

## Pulmonary Metastasis from Renal Cell Carcinoma 17 Years after Nephrectomy: Report of Two Cases

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**We herein report two cases of pulmonary metastasis from renal cell carcinoma with 17-year disease-free intervals. Despite long disease-free intervals, their clinical course after pulmonary resection was different. An 82-year-old man (case 1) and a 73-year-old man (case 2), with histories of having undergone left nephrectomy for clear-cell-type renal cell carcinoma 17 years ago, were found to have right pulmonary nodules, which were detected incidentally by chest roentgenograms. A chest computed tomography revealed the presence of nodules in the right lung. They underwent surgical pulmonary resection 17 years after nephrectomy. These tumors were diagnosed as metastatic renal cell carcinoma. Currently, the case 1 patient is doing well with no signs of recurrence 42 months after pulmonary metastasectomy; however, the case 2 patient was found to have multiple tumor recurrences 11 months after metastasectomy. Their clinical courses indicate that a longer disease-free interval does not always imply a favorable prognosis. (Ann Thorac Cardiovasc Surg 2009; 15: 189–191)**

**Key words:** renal cell carcinoma, pulmonary metastasis, disease-free interval

### Introduction

Surgery remains the only effective treatment for patients with isolated pulmonary metastasis from renal cell carcinoma. Although pulmonary metastases of renal cell carcinoma with a longer disease-free interval after nephrectomy have occasionally been reported,<sup>1–5)</sup> patients with disease-free intervals longer than 15 years are rare.

We report two cases of pulmonary metastasis of renal cell carcinoma, each with a 17-year disease-free interval. In the present report, we would like to emphasize that their clinical courses after pulmonary resection were quite different.

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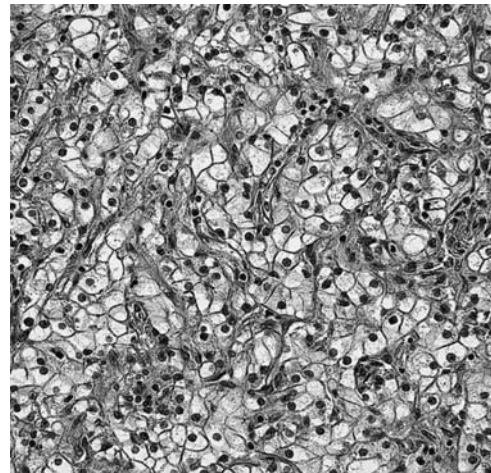
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### Case Report

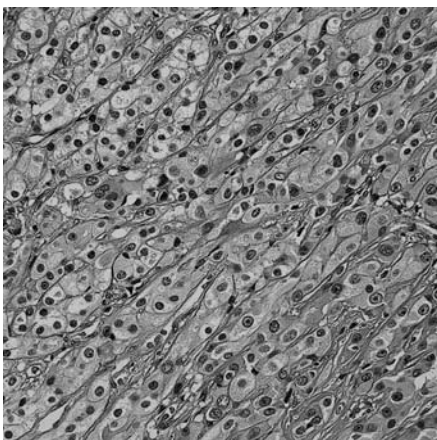
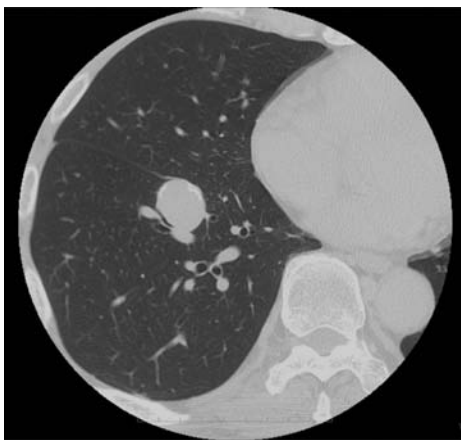
#### Case 1

An 82-year-old Japanese man having a history of left nephrectomy for renal cell carcinoma at our hospital on March 1987 was admitted for evaluation of an abnormal shadow on his chest roentgenogram. The prior disease was histopathologically diagnosed as renal cell carcinoma, clear-cell type. In June 2004, he was diagnosed as having prostatic cancer and was started on hormonal therapy. In August 2004, during this therapy, an abnormal shadow was detected in his right lung, and the patient was referred to our hospital. Computed tomography revealed a 2.5 cm nodule in the lung (Fig. 1A), and a video-assisted thoracoscopic wedge resection of the right lung was performed on August 26, 2004, 17 years after nephrectomy. Pathological examination revealed that the tumor was a metastatic clear-cell type of renal cell carcinoma (Fig. 1B). The postoperative course was uneventful, and the patient is doing well, showing no clinical sign of recurrence 42 months after metastasectomy.



A | B

**Fig. 1.** Computed tomography findings (A) and microscopic findings (B) of the tumor of case 1.



A | B

**Fig. 2.** Computed tomography findings (A) and microscopic findings (B) of the tumor of case 2.

### Case 2

A 73-year-old man had received a left nephrectomy for renal cell carcinoma of the clear-cell type on August 9, 1989. He was referred to our hospital for an abnormal shadow on the chest roentgenogram in June 2006. Computed tomography revealed a 2.5 cm nodule in the right lung (Fig. 2A). He underwent a segmentectomy of the right lung on September 21, 2006, 17 years after nephrectomy. The resected specimen was microscopically diagnosed as a renal cell carcinoma of the clear-cell type metastatic to the lung (Fig. 2B). The postoperative course was also uneventful. Eleven months after pulmonary resection, however, mediastinal lymph nodes and multiple bone metastases were detected. He is now receiving medical treatment with interferon.

