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Bilateral Renal Cell Carcinoma: Two Case Reports

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Bilateral renal cell carcinoma is a rare entity, occurring in only 1-2% of all renal tumors. Treatment of this problem is difficult and the prognosis is pessimistic. Two cases are described in this report, with discussion of several forms of surgical treatment.

Although bilateral renal cell carcinoma is uncommon, it occasionally has been reported as a rare entity. Only recently have surgical techniques allowed effective curative and palliative treatment of this rare lesion. Its incidence varies between 1-2% of all renal tumors.[1] It is known to occur with Wilms tumors[2] and in Lindau-von-Hippel disease.[3] In the two cases described here, the disease occurred simultaneously in one and asynchronously in the other.

Case Reports

Case 1

A 60-year-old white woman complained of night sweats and flank discomfort for six months. One week before admission, she developed gross painless hematuria. Cystoscopy at the time of the active hematuria revealed that the bleeding was coming from the left ureteral opening. An intravenous pyelogram revealed bilateral renal masses, the larger on the left side. Selective renal arteriograms confirmed the diagnosis of bilateral renal neoplasm (Figure 1). On admission to Henry Ford Hospital, the hemoglobin was 10.5 gms, the BUN 13 mg, and creatinine 1.4 mg. The chest x-ray, liver scan, and metastic bone survey were all negative. A nephrology consultation was completed to consider the patient for hemodialysis should bilateral nephrectomy become necessary. Via a roof-top incision, both kidneys were explored. The right renal vessels were exposed and controlled with vascular clamps. After *in vivo* renal flushing and perfusion with cold Ringers' lactate solution (Figure 2), the lower third of the right kidney was then excised. The resection margins were negative for tumor. The venotomy was closed, and the clamps were released. The remainder of the right kidney resumed function immediately. A radical nephrectomy was performed on the left kidney, as the left renal tumor was very large and involved most of the kidney. The pathology report described a renal cell carcinoma of the mixed cell type in both kidneys. Postoperatively, the patient had an uneventful course except for a rise in the creatinine to 2.3 mg. A month later, an intravenous pyelo-

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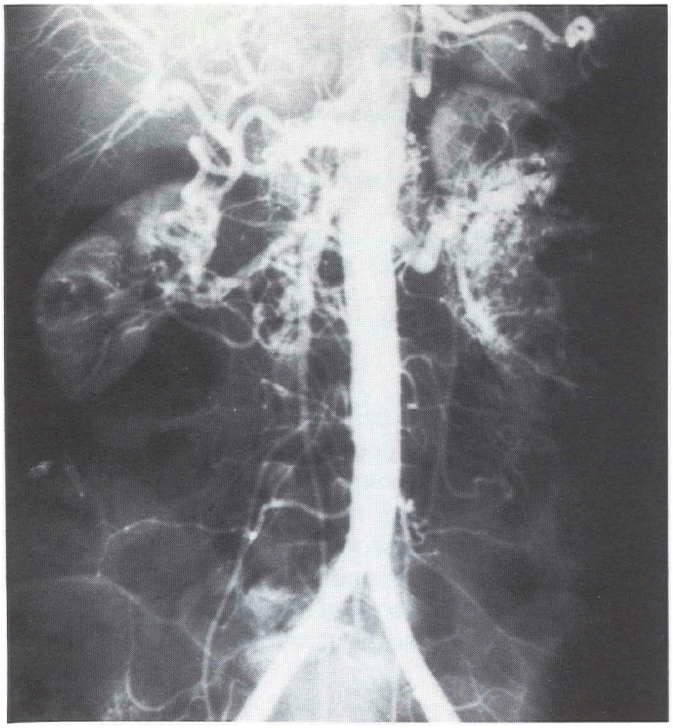

Fig. 1

gram revealed normal function in the remaining portion of the right kidney (Figure 3). Several months later, the patient developed multiple metastasis and died.

