CASE REPORT

Renal Papillary Carcinoma Developed in a Kidney Transplant Recipient With Late IgA-Nephropathy

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Abstract

With improvements in immunosuppressive therapy, patient and graft survival in renal transplant recipients have been prolonged. Increasing donor age and patient survival rates have been related to an increase in the number of de novo tumors.

Posttransplant malignancy in these patients is an important cause of graft loss and death in these patients. Among cancers occurring after a kidney transplant, renal cell carcinoma is the fifth most common malignancy after lymphoproliferative disorders, and skin, gastrointestinal, and lung cancers. When nonmelanoma skin cancers and in situ carcinoma of the cervix are excluded from malignancies, renal cell carcinoma accounts for 2% of all cancers in the general population, which increases to 5% in solid-organ recipients. The majority of renal cell carcinomas found in transplant recipients develop in the recipient's native kidneys, but only 9% of tumors develop in the allograft itself. Tumors transmitted by donors represent only 0.02% to 0.2% of cases. Most de novo allograft renal cell carcinomas are single tumors. The mechanisms of development of renal cell carcinoma in renal grafts are not completely understood.

Key words: *Liver transplant, Diaphragmatic hernia, Children*

Introduction

A 59-year-old white man developed end-stage renal disease in 1985 owing to IgA nephropathy. He had been on long-term hemodialysis for 2 years and had undergone a living-donor kidney transplant at 22 years of age. Induction immunosuppressive therapy was anti-lymphocyte globulin, and the patient was maintained on prednisone (10 mg every other day) 100 mg cyclosporine (twice daily), and 75 mg azathioprine (once daily). No episodes of rejection were noted. After transplant, the patient's graft function had been excellent, with a serum creatinine level of 61.88 to 88.40 μmol/L. After 25 years of uneventful follow-up, the patient developed generalized edema and was hospitalized. At that time, his serum creatinine was 353.60 μmol/L, and his serum urea nitrogen level was13.57 μmol/L: a marked proteinuria was reported (18 g/24 h). Doppler ultrasounds of the graft were negative for vascular problems and for the presence of renal masses. The allograft appeared abnormally hyperechoic, with poor corticomedullary differentiation.

A renal biopsy was performed. By light microscopy, the biopsy core showed cortical renal tissue that contained 10 glomeruli, 1 of which had advanced sclerosis; the remaining glomeruli showed moderate mesangial expansion and focal duplication of the glomerular basement membrane. There was severe fibrous intimal arterial thickening with duplication of the internal elastica and severe hyaline arteriolosclerosis. Tubules showed moderate atrophy associated with interstitial fibrosis and lymphocytic infiltration without tubulitis. Proximal tubular epithelium contained hyaline droplets. Tubules contained hyaline casts and red cells. Direct immunofluorescence on frozen sections revealed granular deposits of IgA (+++), IgM (++), C3 (+), kappa (+), and lambda (++) light chains in the mesangium. C4d staining performed on frozen sections was negative. These findings suggested a IgA nephropathy associated with chronic glomerulopathy. Six months later, with a persistent

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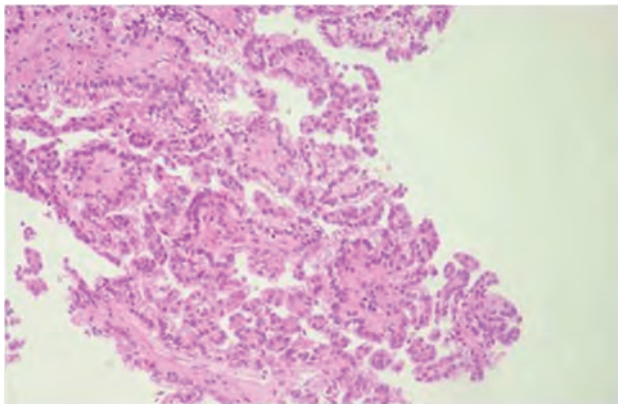
status of poor renal function, a new echographic control was performed. Three hypoechoic lesions in different areas of the transplanted kidney were observed. A computed tomography scan confirmed a hypodense 3-cm lesion in the upper pole and 2 hypodense 1-cm lesions in the inferior pole. A renal biopsy was performed on 1 of these lesions to discriminate the diagnosis. A type 1 papillary renal cell carcinoma was observed. The patient underwent explantation of the allograft. The tumor was confirmed on pathology (Figure 1). The patient's postoperative course was uneventful, and at the time of this writing, he is alive after 3 years, having restarted substitutive therapy with hemodialysis.

Figure 1. Hematoxylin and Eosin Stained Section of the Second Biopsy Shows Papillary Cores With a Single Layer of Tumor Cells



169 × 111 mm (300 × 300 DPI)

Discussion

Renal cell carcinoma is the fifth most common posttransplant malignancy. De novo malignancy of the renal allograft is rare. Most de novo carcinomas occur in the allograft from 2 to 213.5 months (average, 56 mo).[1] Because of this low incidence, most transplant units worldwide do not apply any specific approach toward early detection of renal cell carcinoma (RCCs) of kidney grafts. Carcinomas of the kidney grafts usually are diagnosed when symptoms develop or incidentally, when an ultrasound or a biopsy are done for another reason.[2]

The first-line diagnostic examination is an ultrasound, which will disclose the presence of a renal mass. Considering the insidious growth of RCCs of the kidney graft, which often are diagnosed when they are large, as in our case, we believe that an annual ultrasound of the kidney graft would detect such tumors. Computed tomography or magnetic resonance imaging usually is performed afterword to confirm the diagnosis and give a more accurate picture of the disease and its spreading. The differential diagnosis includes RCC, lymphoma, and infectious processes. The majority of RCCs of kidney grafts have been treated by transplant removal and discontinuation of immunosuppressive therapy.[3,4] Good results can be obtained this way, because radical nephrectomy achieves local control of the disease, while discontinuation of immunosuppression allows the immune system to recover and reject residual tumor cells.[1] However, poor outcomes also have been reported in patients dying of hepatic metastases or febrile paraneoplastic syndrome soon after transplant removal.[4] A review of the current literature identifies 4 cases of multicentric RCC.[5,6] Recurrence of IgA nephropathy after kidney transplant is common, while development of a tumor on the allograft is anecdotal. However, to date, no data exist in the literature regarding the presentation of both pathologies after 25 years of follow-up. Exclusion of recurrence also must be done after a long time after the transplant. In these patients, presence of de novo tumors must be excluded. A multidisciplinary approach is required for kidney transplant patients, in this way avoiding late and potentially lethal diagnoses.[7]

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