

## Case Report

# Less Invasive Surgery under VATS for Synchronous Bilateral Lung Cancers

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A patient with synchronous bilateral lung cancer is described. She was successfully treated with less invasive surgery by right S10 wedge resection using Video-assisted thoracic surgery (VATS) and left S6 segmentectomy. We judged she had synchronous primary lung cancers in the bilateral lung by histological study. She has remained well for 31 months. VATS is an effective approach for multicentric primary lung cancers and minimize the surgical stress of the simultaneous resection of bilateral tumor.

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**Key Word:** synchronous lung cancer, Video-assisted thoracic surgery (VATS), less invasive surgery

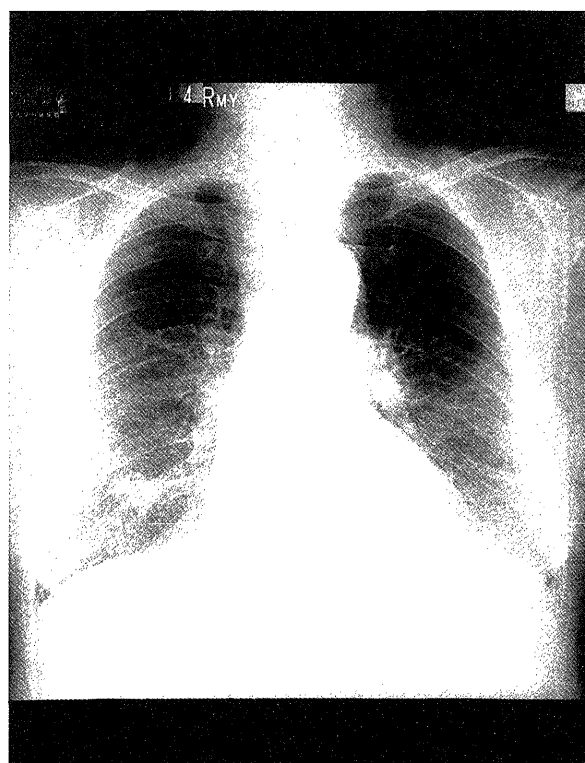
## Introduction

Video-assisted thoracic surgery (VATS) is currently widely used as a less invasive surgical technique, though two-stage lung resection has customarily been performed for synchronous bilateral lung cancers. Here we report a case of synchronous bilateral lung cancers successfully treated with VATS and segmentectomy at the same time.

## Case

A 74-year-old woman visited a hospital complaining of mild chest pain. An abnormal shadow in the right lung field was detected on a routine chest roentgenogram (Fig.1) and she came to our institution for further examination. Evaluation using computed tomography (CT)

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**Figure 1.** Chest X-ray of the patient  
The chest X-ray revealed a nodular shadow in the right lower lung field. And it was suspected of abnormal finding of left hilum.

led us to suspect the presence of another nodular shadow in the left S6 with a spicula and vessel involvement besides the shadow in the right S10. We tried to make a diagnosis of the nodules using transbronchial lung biopsy and brushing; however, malignant cells could not be detected. She had mild obstructive lung disease, her FEV1.0; 1450ml, FEV1.0%; 66.2%. We concluded that she needed lung biopsy by means of VATS and radical therapy of these nodules according to the pathological diagnosis

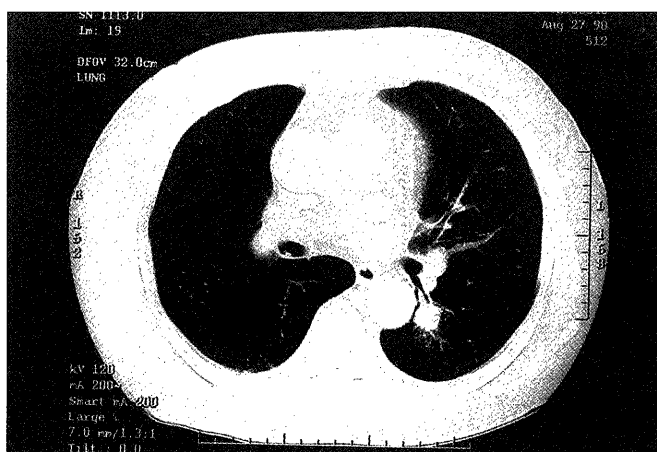
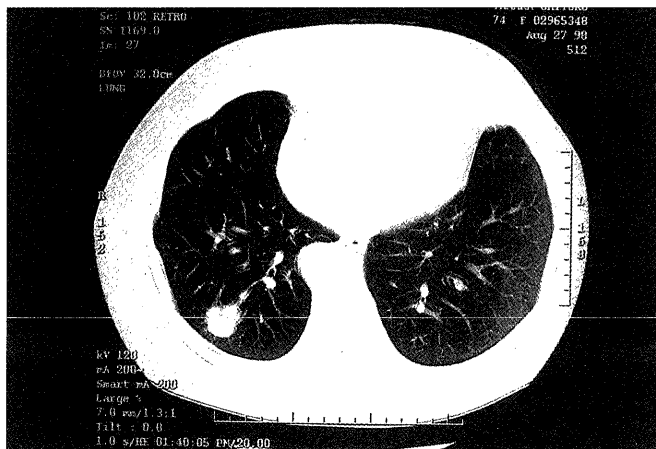
of frozen sections. It means that we should perform lobectomy and segmentectomy with lymph node dissection if these tumors are double primary tumors, and we select a segmentectomy for the tumor in the left side and partial resection for the tumor in the right side if one tumor could be diagnosed as the metastasis of the other one.

