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Clinical spotlight

Asymptomatic pulmonary nodule in a patient with early-stage lung adenocarcinoma—What is your diagnosis?

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ARTICLE INFO

Article history:
Received 10 June 2012
Received in revised form
25 July 2012
Accepted 26 July 2012
Available online 21 August 2012

A 56-year-old man with right lower lung adenocarcinoma (pT1aN0M0, stage Ia) had undergone right lower lung lobectomy in June 2007; no recurrence or metastasis was found during the follow-up period. As of June 2011, computed tomography (CT) of the chest (Fig. 1) revealed nodular opacity (2.6 cm × 2.3 cm) in parabronchial region of the right lung. The patient had no associated symptoms such as fever, productive cough, or chest pain. Level of carcinoembryonic antigen, a tumor marker, was within normal limits. In our early-stage lung cancer patient with pulmonary nodules who had received lobectomy, possibility of lung cancer recurrence was considered. He subsequently underwent radial endobronchial ultrasound (EBUS)-guided transbronchial needle aspiration (TBNA) of the parabronchial nodule (Fig. 2). Cytology of TBNA specimen (Fig. 3) revealed many yeast-form fungi encapsulated within epithelioid cells. Later serology test for *Cryptococcus* antigen was found to be positive, with a titer of 1:8; no HIV antibodies were detected. We did not examine cerebrospinal fluid due to low titer of the *Cryptococcus* antigen and absence of symptoms in the central nervous system infection. The patient received antifungal therapy with fluconazole (daily 400 mg) for 3 months, after which serum *Cryptococcus* antigen titer decreased to zero. In September 2010, a follow-up chest CT revealed shrinkage of the pulmonary nodule to a fibrotic band (Fig. 4).

Differentiating between benign lesion and primary tumor or metastasis in patients with pulmonary nodules is crucial for clinicians and difficult in some cases, such as in cancer patients. Surgical resection is the only recommended treatment for early-stage non-small-cell lung cancer. In early-stage lung cancer, after surgical resection, patients with pulmonary nodules may be regarded as having cancer relapse and given immediate chemotherapy. *Cryptococcus* is an opportunistic infection that predominantly affects immunocompromised patients. Approximately one-third of immunocompetent patients with *Cryptococcus* infection are asymptomatic; most

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http://dx.doi.org/10.1016/j.biomed.2012.07.001

Fig. 1 – Computed tomography of the chest showing an ill-defined, soft-tissue nodule (white arrow) in the parabronchial region of the right lung.

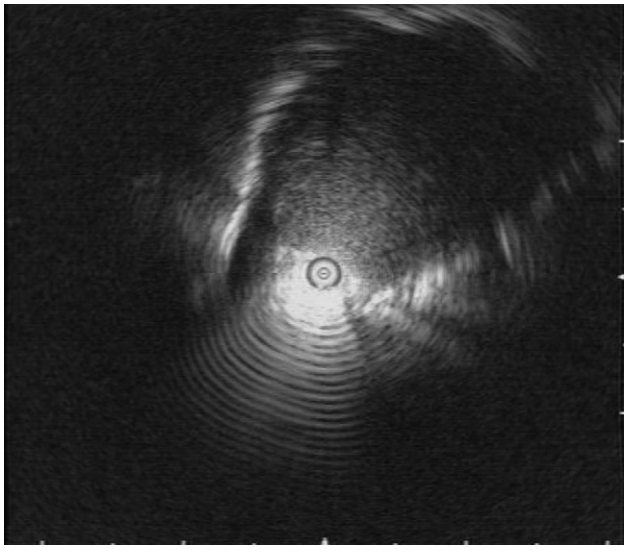

Fig. 2 – EBUS image of parabronchial pulmonary nodule. EBUS = endobronchial ultrasound.

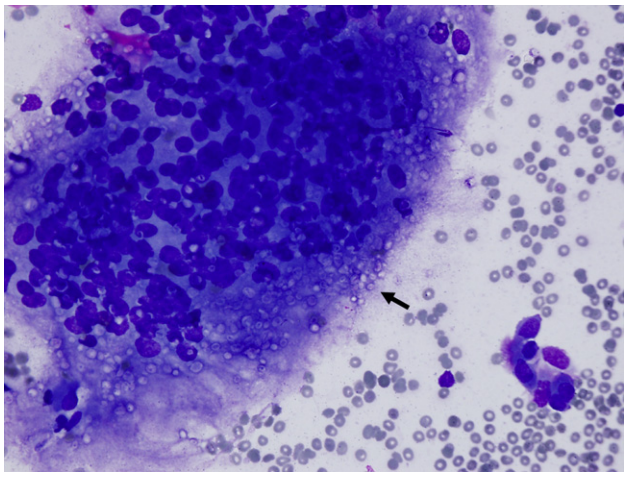

Fig. 3 – Cytology of EBUS TBNA specimen shows encapsulated forms of *Cryptococcus* (arrow), as demonstrated by Liu stain (400×). EBUS = endobronchial ultrasound; TBNA = transbronchial needle aspiration.

Fig. 4 – Computed tomography of the chest after 3 months of fluconazole treatment revealed shrinkage of the lung nodule to a fibrotic band (arrow).

common symptoms include cough, dyspnea, and fever. In asymptomatic patients, the pulmonary infection is usually discovered incidentally following chest radiography. We present the case of a lung cancer patient with single pulmonary nodule who underwent mini-invasive diagnostic method of EBUS TBNA to confirm the diagnosis of *Cryptococcus* infection. Differentiating between pulmonary *Cryptococcus* infection and tumor relapse in early-stage lung cancer is important for the correct management of the cancer. Biopsy must be performed for definite diagnosis and correct management of lung cancer patients with pulmonary nodules.