

## A Case of Invasive Thymoma with Endobronchial Growth

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**We report a rare case of invasive thymoma with endobronchial growth in a 69-year-old woman. Chest CT revealed an ill-defined mass with a calcified lesion in the anterior mediastinum and coin lesion in the bilateral lung fields. An endobronchial polypoid tumor in the right B3 bronchus was found by bronchoscopic examination. A biopsy specimen obtained from the polypoid tumor suggested thymoma. After radiotherapy combined with chemotherapy, thymothymectomy combined with right upper lobectomy through median sternotomy was performed. The surgical specimen revealed that the tumor extended nodularly, not only into the pulmonary parenchyma but also into the bronchial lumen. We performed an added chemotherapy for lung metastasis, and partial resection of lung with video-assisted thoracoscopic surgery (VATS) was done. Now she is alive and disease-free. (Ann Thorac Cardiovasc Surg 2005; 11: 114–6)**

**Key words:** invasive thymoma, endobronchial growth, anterior mediastinal tumor

### Introduction

Thymomas are one of the most common neoplasms of the mediastinum. Invasive thymomas directly extend in all directions from the original site and may penetrate the pleura, pericardium, or other mediastinal structures. We report herein our experience of a rare case of invasive thymoma with an endobronchial polypoid tumor in the right B3 bronchus.

### Case Report

The patient was a 69-year-old woman. An abnormal shadow was noted on chest x-ray (Fig. 1). Chest CT revealed an ill-defined mass with a calcified lesion in the anterior mediastinum and coin lesion in the bilateral lung fields (Fig. 2). The mass extended into the right upper

lobe. An endobronchial polypoid tumor in the right B3 bronchus was found by bronchoscopic examination (Fig. 3). A biopsy was attempted twice, because the diagnosis was not clear from the specimen. According to the clinical feature, the polypoid tumor was regarded as thymoma. As multiple lung metastasis and apprehension of pneumonia by the lung invasion, first total 40 Gy radiotherapy combined with chemotherapy consisting of carboplatin AUC=6 and paclitaxel 35 mg/m<sup>2</sup> (×1 course) was administered. Thymothymectomy combined with right upper lobectomy through median sternotomy was also performed. The surgical specimen revealed that the tumor extended nodularly, not only into the pulmonary parenchyma but also into the bronchial lumen (Fig. 4). Microscopically, the polypoid tumor showed histological findings of thymoma. Chemotherapy consisting of cisplatin 50 mg/m<sup>2</sup>, adriamycin 40 mg/m<sup>2</sup>, vincristine 0.6 mg/m<sup>2</sup>, cyclophosphamide 700 mg/m<sup>2</sup> (×1 course) was administered for bilateral lung metastasis. After this, partial resection of bilateral lungs with video assisted thoracoscopic surgery (VATS) was done. Now she is alive and disease-free.

### Discussion

To our knowledge, only eighteen cases of thymoma with

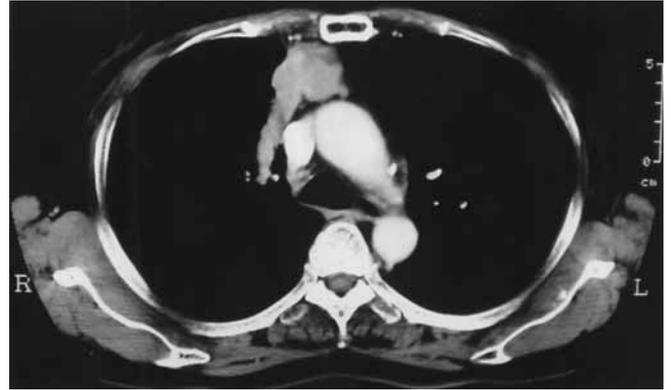
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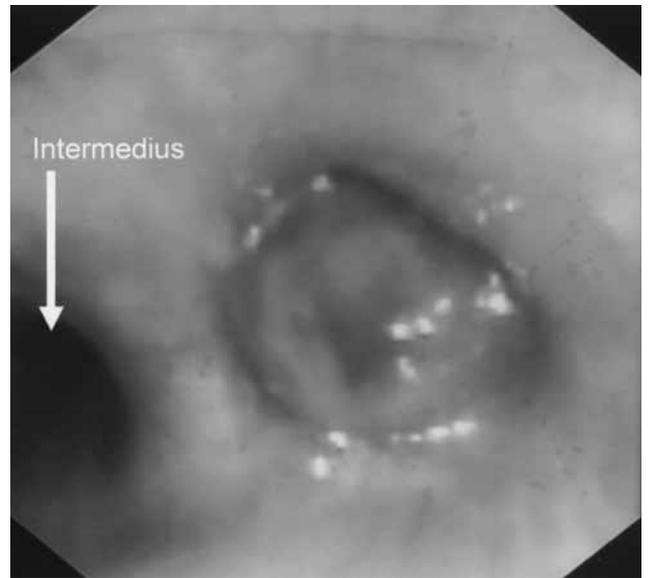
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**Fig. 1.** Chest x-ray film showed multiple lung tumors and mediastinal mass.



