagnosis is made through anatomo-pathological studies, which reveal collagen fibril deposition supplanting the lung parenchyma, together with a chronic inflammatory reaction in the periphery of the lung and formation of lymphoid aggregates.[2]

It is known to affect adults between the ages of 19 and 77 years. The mean age of person afflicted with the disease is 44 years[3] and there is no sex predilection or race predominance.[4]

The importance of pulmonary hyalinizing granuloma is that it is included in the differential diagnosis of diseases that are much more common, such as tuberculosis and histoplasmosis, Wegener's granulomatosis, sarcoidosis, lymphomatoid granulomatosis, and plasma cell granuloma. Other possible differential diagnoses are inflammatory pseudotumor and solitary fibrous tumor, which have similar clinical and radiological characteristics.[5,6] When calcified, sarcomatous metastases (e.g., osteosarcoma, chondrosarcoma and giant cell tumor) and carcinomatous metastases (e.g., mucin producing adenocarcinomas, thyroid cancer, and choriocarcinoma) should be included in the differential diagnosis.[7] The aforementioned masses can be differentiated by their clinical, biological, bacteriological, and histopathological characteristics.[8]

Although the etiology of pulmonary hyalinizing granuloma remains unclear, the disease has been associated with an abnormal reaction to antigens (fungi or the tuberculosis bacillus). Hyalinizing granuloma has also been related to certain immunological diseases, such as rheumatoid arthritis, sclerosing mediastinitis, retroperitoneal fibrosis, and uveitis, as well as to infectious diseases, such as tuberculosis, histoplasmosis, and aspergillosis.[9-11]

Patients with pulmonary hyalinizing granuloma can be asymptomatic, in which case suspicion of the disease is raised by radiological findings, or can present with mild and nonspecific clinical symptoms which may include dry cough, fever, hemoptysis, fatigue, dyspnea, pleuritic chest pain, sinusitis, and pharyngitis.[3,12]

There have been reports of extrapulmonary manifestations affecting the kidneys, larynx, and skin.[13,14]

Chest radiography and CT findings show solitary or, more often, multiple randomly distributed, unilateral or bilateral nodules and/or masses with well-defined borders. The nodules may be present with or, more commonly, without calcification and are typically focal and irregular. The calcified masses are more often multiple and bilateral.[7] Though rare, cavitation has been reported.[7,13] Nodule size ranges from several millimeters to 15 cm in diameter, with an average diameter of 2 cm.[15] Adenopathy is usually not associated with this entity.[3]

The prognosis for patients with PHG is generally excellent with no significant impact on longevity. Single lesions tend to be stable and resection is often curative. Some patients with multiple lesions may show progressive enlargement of nodules and increased dyspnea.[3,12] There is no definitive treatment for multiple nodules, although successful resolution of the nodules with the administration of glucocorticoids has been reported.[3,12,14,16] One case of recurrence after resection was described.[17]

CONCLUSION

PHG should be considered in the differential diagnosis of pulmonary nodules or masses, even when they are cavitary or contain calcifications.

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