中文題目：以“空氣半月征”表現之肺部麟狀上皮癌
英文題目： **Squamous Cell Carcinoma of Lung Presenting with an “Air Crescent Sign”**

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Abstract:

The pulmonary air crescent sign, a rounded mass in the lung capped by a crescent-shaped collection of air, has been typically applied to mycetoma. A 62-year-old man, with a 60-pack-year history of cigarette smoking, complained of cough and hemoptysis and the chest CT scan revealed a mass in a thin-walled cavity showing a characteristic fungus ball-like shadow with air crescent sign in the left upper lung. The contrast enhancement was present within the mass. Sputum examinations for acid-fast bacilli smear , culture and cytology showed negative results. Due to persistent hemoptysis, he underwent left upper lung lobectomy and the pathology revealed moderately–differentiated squamous cell carcinoma, with no evidence of fungal elements. “Air crescent sign” should be considered as a potential presentation of lung malignancies, especially in patients at risk of lung cancer. In addition to clinical history and chest radiography obtained with the patient in both the supine and prone positions, contrast-enhanced CT scan images can help in the differential diagnosis.

Introduction:

The air crescent sign (ACS), also called the meniscus or cap sign [1], appears on radiographs or computed tomographic (CT) scans of the chest as air interposed between an intracavitary, ball-like mass and the cavity wall. Its shape ranges from crescent-like to that of total encapsulation [2], and its volume varies greatly. By far, the most common cause of the ACS is mycetoma that occurs when the fungus *Aspergillus* grows in a preexisting pulmonary cavity, commonly with a thin wall [1,2]. In contrast, a primary pulmonary cavitating carcinoma often forms a cavity with an irregular, thickened wall, and very rarely shows a fungus ball-like shadow[3]. Among the various histological types of lung cancer, cavitation is more frequently found in squamous cell carcinomas [3]. We reported a patient of pulmonary squamous cell carcinoma who presented with hemoptysis and a lung mass in a thin-walled cavity, mimicking a mycetoma with characteristic ACS.

Case Report:

A 62-year-old man, admitted to our hospital on May 26, 2011 presented with productive cough, profuse hemoptysis and intermittent breathlessness for about 5 months. There was no nose bleeding, bloody stools, fever, body weight loss, chest pain or abdominal pain. He has a 60-pack-year history of cigarette smoking and had quitted it for 5 months. His medical history included Type 2 diabetes mellitus, hypertension and hyperlipidemia for 10 years under regular medical control.

The symptom of hemoptysis occurred initially on Jan. 19, 2011 and the chest radiography and chest CT image revealed a ground glass opacity in left upper lobe. Lung biopsy for the left upper lobe lesion was suggested to patient but he rejected . The patient was treated with antifibrinolytic agent (tranexamic acid) and the symptom improved gradually, though the cause of hemoptysis was not determined. Then he had regular follow up at the chest medicine out-patient department. However, he developed hemoptysis again with increased volume and frequency over the following 4 months.

On physical examination, sonorous rhonchi were audible in bilateral lungs. The follow-up chest CT showed a cavitary lesion with a central contrast-enhanced ball-like mass at the previously ground glass lesion in left upper lobe ***(Fig. 1 & 2)***. Sputum examinations for acid-fast bacilli smear ,culture and cytology showed negative results. Fiberoptic bronchoscopy revealed some blood clots over the orifice of left upper lobe bronchus, but no active bleeder or endobronchial lesion was detected.

The chest CT finding, characteristic of a fungus ball-like shadow with air-crescent sign, highly suggested a pulmonary aspergilloma. However, the contrast enhancement was present within the mass, and lung malignancy could not be excluded. In view of persistent massive hemoptysis, the patient underwent left exploratory thoracotomy. A whitish firm nodule about 3.0x2.5x2.2cm in size was noted in a cavity in the left upper lung **(Fig. 3)** . Left upper lobectomy and radical lymph node dissection were performed.

The pathology disclosed moderately–differentiated squamous cell carcinoma ***(Fig. 4)***. Tumor metastasis was noted in ipsilateral peribronchial , ipsilateral hilar lymph nodes, and intrapulmonary nodes.). The metastatic workup including brain MRI and bone scan showed no distant metastases. The lung cancer was determined as pT2aN1M0 ,Stage IIA. No fungal elements was noted in the tissue specimens. Adjuvant chemotherapy with abiplatin and navelbine were administered subsequently.

Discussion:

The pulmonary ACS has been typically applied to a mycetoma located in a preexisting thin-walled cavity with a smooth inner margin, most often formed by a previous tuberculous infection [1,2]. Pulmonary mycetoma (fungus ball) usually manifests as an upper lobe cavitary lesion with an intracavitary mobile mass and an air crescent on the periphery [4]. It is relatively straightforward to diagnose pulmonary mycetoma by the presence of a solid, round or oval mass with soft-tissue opacity within a lung cavity. In addition, the mycetoma usually moves when the patient changes position [5]. Therefore, the classic CT scan workup of a mycetoma should include both supine and prone scanning studies to demonstrate whether the central mass is free or attached to the cystic wall. Furthermore, the presence or absence of contrast enhancement within the mass on chest CT images may help differentiate between mycetoma and vital tissues such as malignancy or active infection.

Cavitary neoplasm, tuberculosis, hydatid cyst (alveolar echinococcosis), or bacterial lung abscess may also give rise to the ACS [2]. Cavitation is a common radiologic presentation of lung cancer, and more frequently found in squamous cell carcinoma. It is well known that the cancerous cavity often have a thick wall with an irregular inner surface [3]. Part of the wall may project into the cavity, forming a so-called mural nodule. In contrast to mycetoma, cavitary lung cancers rarely present with thin-walled cavities resembling cysts [3].

The CT image of this patient demonstrated a round mass attached to the smooth inner surface of a thin-walled cavity, suggestive of a benign process initially. However, despite that we did not change the patient's position to observe the motility of the mass, the observed enhancement of the lesion drew suspicion of malignancy.

In conclusion, though ACS is most often associated with benign diseases such as mycetoma, physicians should consider it as a potential presentation of lung cancer.

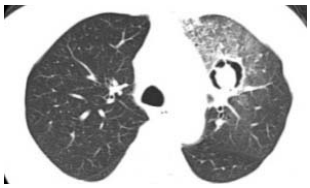

Figure 1

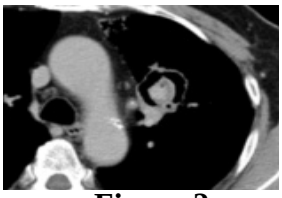

Figure 2

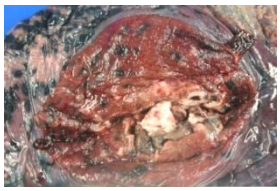

Figure 3

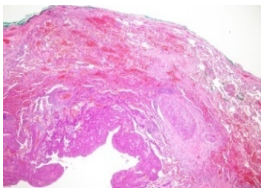

Figure 4