**Fig. 2.** The chest CT revealed an ill-defined mass in the anterior mediastinum invading the right lung.



**Fig. 3.** Bronchoscopic examination showed a polypoid tumor in the right upper bronchus.

endobronchial polypoid growth have previously been reported.<sup>1-10)</sup> All cases were associated with respiratory symptoms, but our patient had no symptoms. Abnormal shadows were noted on the chest x-ray by a local doctor. Most cases in previous reports exhibited invasion of the left upper bronchus, especially the left B3 bronchus, and expanding the bronchial lumen.

Honda et al.<sup>2)</sup> speculated the following mode of tumor invasion in a bronchus. First, a thymoma penetrates the parietal and visceral pleura, and invades the lung parenchyma. Next, the tumor invades a weak distal bronchus wall, and grows in the bronchus as a polypoid lesion. In our case, the proximal bronchus wall was not destroyed, as the tumor filled the bronchus lumen and grew to a proximal site as a polypoid lesion.

It is rare that the biopsy specimen taken from the polypoid lesion by bronchoscopy is diagnosed as thymoma preoperatively. Most cases show normal bronchial mucosa or necrotic tissues. Our biopsy specimen obtained by bronchoscopy also showed necrotic tissue. We attempt biopsy twice, a part of the specimen exhibited thymus-like epithelial cells. Thus, we made a diagnosis of thymoma by both histology and clinical features. An immunohistochemical study (CD1a: immunostaining immature lymphocytes) of the biopsy specimen would also be helpful in making a diagnosis preoperatively.

Various chemotherapy regimens based on platinum for thymoma have been reported. Fornasiero et al.<sup>10)</sup> and Berruti et al.<sup>11)</sup> reported that ADOC regimen (cisplatin 50 mg/m<sup>2</sup>, doxorubicin 40 mg/m<sup>2</sup>, vincristine 0.6 mg/m<sup>2</sup> and cyclophosphamide 700 mg/m<sup>2</sup>) yielded a response rate of 91%. Second-line therapy in patients receiving ADOC has been reported to be ineffective. Recently, the efficacy of paclitaxel as a single agent against thymoma has been reported by Umemura et al.<sup>12)</sup> We treated the patient with carboplatin and paclitaxel combined radiotherapy. However, the tumor did not decrease. Thus, thymothymectomy combined with right upper lobectomy through median sternotomy was performed. After the operation, ADOC



**Fig. 4.** The surgical specimen revealed that the tumor extended nodularly, not only into the pulmonary parenchyma but also into the bronchial lumen.

regimen was given for lung metastasis. The tumor occupying bilateral lung fields resisted this therapy. After this, partial resection of bilateral lungs with VATS was done. Now she is alive and disease-free.

## References

1. Abiko M, Sato T, Shiono S, Takahashi N, Kanauchi N, Tsukamoto T, Nagasawa M, Endo Y. A case of invasive thymoma displaying endobronchial extension. *Kikansigaku (J Jpn Soci Bronch)* 1999; **21**: 289–93.
2. Honda T, Hayasaka M, Hachiya T, Hirose Y, Kubo K, Katsuyama T. Invasive thymoma with hypogammaglobulinemia spreading within the bronchial lumen. *Respiration* 1995; **62**: 294–6.
3. Ichimanda T, Okada S, Kai T. A case of invasive thymoma displaying endobronchial and endocaval polypoid growth. *Nippon Kyobu Geka Gakkai Zasshi* 1991; **39**: 938–42. (in Japanese)
4. Spahr J, Frable WJ. Pulmonary cytopathology of an invasive thymoma. *Acta Cytol* 1981; **25**: 163–6.
5. Asamura H, Morinaga S, Shimosato Y, Ono R, Naruke T. Thymoma displaying endobronchial polypoid growth. *Chest* 1988; **94**: 647–9.
6. Honma K, Mishina M, Watanabe Y. Polypoid endobronchial extension from invasive thymoma. *Virchows Arch A Pathol Anat Histopathol* 1988; **413**: 469–74.
7. Yokoi K, Miyazawa N, Mori K, Saito Y, Tominaga K, Suzuki K. A case of invasive thymoma displaying endobronchial polypoid growth. *Nippon Kyobu Shikkan Gakkai Zasshi* 1990; **28**: 529–34. (in Japanese)
8. Kondo K, Uyama T, Sumitomo M, Takahashi K, Kimura S, Monden Y. Invasive thymoma with endobronchial polypoid growth. *Surg Today* 1997; **27**: 466–8.
9. Derow HA, Schlesinger MJ, Persky L. Myasthenia gravis: a clinical pathological study of a case associated with a primary mediastinal thymoma and a solitary secondary intrapulmonary thymoma. *N Engl J Med* 1950; **243**: 478–82.
10. Fornasiero A, Daniele O, Ghiotto C, et al. Chemotherapy of invasive thymoma. *J Clin Oncol* 1990; **8**: 1419–23.
11. Berruti A, Borasio P, Roncari A, Gorzegno G, Mossetti C, Dogliotti L. Neoadjuvant chemotherapy with adriamycin, cisplatin, vincristine and cyclophosphamide (ADOC) in invasive thymomas: results in six patients. *Ann Oncol* 1993; **4**: 429–31.
12. Umemura S, Segawa Y, Fujiwara K, et al. A case of recurrent metastatic thymoma showing a marked response to paclitaxel monotherapy. *Jpn J Clin Oncol* 2002; **32**: 262–5.