

## Slowly Progressive Adenocarcinoma of the Lung: Report of a Case

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**A case report of a slowly progressive adenocarcinoma of the lung, followed by computed tomography is herein discussed. The patient was a 76-year-old woman, who was operated on about four years after a small lung nodule on her left upper lobe was discovered. The tumor was suspected to be either well differentiated adenocarcinoma or atypical adenomatous hyperplasia (AAH) by the findings of chest computed tomography before the operation, and the resected specimen demonstrated well differentiated adenocarcinoma, without lymph node metastasis. This case demonstrates the possibility that some adenocarcinomas with particular histology are slowly progressive, and also there might be the option of lobectomy or segmentectomy for treating such tumors. (Ann Thorac Cardiovasc Surg 2002; 8: 160–2)**

**Key words:** small lung nodule, slow growth, tumor doubling time

### Introduction

The tumor doubling time (TDT) of adenocarcinoma of the lung has been reported to usually be around 80 to 180 days.<sup>1,2)</sup> In cases of adenocarcinoma, however, cases with a longer TDT are also sometimes experienced, and have been found to show a TDT over 400 days up to about 1,000 days.<sup>3,4)</sup> Such cases with a longer TDT have also been reported to show a favorable prognosis.<sup>3)</sup>

Recently, small-sized adenocarcinomas have been classified into various groups based on their pathological characteristics. In this classification, localized bronchiolo-alveolar carcinoma with or without the foci of alveolar structural collapse have been shown to have a favorable prognosis.<sup>5)</sup> Such types of adenocarcinoma are usually difficult to detect on chest roentgenograms, and therefore thin section chest CT is often useful. The relation between the pathological features and prognosis are also discussed.

We herein report a case with slowly progressive adenocarcinoma of the lung, which had been observed for

four years by chest CT.

### Case Report

A 76-year-old woman was admitted to our department with suspected left primary lung cancer on February 12, 1998. She had undergone a right modified radical mastectomy for breast cancer on April 7, 1994, which was diagnosed to be invasive ductal carcinoma, stage IIIb (T4N0M0).

On July 4, 1994, an attenuation, measuring 20 mm in diameter, was found in S<sup>1+2</sup> of the left lung on chest CT. The attenuation was considered to be well differentiated adenocarcinoma or atypical adenomatous hyperplasia (AAH), but it was not considered to be a metastatic tumor from the breast cancer, because of the characteristic appearance on chest CT findings. Tumor markers, such as carcinoembryonic antigen (CEA), squamous cell carcinoma antigen (SCC), CA 19-9, cytokeratin fragment 19 (CYFRA), were all within normal ranges.

Although the size and morphology of the tumor had not changed as of September 16, 1997, a chest CT on January 8, 1998, showed a slight enlargement. The features of the tumor on the CT strongly suggested adenocarcinoma of the lung (Fig. 1). Although there were some suspicions that this was a metastatic lung tumor from previous breast cancer, we considered this tumor would also

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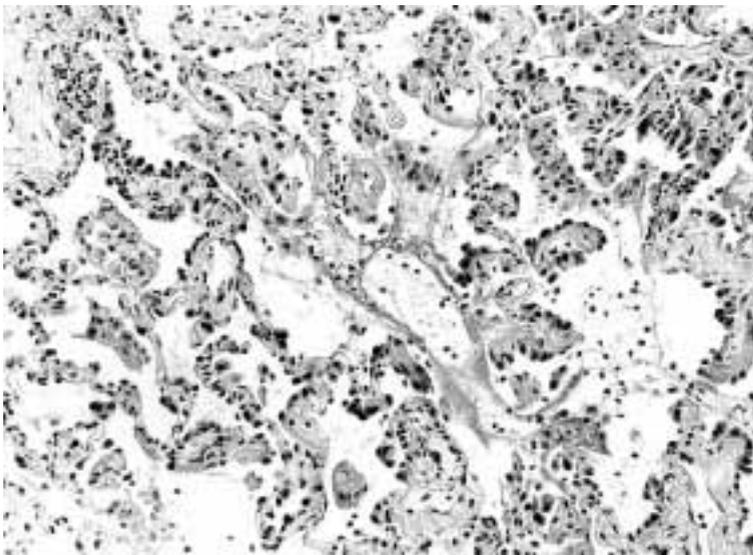
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**Fig. 1.** Chest CT on January 8, 1998. The ground-glass opacification on left S<sup>1+2</sup> shows slight enlargement.



