Hiroshima Journal of Medical Sciences
Vol.36, No.2, 179~182, June, 1987
HIJM 36-23

Bilateral Renal Cell Carcinoma and its Treatment

Hiroshi NAKATSU[1], Isao KOBAYASHI[1], Shuji NAGAOKA[1], Yoshio ONISHI[1], Mikio IGAWA[1], Kenji YONEDA[1], Hiroshi ONO[1], Mutsuo HAYASHI[1], Hiroshi NAKANO[1], Kiyomi TANIYAMA[2], Eiichi TAHARA[2] and Hiromi NIHIRA[1]

1) Department of Urology, Hiroshima University School of Medicine, 1-2-3, Kasumi, Minami-ku, Hiroshima 734, Japan

2) Department of Pathology, Hiroshima University School of Medicine, 1-2-3, Kasumi, Minami-ku, Hiroshima 734, Japan

(Received March 11, 1987)

Key words: Bilateral renal cell carcinoma, Treatment

ABSTRACT

A report is presented on two cases of bilateral renal cell carcinoma together with a review of the literature. Bilateral renal cell carcinoma is rare and there is much controversy concerning its treatment. Our current experience supports conservative therapy for bilateral renal cell carcinoma.

In 1910 Chute reported the first case of bilateral renal cell carcinoma[2]. Bilateral renal cell carcinoma has been reported to be present in 1.1% to 3.8% of the patients with renal cell carcinoma[9,10]. Up to the present time, nine cases of bilateral renal cell carcinoma have been reported in Japan. Because of the unpredictable course of the disease and the difficulties involved in curative operation, many therapeutic options ranging from non surgical measures to total nephrectomy with dialysis have been recommended.

CASE REPORT

Case 1: A 66 year-old woman was referred to this Department with complaints of hypertension, proteinuria, and microscopic hematuria. In the physical examination, blood pressure was 178/84 mmHg and urinalysis showed persistent proteinuria and microscopic hematuria. An excretory urogram revealed lesions in both kidneys. Renal angiogram confirmed the presence of a 5.5 × 4.5 cm tumor in the lower pole of the left kidney and a 7.5 × 7.5 cm tumor in the right kidney (Fig. 1). Through lumbar approach, left partial nephrectomy was performed. Microscopically, the resected tissue showed a clear cell adenocarcinoma, grade 2. Because total renal function deteriorated postoperatively with increase in serum creatinine from 1.2 to 1.4 mg/dl and decrease in creatinine clearance from 53.4 to 30.3 ml/min, right partial nephrectomy was not performed to preserve total renal function. She is well five years after the operation without any clinical evidence of distant metastasis. However, renal cell carcinoma in the right kidney has shown a slow growth.

Case 2: A 77 year-old man, who had undergone right radical nephrectomy for renal cell carcinoma 11 years previously, was found to have left renal cell carcinoma by excretory urography and CT scan. The lesion was located in the middle pole of the left kidney and surgical resection did not seem to be technically feasible without moderate deterioration of total renal function. Bone scintigram demonstrated metastatic deposits in the ribs. No surgical treatment was performed for the left renal cell carcinoma. One year after the diagnosis of contralateral renal cell carcinoma, the patient died of the disease. At autopsy, two-thirds of the left kidney was replaced with renal cell carcinoma, and the renal vein and renal pelvis were filled with carcinoma. However, pathological ex-

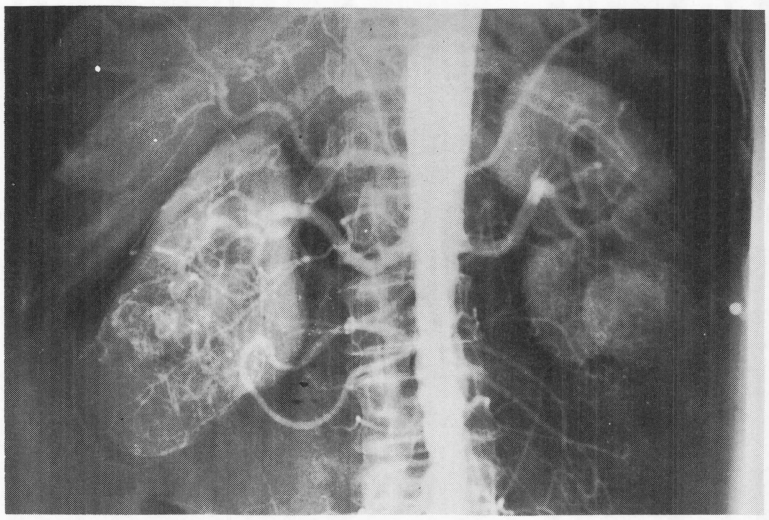

Fig. 1. Renal angiogram demonstrates bilateral hypervascular tumors in the lower poles of both kidneys.

