

An Intrapulmonary Cystic Teratoma : As a Cavitory Lung Lesion¹

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We report a rare cause of lung cavities, occurring in a patient with intrapulmonary cystic teratoma. Computed tomography (CT) provided us more detailed informations about the tumor characteristics containing fat and calcification, which could not be distinguished on the plain radiographs. In addition, CT scans clearly demonstrated the dilated anterior segmental bronchus of the left upper lobe entering the posterior aspect of the cavity.

Index Words : Lung, tumor
Lung, cavitation
Lung, CT
Teratoma

Primary extragonadal teratomas in the thorax almost always originate from the mediastinum, and only very rarely occur in the lung. Less than 30 cases of histologically proven intrapulmonary teratoma have been reported (1-7). Most patients come to clinical attention during the third or fourth decade of life, with nonspecific complaints of cough, hemoptysis, and chest pain (5,8).

We recently experienced this rare condition in a 42-year-old man, manifested as a cavitory lung mass radiologically. Computed tomography (CT) provided us more informations about the characteristics of the tumor.

CASE REPORTS

An acutely ill-looking, 42-year-old man presented with fever, progressive dyspnea and chest pain which appeared two weeks ago. He was healthy until four years ago, when he suffered from pulmonary tubercu-

losis for which he was medicated for one year. On auscultation, there was decreased breath sound over the left lower thorax. Sputum examination for acid-fast bacilli, fungus, and malignant cells was negative.

Chest radiographs showed hydropneumothorax at the left side and a relatively thick-walled cavitory mass with a polypoid protrusion within the cavity at the left upper lobe. The diagnostic thoracentesis of hydropneumothorax revealed the grossly purulent fluid with the pH of 6.8 and the glucose level of less than 5 mg/dl, which prompted closed thoracotomy. Culture and cytological examination of the empyemic fluid failed to identify a specific organism or cellular components. Chest radiographs obtained after closed thoracotomy more clearly demonstrated the cavitory mass at the left upper lobe (Fig. 1a). On CT scans, the cavity was located at the anterior segment of the left upper lobe with a portion of fungating mass which had several different tissue components including fat and calcification (Fig. 1b). In addition, CT scans clearly demonstrated the dilated anterior segmental bronchus of the left upper lobe entering the posterior aspect of the cavity (Fig. 1c).

At thoracotomy, there was a severe, diffuse adhesion in the left pleural cavity containing pus, which urged the surgeon to perform a pleuropneumonectomy. About 5-cm sized mass was embedded in the anterior segment of the left upper lobe. Although there were some adhesions, it was relatively easy to separate the tumor with the mediastinum which was intact. The cut section of the specimen revealed the $4.6 \times 4 \times 3$ cm-sized cavity with an internally protruding multino-

