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IMAGE

Lung Carcinoma Mimicking Bronchopulmonary Cyst in a 22-Year-Old Man

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A 22-year-old man was admitted with an 8-month history of left-sided chest pain as the only complaint. The patient had no family history of cancer or of exposure to echinococcosis; however, he had been smoking 10 cigarettes a day for 6 years. Chest radiograph (Figure 1A) and computed tomography (Figure 1B) showed a solitary thin-walled cavity located in the lingular segment of the left upper lobe. The lesion was 3.0 cm × 3.5 cm; wall thickness ranged from 1 mm to 1.5 mm. The tentative diagnosis was bronchopulmonary cyst, but a lung bulla could not be excluded. The patient underwent video-assisted thoracoscopic wedge resection of the left upper lobe. An intraoperative frozen section was diagnostic of adenocarcinoma, and left upper lobectomy with systematic nodal dissection was performed. However, in reality, most hospitals do not perform intraoperative frozen section for such patients. In this case, frozen section examination avoided a second operation, which the patient would have undergone after the definitive histopathological report. Grossly, the lung showed one 4 cm cystic lesion with an irregular, nodular contour and scarce brownish content (Figure 1C). Final pathological diagnosis was primary lung adenocarcinoma (Figure 1D). All removed lymph nodes were negative. Eighth edition pathological tumour classification was pT2aN0M0, stage IB. Postoperatively, an *EGFR* mutation was detected (p.L858R [exon21]; 11.9%); tests for other gene mutations (*ALK*, *ROS1*, *ERBB2*, *BRAF*, *KRAS*) were negative. After 6 months of follow-up, the patient is alive with no signs of recurrence.

Pulmonary cystic lesions and malignant lung tumours are common conditions encountered in the clinic. However, it is rare for lung carcinoma to present like a bronchopulmonary cyst. The differential diagnosis ranges from infection, such as tuberculosis; a hydatid cyst; or an abscess in a pulmonary bulla, but the wall thickness of benign lesions does not usually exceed 4 mm [1,2]. A solitary cavity of the lung seen in image studies always raises the question of whether it is a benign or a malignant lesion. The mechanism of cavitation in primary lung cancer is not entirely clear. Soo Chang et al. [3] believe that the cancer occurs in the bronchioles and that inflammation and necrosis cause a flap obstruction with a one-way valve mechanism leading to the formation of the cystic cavity. In addition, clinicians should pay special attention to bullous lesions occurring in heavy smokers [4]. In general, when some features, including wall thickness, and irregular inner and outer margins, are presented in image studies, physicians should consider the possibility of cavitary lung cancers. In our case, owing to the patient's age and the paucity of symptoms, the lesion was misdiagnosed before surgery as a bronchopulmonary cyst. This suggests that for lung cysts, even at a young age, the possibility of lung cancer should not be ignored.

Typical lung cancer can be easily diagnosed by clinical manifestations, radiographic findings, and other auxiliary examinations. Here we report an unusual case, the youngest reported patient, of atypical lung cancer mimicking a bronchopulmonary cyst. Thus, this case emphasizes the importance of careful history-taking, clinical assessment, and surgical biopsy/resected specimens in atypical presentations. Percutaneous cavitary lavage, percutaneous needle washing, and high-resolution computed tomography may provide valuable clues to the early diagnosis of this disease and have confirmed many cavity lung cancers at different ages [5,6]. In general,

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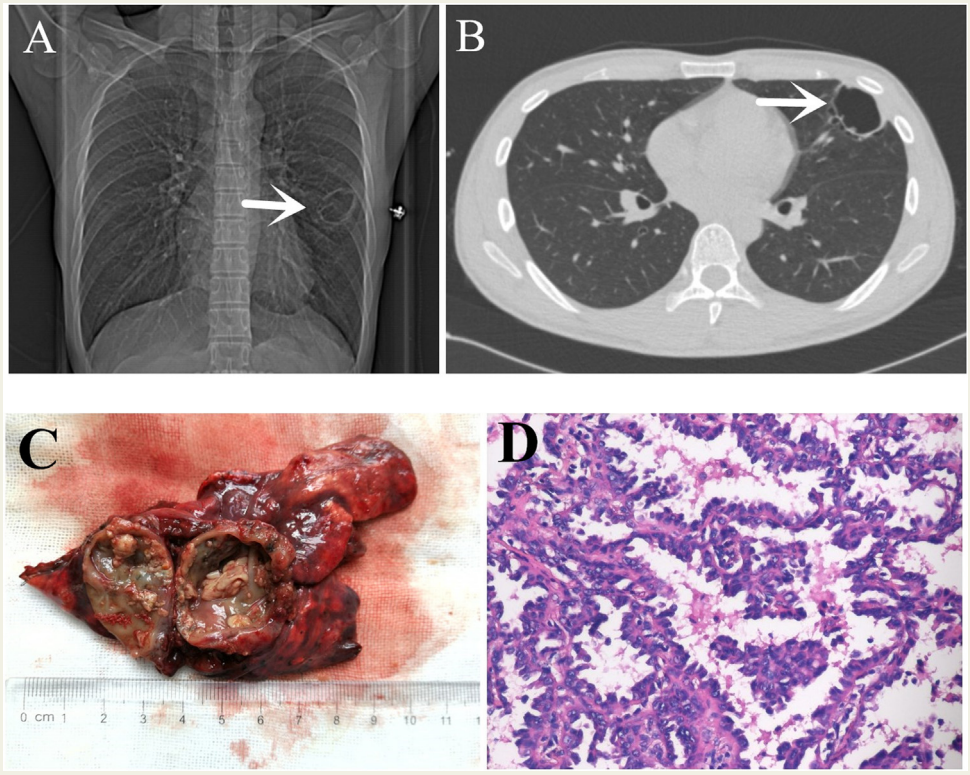

Figure 1 (A, B) Chest radiograph and computed tomography showed a solitary thin-walled cavity located in the lingular segment of the left upper lobe. The lesion was 3.0 cm × 3.5 cm, and wall thickness ranged from 1 mm to 1.5 mm. (C) The lung showed one 4 cm cystic lesion with an irregular, nodular contour and scarce brownish content. (D) The tumour cells were arranged in a glandular pattern, and the cells were markedly atypical, with increased nucleoplasm ratio, large nuclei, and prominent nucleoli.

when some suspected malignant signs, including wall thickness, septum in cavity, and irregular inner and outer margins, are seen in image studies, physicians should pay special attention to the possibility of cavitary lung cancers. Timely lung biopsy by thoracoscopy is a useful means with which to diagnose and identify cavitary lung lesions. If abnormal thickening of the cyst wall, visible nodules on the cyst wall, and follow-up cystic cavity increase are found, a high suspicion of cystic cavitary lung cancer may be required. Timely excisional biopsy under thoracoscopy is a useful means with which to diagnose these lesions and treat them accordingly.

Conflicts of Interest

The are no conflicts of interest to disclose.

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