Her operation was performed on September 3, 1998. We initially performed wide wedge resection of the right S10 by means of VATS with three surgical ports (Fig 2). Pathological diagnosis of a frozen section revealed poorly differentiated carcinoma and the margin free of the tumor. We subsequently performed segmentectomy of left S6 for the tumor in the left side as a radical operation because it would allow us to confirm the absence of metastasis in hilar lymph nodes by frozen section. The pathological diagnosis was the same type of carcinoma as that on the right side. We finished the operation because we thought

that this tumor was a metastasis of the other one.

But according to further investigation of permanent sections of bilateral disease, these tumors had different histological types. The tumor of the right lower lobe microscopically consisted of the nests of round to oval cells with scant cytoplasm. The tumor cells had the tendency to be crushed at the periphery of the nests. The lesion was diagnosed as small cell carcinoma, intermediate type. The other tumor of the left lower lobe was composed of the nest or sheet like proliferation of large polygonal cells with atypical large nuclei and nucleoli, evidently different from the tumor in the right side. The lesion was diagnosed as poorly differentiated squamous cell carcinoma. We concluded that she had synchronous primary lung cancer in the bilateral lung.

Her postoperative course was uneventful. She received 4 courses of adjuvant chemotherapy using cisplatin and etoposide. She has been survived without recurrence for 31 months after surgery.

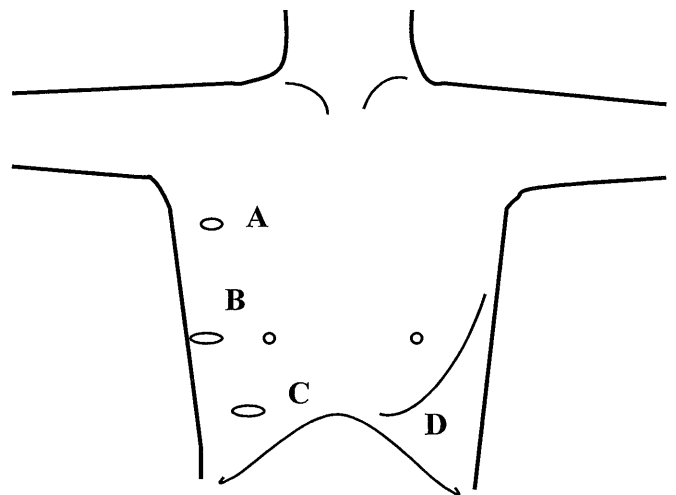


**Figure 2.** The finding of chest computed tomography

Evaluation using computed tomography (CT) led us to suspect the presence of another nodule in the left S6 besides the shadow in the right S10.

## Discussion

Struve (1) prophesied almost 30-years ago the incidence of demonstrable bilateral, primary, synchronous or asynchronous cancer of the lung. In fact, patients with multiple diseases or second primary lesions are often encountered (2). An aggressive a surgical approach as possible still offers the greatest chance for long-term survival for patients with metachronous lung cancer (3,4). But the surgical approach for syn-



**Figure 3.** Schema of the incision line for the operation

We performed wide wedge resection of right S10 by VATS. Surgical ports were inserted at 4th intercostal space (A) and 6th intercostal spaces (B, C). Left lateral thoracotomy (D) was performed and we underwent S6 segmentectomy.

chronous primary lung cancer is controversial because the synchronous resection of multiple tumors seems to be more invasive than the two-stage surgery that is customarily performed for such cases (5).

VATS has been reported as a less invasive surgery since 1992 (6). After these reports, VATS has been widely used not only for pneumothorax but also for the resection of neoplasms including primary lung cancer (7). The postoperative stress induced by VATS is less than that caused by conventional thoracotomy (8). We thought that we could minimize the surgical stress accompanying simultaneous resection of bilateral lung cancer by introducing VATS for our patient. Because we judged that the first tumor was a metastasis of the other, we selected to perform VATS and segmentectomy as a limited operation.

We selected the limited operation for the bilateral tumors because the tumor was judged a metastasis from the other one, however these were proved as double primary tumors post-operatively. We did not performed re-operation such as lobectomy with lymph node dissection but we offered her adjuvant chemotherapy because the histological type of the tumor in the right lung was small cell lung cancer. We could maintain her quality of life by mean of the limited operation and she had not suffered any recurrence of the tumors.

Up to now, multiple primary lung cancer in the bilateral lung has been approached in two stages; resection starting with the most advanced lesion and then moving onto the others. (5,9). A very few reports (10) have described the performance of resection of bilateral disease at once by median sternotomy. Matsuge et al. (6) provided the only report of a case of synchronous bilateral lung cancer resected using VATS. But their operations were performed in two stages.

We think ours is the first report of a case of synchronous bilateral lung cancers successfully treated with VATS and segmentectomy simultaneously without post-surgical complications. We used VATS only for unilateral disease in this case; however we can expect that we use VATS to resect bilateral disease simultaneously in the near future.

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