**Fig. 2.** Section from the tumor that was excised from the lung shows cancer cell proliferation and the thickened alveolar septa, which thus indicated well differentiated adenocarcinoma. No fibrosis are seen on this specimen (hematoxylin-eosin, ×400).

satisfy the criteria of indication for surgery. Therefore, a resection of the tumor was done to make an accurate diagnosis and treatment.

The tumor was located at S<sup>1+2</sup> near S<sup>3</sup>, and it measured 14×10×8 mm in diameter with neither mediastinal lymph nodes nor distant metastasis. However the patients pre-operative spirometry revealed her FEV<sub>1.0</sub> was 1,510 ml, a left S<sup>1+2</sup> and S<sup>3</sup> segmentectomy was performed to preserve the patient's pulmonary function. A frozen section resulted in a diagnosis of adenocarcinoma. Neither pleural dissemination, pleural effusion nor pulmonary metastasis were identified. Some hilar and subaortic lymph nodes were dissected. The postoperative course was uneventful.

The pathology of the resected specimen showed can-

cer cell proliferation and the thickened alveolar septa, which thus indicated well differentiated adenocarcinoma (Fig. 2). No lymph node metastasis was observed.

No recurrence of either lung cancer or previous breast cancer has since been identified, during the six months after the operation.

## Discussion

Recent progress in the resolution of CT has now made it possible to detect a small nodule of the lung, which tends to be difficult to detect on chest roentgenograms. However, such small nodules of the lung often lack malignant features such as pleural indentation or vascular convergence. Because it is hard to detect such small nodules on

chest roentgenograms, these growths are also difficult to diagnose by a transbronchial lung biopsy.

The TDT of adenocarcinoma of the lung is usually longer than other histological types of lung cancer. Spratt et al. reported the TDT of the pulmonary adenocarcinoma to be 88 days, while Filderman et al. reported the TDT to be 180 days.<sup>1,2)</sup> Hayabuchi et al. reported the TDT of the lung adenocarcinoma to be more than about 400 days.<sup>3)</sup> Usuda et al. also reported a favorable prognosis in patients whose TDT was longer than 113.3 days.<sup>4)</sup> Noguchi et al. classified small adenocarcinomas measuring 20 mm or less in the greatest dimension into six types according to the pathological features, and also reported a favorable prognosis in localized bronchioloalveolar carcinoma either with or without the foci of alveolar structural collapse.<sup>5)</sup> Adenocarcinoma of the lung which have a longer TDT might have such pathologically characteristic features as localized bronchioloalveolar carcinoma with or without foci of alveolar structural collapse and thus might have better prognosis. The present case had a TDT of more than 1,000 days and no metastasis was apparent for more than 4 years. Such findings therefore indicated that a favorable prognosis can be expected for this patient.

Some previous reports have discussed lymph node metastasis in such adenocarcinomas of the lung measuring less than 30 mm. Takizawa et al. reported that 63 of 432 cases revealed pathological N2 disease.<sup>6)</sup> Koike et al. also reported that 76 of 369 cases (21%) of adenocarcinoma measuring less than 3 cm had lymph node metastasis.<sup>7)</sup> We have so far treated 289 cases of adenocarcinoma of the lung measuring less than 30 mm, which were all surgically resected. Although none of the 6 cases with a tumor size of less than 10 mm had lymph node metastasis, 23 out of 116 cases (19.8%) with a tumor size from 10 to 20 mm had lymph node metastasis or 63 out of 165 cases (38.2%) with a tumor size from 20 to 30 mm had lymph node metastases. Regarding the surgical modalities for small peripheral adenocarcinoma of the lung, Kodama et al. reported no significant difference in the prognosis between cases undergoing a segmentectomy or partial resection and those receiving a lobectomy.<sup>8)</sup> Although no prospective randomized controlled studies have been made to assess standard lobectomy with lymph node dissection versus segmentectomy or partial resection, a lobectomy with lymph node dissection is consid-

ered to be feasible in cases with a tumor larger than 10 mm in size. Our case underwent a segmentectomy with some lymph node dissection, with a 14-mm tumor. Therefore, careful observation of such cases is called for.

In conclusion, we herein presented a case with slowly progressive adenocarcinoma of the lung with a longer than usual TDT, in which the clinicopathological characteristics of the tumor indicate a favorable prognosis. To clarify the relationship between slowly progressive adenocarcinoma of the lung and its malignant grade, an analysis of the precise clinical features is thus called for in such cases.

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