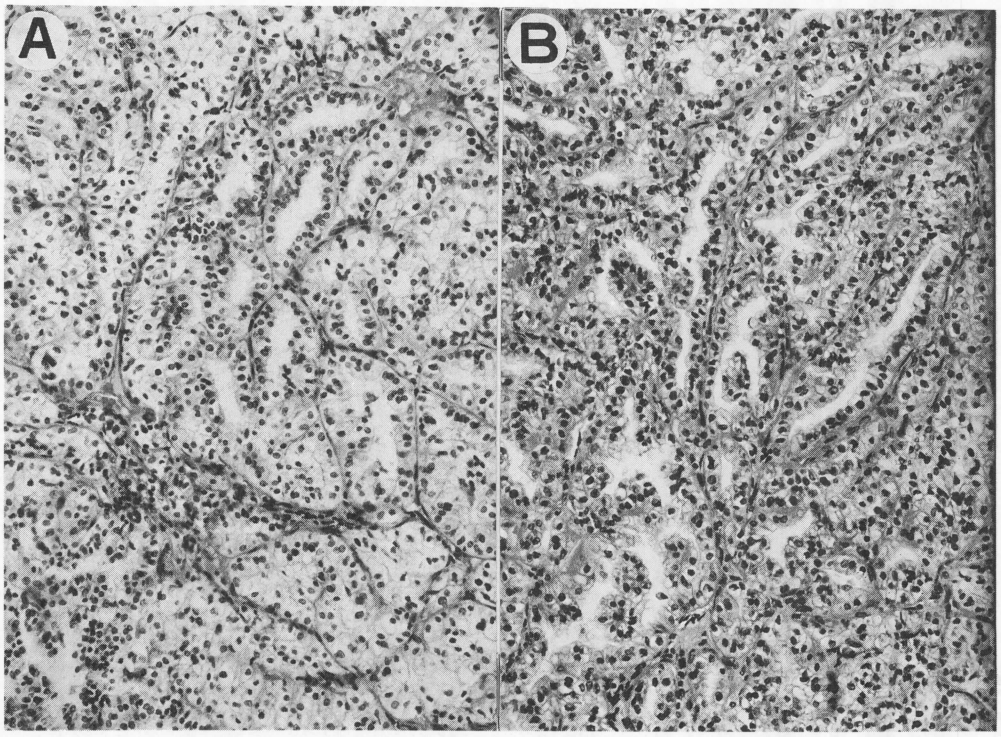

Fig. 2. A, Right renal adenocarcinoma, surgically resected. This tumor is composed of clear cells with tubular pattern. B, Left renal adenocarcinoma, at autopsy. This tumor is also composed of clear cells with tubulo-papillary pattern. H & E, reduced from × 50.

amination revealed no evidence of malignancy except for the lesion in the left kidney. Microscopically, the left renal tumor was a clear cell adenocarcinoma, grade 3. The left kidney specimen showed pathological findings similar to the right kidney specimen which had been removed (Fig. 2).

Table 1. Summary of data on 2 patients treated at our hospital

Case No. Age-Sex	Presentation TNM	Surgical Treatment pTNM	Current Status
1	Simultaneous	Rt.: None	well, serum creatinine: 1.0mg/dl, no recurrence in the left kidney, slow local extension of the right renal cell carcinoma, no metastasis
66-F	Rt.: T3NOMO Lt.: T3NOMO	Lt.: Partial nephrectomy pT3pNOpMXG2VO	
2	Sequential	Rt.: Nephrectomy pT3pNOpMXG3VO	dead, blood clot obstruction and uremia
77-M	Rt.: T3MONO Lt.: T3NXM1	Lt.: None autopsy-pT3pNOpMOG3VI	

DISCUSSION

In our two cases, one patient with synchronous bilateral renal cell carcinoma is still living five years after left partial nephrectomy, and the other patient with asynchronous renal cell carcinoma died of uremia one year after the diagnosis of second renal malignancy (Table 1). The remaining tumor of the kidney showed slow local extension. One patient died of progressive loss of renal function. The other patient has a tumor which has shown steady growth in the right kidney without metastasis of the disease to other organs.

