Cough, Fever and a Cavitary Lung Lesion— An Intrapulmonary Teratoma

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Cavitary lung lesions are a clinical presentation of common diseases like primary lung abscesses, hydatid cysts, bronchogenic carcinoma and postprimary tuberculosis. Intrapulmonary teratoma (IPT) are very rare neoplasms with nonspecific presentation, making preoperative diagnosis difficult.

Case history

A 18-year-old woman presented with complaint of cough since 3 years. The cough produced small amount of white colored sputum and aggravated in the supine position. She also had episodic low-grade fever and mild headache. Hemoptysis, chest pain, weight loss, and dyspnea were absent. H/O contact with animals or tuberculous patient was negative. She was a nonsmoker. Physical examination and routine laboratory investigations were normal.

Chest radiograph showed a cavitary lesion with irregular walls measuring 7 x 6 cm in the mid-zone of the right lung (Figure 1). Three sputum smears were negative for acid-fast bacilli and fungus. A computed tomography (CT) chest scan showed a heterogeneous cystic lesion in right upper and middle lung zones with a peripheral solid component in the right upper lobe (Figure 2).

A provisional diagnosis of an infected hydatid cyst or an aspergilloma was made. The patient was referred to cardio-thoracic surgery. She underwent right upper and middle lobectomy because the mass involved both these lobes. Perioperative findings showed a ball of hair attached to an intrapulmonary solid mass resembling a human embryo (Figure 3).

Histopathology of the specimen showed a cyst lined by stratified squamous epithelium exhibiting extensive keratinization. Sebaceous glands and hair follicles, with cholesterol clefts and extensive foreign body giant cell reaction were seen (Figure 4). Accordingly, a diagnosis of a mature cystic teratoma was made. Patient recovered well postoperatively and is asymptomatic.

Discussion

Teratomas are neoplasms composed of tissues derived from one or more of the three germinal layers. Common locations include the gonads, sacrococcygeal region and mediastinum. About 3% teratomas are intrathoracic, most of which are mediastinal.[1,2] IPT derive from the third pharyngeal pouch which is the anlage of the thymus.[3] Aberrant migration can explain the presence of teratomas away from the thymic site.[3] More than 30 cases have been reported in the English literature.[4,5]

Common presenting features are chest pain, fever, cough, and dyspnea.[5,6] IPT associated complications include hemoptysis; pneumonia; rupture into the pleura, pericardium or tracheobronchial tree, and bronchiectasis. Trichoptysis, though uncommon, is a more suggestive symptom.[4,6] Majority are diagnosed between the second and fourth decades of life.[1,2] While teratomas occur more commonly in females, the intrapulmonary variety shows no such sex predilection. Most teratomas grow slowly and rarely become malignant.

Teratomas frequently occur in the upper lung lobes confined to one hemithorax. Radiologically, they present as lobulated upper lobe masses with smooth thin margins.[3] Intratumoral calcifications, cavitations and peripheral radiolucent areas are more specific findings; the latter helps in differentiating intrapulmonary from mediastinal teratomas.[2,3] CT findings in IPT are infrequently reported and thus it is difficult to differentiate the two when a large mediastinal teratoma extends into the lungs. A heterogeneous mass with soft-tissue, fat, fluid, and calcium attenuation and a Hounsfield unit number of -20 to -50 are frequent CT features of teratomas.[5] Lately, magnetic resonance imaging features have also been described.[5]
Histopathologically, IPT are similar to other cystic teratomas being composed of epithelial elements with squamous differentiation. An IPT manifests various ectodermal, mesodermal and endodermal derivatives, skin appendages, thymic tissue, fat, muscle, cartilage, hematopoietic tissues, pancreatic tissue, and intestinal and respiratory epithelium.\(^6\)

Surgical resection is the treatment of choice.\(^7\) In one series, 13 of the 18 patients treated surgically recovered fully. The remaining five died within 1 year, of which four died in the postoperative period.\(^3\) IPT should be considered a differential diagnosis when investigating a cavitary lung lesion, in young adults, not explained by more common disorders. This differentiation is especially important in endemic areas for tuberculosis to avoid unnecessary anti-tuberculous therapy.

**References**