Clinical Note

Late pulmonary metastasis of renal cell carcinoma after nephrectomy

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Renal cell carcinoma (RCC) represents approximately 3% of all cancers in adults, and 30% of these cases are coursing with pulmonary metastasis. Metastasis sites are the lung, bones, liver, and central nervous system. Patients who had local disease at the beginning mostly relapse with pulmonary metastasis at follow-up period after nephrectomy. In the literature, long-term disease free survival reports reach 28 years, especially in patients who relapse with pulmonary metastasis. Therefore, we report a 62 year-old female whom disease was relapsed with late pulmonary metastasis occuring 13 years after nephrectomy with review of other literature.

The thyroidectomy operation was planned for a 62-year-old female patient due to diagnosis of toxic multinodular goiter in May 2004. She had RCC and underwent right nephrectomy in 1991 at another center. A linear atelectasia was seen at the lower part of the right lung in the preoperative chest radiography. Nodular lesions, which were bilateral, the biggest one at a diameter of 3.5 x 4 cm with close relation to vascular construction, were seen on the thorax using computed tomography (CT). A CT angiography was carried out to differentiate them from aneurysm or arterio-venous malformation (**Figure 1**). However, the lesions could not be differentiated from metastasis or aneurysm, and she underwent diagnostic bronchoscopy. A bright red vegetative lesion was seen at the lateral, posterior, and anterior segment orifice of the right lower lobe in bronchoscopy, and biopsy was taken from this lesion. Biopsy specimen was reported as clear cell carcinoma. There was no finding of local relapsing RCC and second primary malignancy. She was diagnosed as late pulmonary metastasis of RCCs. She underwent surgery for the lesions in the right lung, and had right lower lobectomy in February 2005. A biopsy was taken from the other nodular lesions during the operation. The lobectomy materials and the biopsy from the nodular lesions were reported as clear cell carcinoma, which is a type of RCC metastasis. Most metastatic sites of RCC are of the lung and bones. The 5-year survival rate of patients with metastatic RCC is approximately 8-20% in different reports. Most studies show increased survival in patients in whom metastatic disease has been diagnosed and in whom the following conditions are obtained: 1. A long disease free interval between initial nephrectomy and the appearance of metastasis. 2. Presence of only pulmonary metastasis. 3. Good performance status, and 4. Removal of the primary tumor.[1] Relapse of the disease after nephrectomy usually occurs in 2-5 years, but case reports with relapses over than 25 years are reported in the literature.[2] Bradham et al[2] described a patient with pulmonary metastasis 25 years after nephrectomy and the tumor had spread so, only a part of it was removed for pathological confirmation. The patient died of RCC one year later.[2] Donaldson et al[3] reported a patient with 2 pulmonary metastasis 24 years after nephrectomy. They performed left lower lobectomy and right pulmonary wedge resection. Two years after the lung resection, the patient died of RCC. Cerfolio et al[4] reported that metastasis developing time was between 0-18.4 years in 96 patients who underwent pulmonary resection of metastatic RCC. Late metastasis of RCC are not rare situations, but are not clearly understood. McNichols et al[5] carried out a study which included 158 patients. These patients were treated with surgery, and they reported late metastasis in 18 patients (11%) 10 years and more after nephrectomy. The cause of late recurrence of RCC after nephrectomy is not known. Several theories have been suggested. One of these is an immunological mechanism. As the immunological response to tumor cells is a major factor in the control of their growth, tumor cells may begin to grow under conditions of decreased host immunity. This condition can explain late recurrence. Another theory may be related to long latency. A long latent period may be attributed to the slow growing characteristic of RCC that was correlated with the low proliferation index. Renal cell carcinoma relapses rarely years after primary tumor treatment. When researching primary tumor patients, with a history of RCC and new metastatic lesions, it must be noted that it could be late metastasis of RCC.

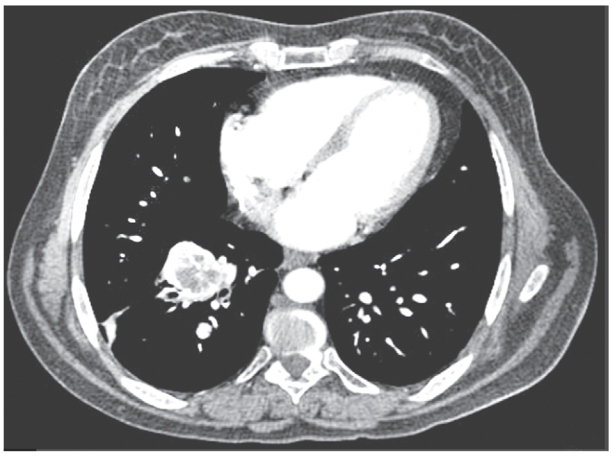

Figure 1 - Pulmonary metastasis in computerized tomographic angiography.

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