Clinical picture

Air crescent sign: not always due to fungal infection

A 65-year-old woman was admitted to the hospital due to hemoptysis once for 1 day. Cough with some whitish sputum but no fever or body weight loss was noted. Her medical history included hypertension, which was under regular medical control. She denied any smoking history. A physical examination revealed no remarkable findings. The chest radiograph obtained on hospital admission revealed a suspected irregular border mass, located in the right lower lobe. A chest computed tomography (CT) scan revealed a cavity lesion with irregular outer border, 3.2 × 3.4 × 2.8 cm in size, with an air-crescent sign in the right lower lobe and an intracavitary fungus ball-like mass (Figure 1a). Bronchoscopic examination revealed no endobronchial lesion. Brushing cytology, acid-fast bacilli smear culture and fungus culture showed negative results. Short-term antibiotic with ampicillin/sulbactam was prescribed, but the lesion was not improved from the followed chest X ray. She then underwent a right lower lobe lobectomy. The operative findings were a mass in the right lower lobe, and the final pathologic diagnosis was moderately to poorly differentiated adenocarcinoma with focal squamous cell carcinoma of lung origin. Pathologic staging was T2aN0M0, at least stage IB (Figure 1b).

The pulmonary air crescent sign is typically seen with a mycetoma located in a preexisting thin-walled cavity with a smooth inner margin, most often formed by a previous tuberculous infection.1,2 Cavitary neoplasms, tuberculosis, hydatid cysts and bacterial lung abscess may also give rise to an air crescent sign.2 Cavitation is a sometimes radiologic presentation of lung cancer and more frequently found in squamous cell carcinoma. It is well known that the cancerous cavity often has a thick wall with an irregular inner surface.3 In contrast to a mycetoma, cavitary lung cancers rarely present with thin-walled cavities resembling cysts.3 These differences may help in the differential diagnosis. In conclusion, even though the chest radiograph and chest CT scan showed a typical air-crescent sign favoring a mycetoma, the physician should still keep in mind that lung cancer may also unusually present in this way.

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Figure 1. (a) A chest CT scan revealed a cavity lesion with irregular outer border, with an air-crescent sign in the right lower lobe and an intracavitary fungus ball-like mass. (b) The operative findings were a mass in the right lower lobe.

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References