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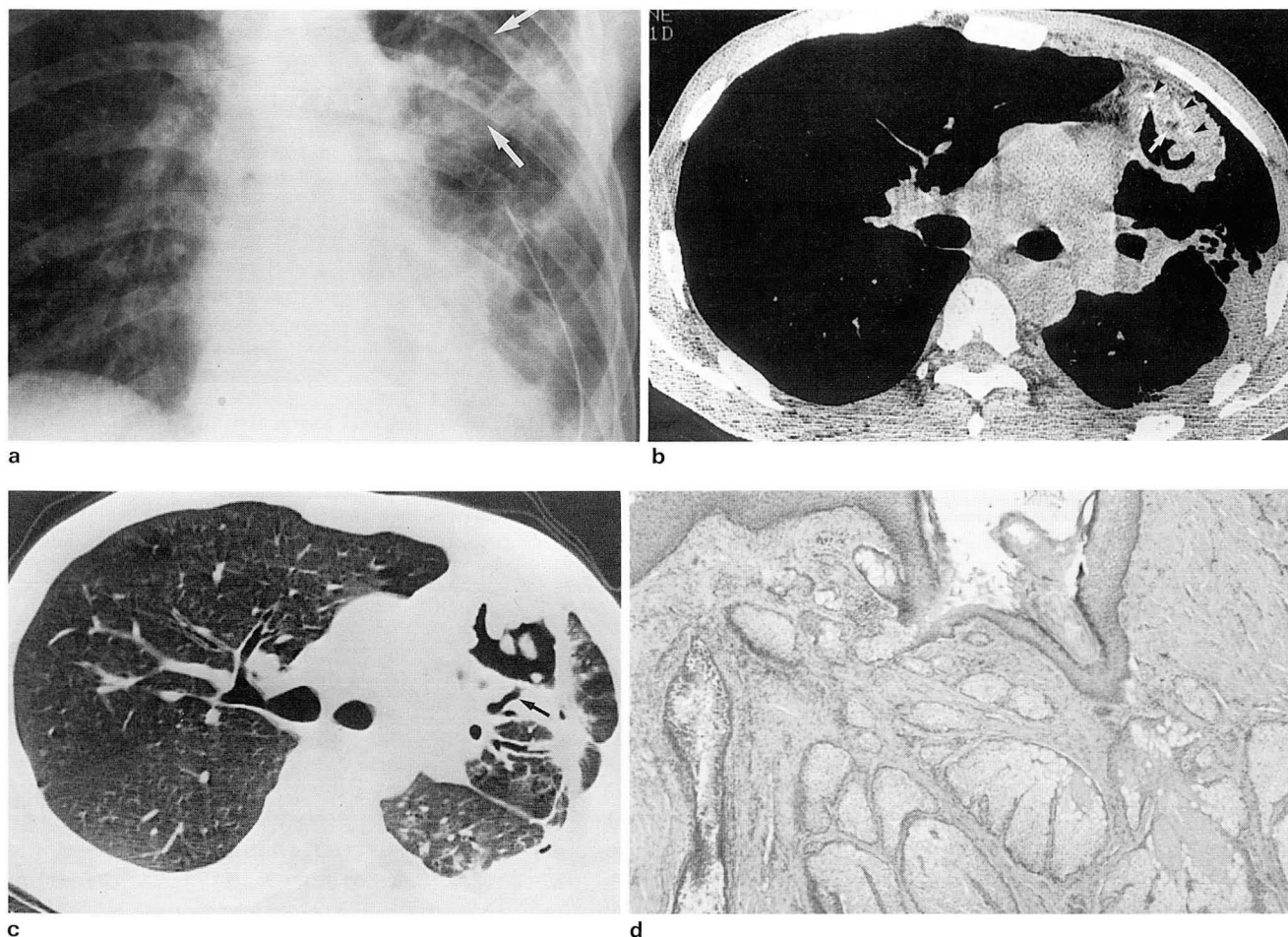


Fig. 1. Intrapulmonary cystic teratoma.

a. Chest radiograph shows a relatively thick-walled cavity with a polypoid soft tissue component in the left upper lobe (arrows). Note the architectural distortion in the left lung caused by empyema which has been drained through a chest tube.

b, c. Thin-section CT scans with a 1.5-mm collimation and with bone algorithm. Scan obtained with mediastinal window setting (b) clearly shows scattered areas of fat (arrow) and calcification (arrowheads) within the solid component of the tumor. Scan 1-cm above b with lung window setting (c) shows the dilated anterior segmental bronchus of the left upper lobe, which communicates with the cavitary tumor (arrow).

d. Photomicrography of the resected tumor shows cystic teratoma lined by stratified squamous epithelium with its appendage (H & E, $\times 40$).

dular hairy mass. The anterior segmental bronchus of the left upper lobe was dilated and communicated with the cavity. The histology confirmed the cavitary mass to be a cystic teratoma, containing a variety of tissues from all three germ cell layers, with its wall lined by stratified squamous epithelium and skin appendages (Fig. 1d). The tumor contained islands of cartilage, adipose tissue, and smooth muscle. In no areas, gastrointestinal, pancreatic, or thymic tissues were found. The dilated segmental bronchus entering the cavity was lined with ciliated columnar epithelium and the transition to the lining of the cavity was abrupt.