Case 2

In 1970, a 56-year-old white man was found to have left renal carcinoma and a radical nephrectomy was performed. At surgery his chest x-ray revealed widening of the mediastinum which was considered to represent mediastinal metastasis. He received 5000R to the mediastinum, and on follow-up chest x-rays revealed good response.

A year later, the patient developed acute, severe right flank pain, which was accompanied by elevation of BUN and creatinine. The intravenous pyelogram suggested ureteral obstruction due to ureteral calculus. When the calculus could not be recovered by surgery, a nephrostomy tube was left in the kidney for drainage. Several attempts to remove the nephrostomy tube were unsuccessful. Two months later, the right flank was explored and ureteroloysis was accomplished, but in spite of that the patient remained dependent on nephrostomy. Seven months later, the patient developed severe flank pain. Intravenous pyelograms and tomography revealed delayed renal function and mass in the lower pole of the right kidney. Exploration of the right kidney revealed a large lower pole totally replaced by a tumor which was inoperable. Biopsy confirmed the diagnosis of renal cell

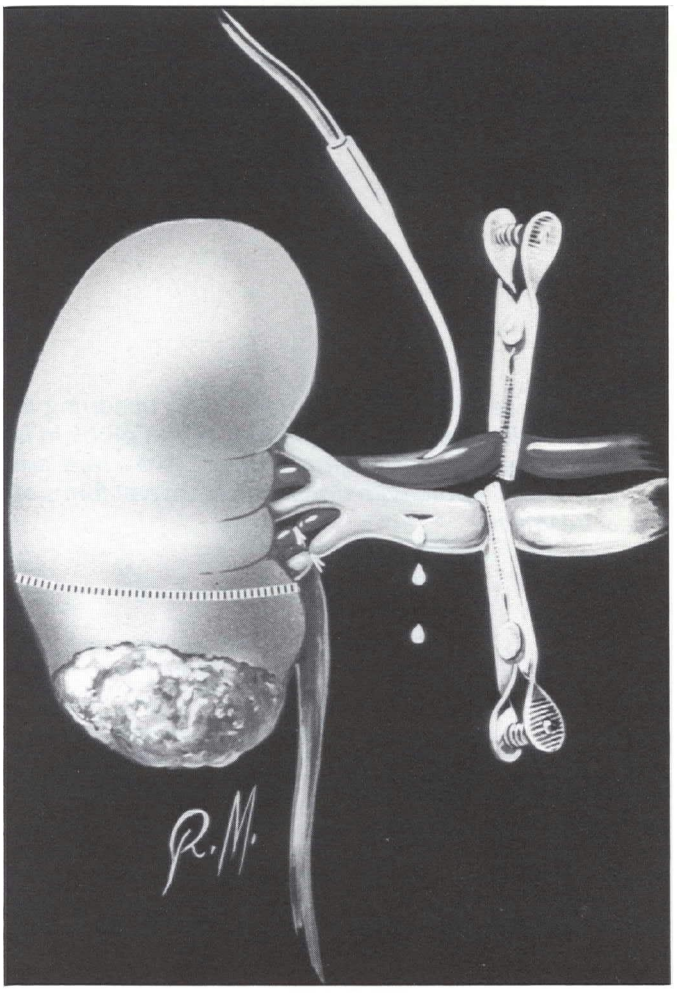

Fig. 2

carcinoma of the same cell type as found earlier in the left kidney.

The patient was treated with irradiation and chemotherapy, but in spite of his condition, he continued to deteriorate and died about five months later.

