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METASTATIC RENAL TUMOR FROM THE LUNG WITH REGIONAL LYMPH NODE INVOLVEMENT: A CASE REPORT

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We report a case of metastatic renal tumor from lung cancer. A 53-year-old man presented with gross hematuria 2 years after treatment of the primary lesion. Investigations suggested a metastatic tumor in the right kidney from the lung which was accompanied with regional lymph node metastasis. Surgical treatment was not performed because of his poor condition and the lymph node involvement. Therefore, the combination chemotherapy of 5-fluorouracil, vincristine and doxorubicin, OK-432 was applied. Although this conservative management was effective, he died of progression 6 months later and an autopsy confirmed the diagnosis of metastatic renal tumor.

Key words: Metastatic renal tumor, Lung cancer, Lymph node involvement

INTRODUCTION

Metastatic renal tumor is rarely found in the live patient. There have been about forty documented cases in the Japanese literature since 1968\(^\text{1}\). We describe a patient with this occurrence.

CASE REPORT

A 53-year-old man was admitted to Ogaki Municipal Hospital with gross hematuria 2 years after a right upper lobectomy for an adenocarcinoma of the lung. He denied other urologic symptoms or chest symptoms. Cystoscopic examination showed bloody efflux from the right ureteral orifice with normal bladder mucosa. A renal sonography revealed a highly echogenic mass with ill-demarcation in the lower half of the right kidney, which was confined in the regular capsular echo (Fig. 1). An excretory urography (IVP) showed incomplete opacification of the right renal pelviocaliceal system. A subsequent retrograde ureterogram (RP) demonstrated a filling defect which showed a cobblestone-like appearance (Fig. 2). A CT scan demonstrated a low density, not contrast-enhanced area without clear rim in the lower half of the right kidney and hilar lymph node involvement (Fig. 3). A selective angiogram of the right renal artery (Fig. 4) and a digital subtraction angiogram (DSA) confirmed a hypovascular tumefaction with an encasement of the surrounding intrarenal arteries. A chest radiograph showed multiple nodular shadows in both lung fields. The hematology profile showed macrocytic anemia, but other serum chemical studies and serological studies were normal. Repeated urinary cytologic examinations were negative.

Diagnosis was recurrent lung cancer and metastatic renal tumor from the lung accompanied the regional lymph node metastasis. The latter was supported by the radiographic and sonographic findings and his past history. The negative urinary cytology argued against a primary uroepithelial carcinoma. Nephrectomy was not performed because of his poor performance status and the hilar lymph node
Fig. 1. Renal sonography: An ill-defined echogenic mass was found in the right kidney.

Fig. 2. Retrograde ureterogram showed multiple nodural appearance in the right pelvis (arrow).

Fig. 3. Contrast-enhanced CT showed a low density mass in the right kidney and hilar lymph node involvement (arrow).

Fig. 4. Selective renal angiogram showed a hypovascular tumefaction with an encasement of the surrounding arteries.

involvement.

He was rehospitalized to Gifu University Hospital 3 months later with right flank pain and general malaise. Physical examination disclosed a severe anemic state and decreased respiratory sound in the left lung field. Bloody pleural fluid was obtained and its cytologic examination revealed class V adenocarcinoma. Systemic chemotherapy of 5-fluorouracil, vincristine and doxorubicin and intrathoracic instillation of OK-432 and doxorubicin were begun. However, his condition deteriorated gradually and he died of dyspnea on the 91st hospital day. The autopsy confirmed recurrence of lung cancer with metastases to the right kidney (Fig. 5, 6) and retroperitoneal lymph nodes.

DISCUSSION

Metastatic neoplasms in the kidney are rarely identified in the live patient and are commonly discovered at autopsy. Klinger reviewed 5,000 autopsies and found 118 instances of metastatic renal
Fig. 5. Gross appearance of cut surface of the postmortem specimen revealed metastasis to the middle of the right kidney.

Fig. 6. Microscopic appearance of the right kidney revealed the nest of adenocarcinoma to be similar to the primary lesion.

tumor. In a review of 4,413 autopsies, Wagle et al.\(^3\) found 81 cases of metastatic renal tumor and these tumors were most commonly metastasized from the lung (29%), breast (12%), stomach (11%), and the opposite kidney (9%). Olsson et al.\(^4\) also reported 19.1% of patients dying of lung cancer had renal metastases. In a review of the Japanese literature since 1968, 43 cases with metastatic renal tumors are reported (including our case); 18 are metastasized from the lung, 6 from the esophagus and 5 from the thyroid gland.

These tumors seldom present clinical symptoms such as hematuria or flank pain, and the diagnoses are seldom made before death. Those that are asymptomatic may be visualized on radiogram or sonogram by chance.

Pyelograms are less helpful to detect this tumefaction. They often give false normal results and, in addition, when pyelographic anomalies are detected, they are not specific. Computed tomograms and sonograms can characterize the tumefaction. Metastatic tumors usually demonstrate low density and heterogeneous appearances. However, to distinguish them from primary renal tumors, angiography is necessary. On the angiogram these tumors are usually round and hypovascular or avascular, and sometimes multiple, whereas most renal cell carcinomas are hypervascular and single. However, any hypervascular tumor that metastasizes to the kidney will give rise to hypervascular metastases: thyroid carcinoma is typical, which is indistinguishable from renal cell carcinoma\(^5\). In our review, 19 cases presented hypo/avascular tumefaction, and 4 cases did hypervascularly, the latter includes 2 cases of metastases from the thyroid gland. Also "encasement" of the renal arteries is helpful to distinguish from renal cell carcinoma because the encasement is usually seen in tumors that contain much fibrous stroma such as uroepithelial carcinomas or metastatic tumors, and is rare in renal cell carcinomas that has minimal fibrotic content\(^6\). In our case, the renal angiography performed for the second time revealed progressed encasement, obliterated peripheral branches and more hypovascular tumefaction. These findings are supported by the autopsy which showed the infiltrative tumor with a strong stromal reaction.

In our case, a metastasis to the regional lymph nodes is accompanied, which is thought to be a tertiary lymphatic metastasis from the metastatic renal tumor, as is the case with a secondary lymphatic metastasis from a primary renal tumor. To our knowledge, there are only two documented cases\(^6,7\) of the regional lymph node metastasis of the metastatic renal tumor identified with some diagnostic images in a living patient in Japan.

The prognosis of patients with metastatic
renal tumor is unfavorable and depends on the efficacy of treatment of the primary lesion and the resectability of the metastatic tumor. In our review, most cases are treated by nephrectomy, but the resectability is sometimes not satisfactory. Nephrectomy may only be meaningful for tumor mass reduction or symptomatic tumor. We believe that nephrectomy is a satisfactory treatment only if metastatic lesion is located within a kidney and if mass reduction is thought to bring about a significant prolongation or a well-being of life. In our case, multiple recurrence of the lung and his poor condition failed to make nephrectomy feasible. For unresectable tumor, noninvasive techniques such as embolization of the metastatic tumor are available in order to reduce tumor bulk and some symptoms.

REFERENCES


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