In a postomortem study, metastases were found to be present in almost 95% of the patients with renal adenocarcinoma, and metastasis to the opposite kidney was 11%[1]. This report suggest that many patients with bilateral renal cell carcinoma may have systemic occult micrometastases even without clinical metastasis at diagnosis.

In patients without extensive local disease and multiple metastatic deposits in other organs, bilateral partial nephrectomy for bilateral renal cell carcinoma may be a reasonable treatment. Schiff and his associates reported that partial nephrectomy was a satisfactory treatment for solitary and bilateral renal cell carcinoma[7]. Recently, enucleative surgery for bilateral renal malignancy was advocated by Graham and his associates to conserve maximum renal function[3].

When it is technically not possible to preserve adequate renal parenchyma, total nephrectomy and dialysis is the only alternative treatment for complete removal of all visible tumor tissue. However, the 5 year survival rate of dialysis patients is approximately 65% and the 2 year survival rate of renal transplatation is 50 to 60%. These survival analyses include many young cases. Furthermore, possible recurrence of malignancy must be recognized in patients with renal cell carcinoma. Many authors have reported the survival rates of renal carcinoma treated by total nephrectomy with hemodialysis and by renal transplantation, but the results do not seem to be promising[5,6,8,11].

Johnson and his associates in their experience with four patients not given surgical treatment for bilateral renal cell carcinoma have suggested that total nephrectomy with dialysis is not acceptable as reasonable treatment because of the unpredictable behavior of bilateral renal cell carcinoma[4]. One patient in our series has been living for more than five years after the diagnosis and Johnson and his associates have reported one patient who has been alive for 14 years without surgical intervention. These clinical courses of bilateral renal cell carcinoma are noteworthy. The survival of patients with bilateral renal cell carcinoma undergoing total nephrectomy is not necessarily better than that of patients only under clinical observation. Furthermore, patients in the cancer age are not good candidates for hemodialysis and the quality of life may be miserable. Our patient who died of uremia was also not a good candidate for hemodialysis because of his coronary heart disease.

The evidence now available suggest that partial nephrectomy should be considered for bilateral renal cell carcinoma, and if partial nephrectomy is not technically feasible, surgical treatment should be avoided particularly in those of advanced age. Until further improvement can be made in survival rates by hemodialysis and transplantation, observation with or without cancer chemotherapy may be a reasonable alter-

native in patients with extensive local disease.

REFERENCES

1. **Bennington, J. and Beckwith, J.** 1975. Distribution of metastases from renal adenoearcinoma, p. 168—177. *In* Harlan I. Firminger (ed.), Tumors of the kidney, renal pelvis, and ureter, Armed Forces Institute of Pathology, Washington, D.C.
2. **Edwardson, K.** 1967. Bilateral primary hypernephroma. Brit. J. Urol. **39**: 746—752.
3. **Graham, S. and Glenn, J.** 1979. Enucleative surgery for renal malignancy. J. Urol. **122**: 546—549.
4. **Johnson, D., von Eschenbach, A. and Sternberg, J.** 1978. Bilateral renal cell carcinoma. J. Urol. **119**: 23—24.
5. **Kawaguchi, K., Nagano, K., Hisazumi, H. and Kaneda, Y.** 1982. Bilateral renal carcinoma: report of a case. Acta Urol. Jap. **28**: 291—297.
6. **Maxwell, J., Middleton, R., Wolcott, M. and Freeman, J.** 1975. Prolonged survival from renal cell carcinoma after renal allotransplantation. J. Urol. **114**: 615—616.
7. **Schiff, M., Baglay, D. and Lytton, B.** 1979. Treatment of solitary and bilateral renal carcinoma. J. Urol. **121**: 581—583.
8. **Stroup, R., Shearer, J., Trauring, A. and Lytton, B.** 1974. Bilateral adenocarcinoma of the kidney treated by nephrectomy: a case report and review of the literature. J. Urol. **111**: 272—276.
9. **Vermillion, C., Skinner, D. and Pfister R.** 1972. Bilateral renal cell carcinoma. J. Urol. **108**: 219—222.
10. **Viets, D., Vaughan, E. and Howards, S.** 1977. Experience gained from the management of 9 cases of bilateral renal cell carcinoma. J. Urol. **118**: 937—940.
11. **Washida, H., Ueda, K. and Hirabayashi, N.** 1976. Bilateral renal tumor: report of a case. Acta Urol. Jap. **28**: 19—24.