### Discussion

Renal cell carcinomas frequently metastasize to the lung.

Several studies concerning surgery for pulmonary metastases from renal carcinoma have been published, and the 5-year survival rates reported ranged from 21% to 60%.<sup>6-8)</sup>

In our cases, we selected the wedge resection for case 1 and the segmentectomy for case 2. The previously reported type of surgical procedures varied, including wedge resection, segmentectomy, lobectomy, and pneumonectomy.<sup>1-4)</sup> To our knowledge, there were no studies regarding the relationship between the method for complete resection and survival. If the surgical resection was considered complete, all methods chosen might be acceptable.

Pulmonary metastases of renal cell carcinoma with a long interval after nephrectomy have occasionally been reported.<sup>1-5)</sup> Some patients with long disease-free intervals died of renal cell carcinoma a few years after pulmonary resection.<sup>3,4)</sup> In fact, our case 2 patient was found to have multiple systemic recurrences 11 months after pulmonary resection. These results indicate that a

longer disease-free interval does not always imply slow tumor growth or absence of other metastases. McNichols et al. reported that late metastases of renal cell carcinoma are often combined with rapid disease progression.<sup>15)</sup> Therefore careful follow-up should be required.

It has been generally accepted that a complete surgical resection, the number of metastases, and a disease-free interval are significant prognostic factors for survival after metastasectomy. Most previous studies clearly showed that the length of the disease-free interval was a predictor of survival after complete resection of metastatic renal cell carcinomas.<sup>7,9-11)</sup> On the other hand, some previous studies failed to confirm the effect of disease-free interval on survival.<sup>8,12-14)</sup> There are some possible reasons for this discrepancy. First, the cutoff values for a disease-free interval varied largely from one to four years among previous studies.<sup>7-14)</sup> This might be one of the possible reasons for the discrepancy. Second, as described above, some previous reports showed that a longer disease-free interval does not always imply a favorable prognosis.<sup>8,12-14)</sup> In other words, some cases have poor prognoses despite having a long disease-free interval. This might be a second reason for the discrepancy.

In conclusion, we report two rare cases of pulmonary metastasis of renal cell carcinoma, each with a 17-year disease-free interval. Despite long disease-free intervals, the clinical course after pulmonary resection differed between these cases, indicating that a longer disease-free interval does not always imply a favorable prognosis.

## References

1. Jett JR, Hollinger CG, Zinsmeister AR, Pairolero PC. Pulmonary resection of metastatic renal cell carcinoma. *Chest* 1983; **84**: 442-5.
2. Froehner M, Manseck A, Lossnitzer A, Wirth MP. Late local and pulmonary recurrence of renal cell carcinoma. *Urol Int* 1998; **60**: 248-50.
3. Donaldson JC, Slease RB, DuFour DR, Saltzman AR. Metastatic renal cell carcinoma 24 years after nephrectomy. *JAMA* 1976; **236**: 950-1.
4. Bradham RR, Wannamaker CC, Pratt-Thomas HR. Renal cell carcinoma metastases 25 years after nephrectomy. *JAMA* 1973; **223**: 921-2.
5. Shiono S, Yoshida J, Nishimura M, Nitadori J, Ishii G, et al. Late pulmonary metastasis of renal cell carcinoma resected 25 years after nephrectomy. *Jpn J Clin Oncol* 2004; **34**: 46-9.
6. Dernevik L, Berggren H, Larsson S, Roberts D. Surgical removal of pulmonary metastases from renal cell carcinoma. *Scan J Urol Nephrol* 1985; **19**: 133-7.
7. Cerfolio RJ, Allen MS, Deschamps C, Daly RC, Wallrichs SL, et al. Pulmonary resection of metastatic renal cell carcinoma. *Ann Thorac Surg* 1994; **57**: 339-44.
8. Progrebniak HW, Haas G, Linehan WM, Rosenberg SA, Pass HI. Renal cell carcinoma: resection of solitary and multiple metastases. *Ann Thorac Surg* 1992; **54**: 33-8.
9. Long-term results of lung metastasectomy: prognostic analyses based on 5206 cases. The International Registry of Lung Metastases. *J Thorac Cardiovasc Surg* 1997; **113**: 37-49.
10. Friedel G, Hürtgen M, Penzenstadler M, Kyriss T, Toomes H. Resection of pulmonary metastases from renal cell carcinoma. *Anticancer Res* 1999; **19**: 1593-6.
11. Pfannschmidt J, Hoffmann H, Muley T, Krysa S, Trainer C, et al. Prognostic factors for survival after pulmonary resection of metastatic renal cell carcinoma. *Ann Thorac Surg* 2002; **74**: 1653-7.
12. Piltz S, Meimarakis G, Wichmann MW, Hatz R, Schildberg FW, et al. Long-term results after pulmonary resection of renal cell carcinoma metastases. *Ann Thorac Surg* 2002; **73**: 1082-7.
13. Fourquier P, Regnard JF, Rea S, Levi JF, Levasseur P. Lung metastases of renal cell carcinoma: results of surgical resection. *Eur J Cardiothorac Surg* 1997; **11**: 17-21.
14. Robert JH, Ambrogi V, Mermillod B, Dahabreh D, Goldstraw P. Factors influencing long-term survival after lung metastasectomy. *Ann Thorac Surg* 1997; **63**: 777-84.
15. McNichols DW, Segura JW, DeWeerd JH. Renal cell carcinoma: long-term survival and late recurrence. *J Urol* 1981; **126**: 17-23.