Discussion

The simultaneous appearance of renal carcinoma in both kidneys is rare and usually carries a poor prognosis.[4] There are fewer than 100 reported cases in the English literature, and no protocol for managing these patients has been developed. The growth of renal cell carcinoma and its metastasis are variable. Therefore, it is difficult to state categorically whether those patients with a similar cell type in a solitary kidney after its mate has been removed for a renal cell carcinoma have a new primary lesion or simply have metastasis from the original tumor. The argument for

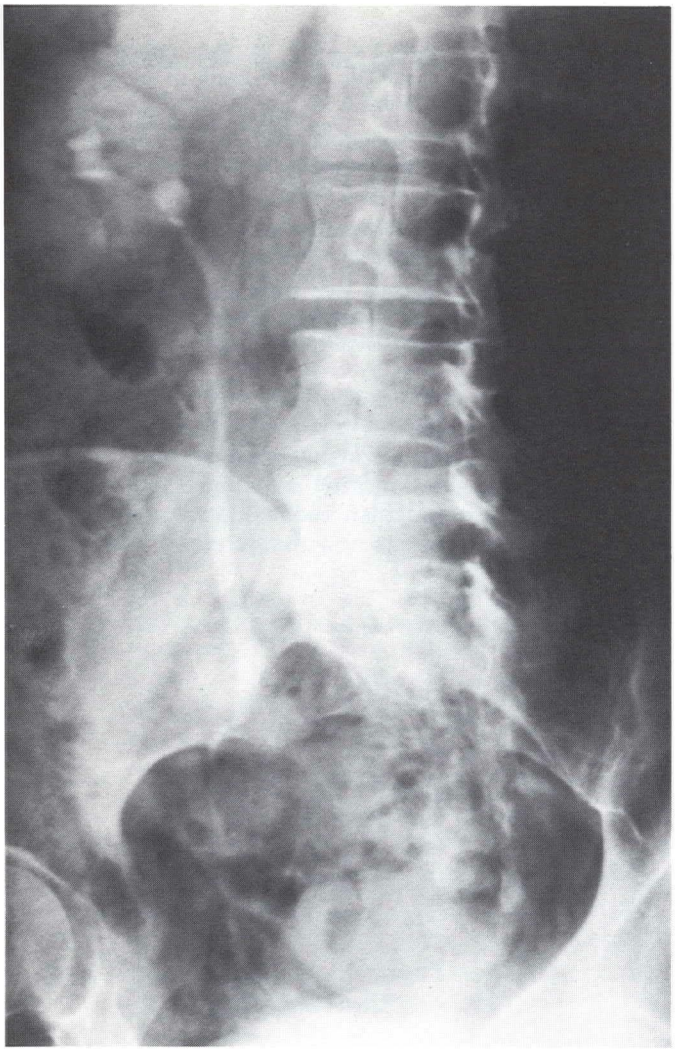

Fig. 3

either side cannot be proved and is probably of little significance in handling the individual case.

The treatment of bilateral renal cancer is difficult and frequently hazardous. At present, however, facilities for renal dialysis, advances in organ transplantation, and sophisticated *in vivo* and bench surgery have fostered an aggressive surgical approach for its treatment. However, when Johnson, et al from M. D. Anderson reported their experience with ten cases, they felt that a more conservative approach should be advocated in certain cases.[5] In another case, Gittes and McCullough[6] used bench surgery with *in vitro* perfusion and partial nephrectomy with subsequent autotransplantation.

Ten patients with renal cell carcinoma in one kidney or both simultaneously have been treated by nephrectomy and homotransplantation at various periods after nephrectomy. This treatment was first described in 1960 by Kuss and associates.[7] However, results of long-term survival have been discouraging, and the possible deleterious effects of chronic immunosuppression in transplant recipients who have had carcinoma of the kidney remain undetermined. There is good evidence that *de novo* malignancies occur with much greater frequency in individuals on chronic immunosuppressive therapy.[8,9]

Summary

In cases of bilateral renal cell carcinoma, surgery that preserves renal function is recommended. Treatment may include any of the following:

1) Radical nephrectomy with partial nephrectomy on the contralateral side.
2) Bilateral partial nephrectomy.
3) Bilateral radical nephrectomy with bench surgery and renal transplant of the remaining portion.
4) Bilateral radical nephrectomy, dialysis, and renal transplant from a cadaver.

Disagreement over the use of renal transplantation in such cases makes it the last choice for treatment. The prognosis of this problem is difficult to predict, but in general it is pessimistic.

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