DISCUSSION

Like teratoma of the mediastinum, intrapulmonary

teratoma is thought to originate from the third pharyngeal pouch which is the anlage of the thymus (5, 6). It has two forms in relation to pulmonary architecture, parenchymal and endobronchial. Most of intrapulmonary teratomas were parenchymal, and only four cases of endobronchial teratoma have been reported (5, 6). Approximately half of the intrapulmonary teratomas were located in the left upper lobe, the reason of which is not clearly understood (6). These tumors have been said to have malignant potential, and approximately one-third have been reported to be malignant teratomas (5, 6). In our patient, CT scans provided more detailed informations about the tumor characteristics. They showed various kinds of tissue components which could not be distinguished on the plain radiographs.

The connection between the intrapulmonary parenchymal teratoma and the bronchus, leading to the cavity formation, has been reported in six cases (1-5). Several possibilities can be assumed for the occurrence of this bronchial connection: (1) biological aggressiveness of the tumor involving the bronchus; (2) secondary infection of the cystic tumor; (3) digestive enzyme activity inherent to the tumor, particularly which contains pancreatic glands; and (4) combination of these. Our case resembles that of Holt et al (5). The different linings of the cavity wall and the bronchus and their abrupt transition in our case suggest that the local invasion into the bronchus by the tumor is less likely mechanism for the bronchial connection. In addition, in contrast to five of six previously reported cavitory teratomas, the absence of pancreatic tissue in our case can rule out the theory of digestive enzyme activity. Therefore, it seems to be logical, although the specific organism could not be isolated, to consider secondary infection to be the most likely cause of the bronchial communication with the tumor in our case.

REFERENCES

1. Collier FC, Dowling EA, Plott D, Schneider H. Teratoma of the lung. *Arch Pathol* **1959**; 68:138-142
2. Trivedi SA, Mehta KN, Nanavaty JM. Teratoma of the lung: report of a case. *Brit J Dis Chest* **1966**; 60:156-159
3. Chang KH, Lee PW, Lee MW, Han MC. Intrapulmonary teratoma: report of a case. *J Kor Radiol Soc* **1974**; 10:115-118
4. Day DW, Taylor SA. An intrapulmonary teratoma associated with thymic tissue. *Thorax* **1975**; 30:582-587
5. Holt S, Deverall PB, Boddy JE. A teratoma of the lung containing thymic tissue. *J Pathol* **1978**; 126:85-89
6. Stair JM, Stevenson DR, Schaefer RF, Fullenwider JP, Campbell GS. Primary teratocarcinoma of the lung. *J Surg Oncol* **1986**; 33:262-267
7. Breatnach E, Weeks J. Unusual intrapulmonary tumor: a rare cause of bronchiectasis. *Chest* **1990**; 97:197-198.
8. Fraser RG, Pare JAP, Pare PD, Fraser RS, Genereux GP. *Diagnosis of diseases of the chest*, 3rd ed. Philadelphia: W. B. Saunders Company; **1989**:1607-1608

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공동을 동반한 폐기형종: 1예 보고

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흉부의 기형종은 거의 모두가 종격동에서 유래되나 매우 드물게 폐실질에서 발생되기도 한다. 저자들은 방사선학적으로 공동을 동반하는 종괴로 나타난 폐기형종 1예를 보고한다. CT는 단순 촬영 사진에서 보여 주지 못한 종괴를 이루는 여러 조직 성분을 잘 보여 주었으며 종괴와 기관지와의 연결도 잘 보여 주었다.

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경희대학교 의과대학 방사선과학교실에서는 다음과 같이 1994년도 연수강좌를 실시합니다. 본 연수 강좌의 목적은 육안적 형태 또는 병리학적 변화를 이해하고, 이것을 근거로 방사선학적 소견을 이해 하는데 있습니다. 금년에는 복부와 흉부방사선 해부 및 병리학을 공부합니다. 많이 참석하시어 강사와 청중이 함께 공부하는 좋은 기회가 되었으면 감사하겠습니다.

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