Case Report

***Renal Cell Carcinoma in a Renal Allograft
Successful Treatment with 5 Year Follow-up***

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ABSTRACT

Renal cell carcinoma (RCC) developing in a renal allograft either as a result of undetected presence within the donor organ or as a consequence of *de novo* development post transplantation is a rare event. The Cincinnati Transplant Tumor Registry has recorded 45 cases of RCC developing in a renal allograft. A case is presented of localized RCC developing in a renal allograft 10 years post transplant treated by partial nephrectomy with 5 years of disease-free follow-up.

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INTRODUCTION

Localized renal cell carcinoma (RCC) within a renal allograft is rare. The Cincinnati Transplant Tumor Registry has recorded 45 cases of RCC developing in a renal allograft.¹ A safe and effective treatment with minimal potential for recurrent or metastatic disease is partial nephrectomy. Here, a case is reported of a 31-year-old female who was treated by partial nephrectomy for localized RCC developing in a renal allograft 10 years post-transplant. Five years of follow-up chest X-rays and abdominal computerized tomography (CT) scans have revealed no evidence of local or metastatic spread.

CASE REPORT

A 31-year-old female who had undergone a haplotype matched, living-related transplant 10 years previously for renal failure associated with a neuropathic bladder presented for evaluation of microscopic hematuria. An intravenous pyelogram demonstrated a 3.8 x 4.2 cm mass lesion in the upper pole of the allograft, confirmed as solid by CT (figure 1). The lesion appeared localized without evidence of metastatic spread as determined by CT scanning of the chest, abdomen, and pelvis. Fine needle aspiration of the mass revealed cells consistent with a low-grade RCC. After discussing options for management with the patient, it was decided to pursue partial nephrectomy without interruption of immunosuppression, consisting of cyclosporine, 300 mg daily (200 mg every morning, 100 mg every evening), and azathioprine, 150 mg daily. The patient had never received corticosteroids post-transplantation. Ultrasonographic evaluation of the donor's remaining kidney revealed no evidence of cystic or solid lesions.

A transabdominal approach was utilized because of the intra-abdominal placement of the graft. The kidney was completely mobilized to allow for avascular hypothermic resection of the tumor with a margin of normal renal parenchyma. The defect was closed primarily over a large thrombin impregnated absorbable gelatin sponge after smaller parenchymal vessels were oversewn. Frozen section was not utilized as the lesion was completely resected. Prior to cross clamping, the patient was started on dopamine, 2 µg/kg/min, and was given 20 g of mannitol. Heparinization was utilized and reversed. Total clamp time was 15 minutes. No drains were placed postoperatively. Final pathology revealed a well-differentiated, papillary RCC grade I/III with negative margins (T1N0M0). The postoperative course was uneventful with immediate allograft function and maintenance of the preoperative baseline creatinine of 1.2 mg/dl (0.3 to 1.1 mg/dl). Postoperative abdominal CT scans and chest X-rays at 7, 22, 31, and 57 months have revealed no evidence of local or metastatic spread (figure 2). The patient's current creatinine is 1.5 mg/dl on an immunosuppressive regimen of cyclosporine, 175 mg bid, and azathioprine, 50 mg daily.

Figure 1. Renal mass appearing in the superior lateral aspect of the intra-abdominal graft.

Figure 2. Resection site 51 months postoperatively with no evidence of recurrence.

DISCUSSION

Although rare, renal transplant recipients who develop RCC in their graft present a unique dilemma because if a conservative approach were chosen to preserve their graft, it may place the patient at great risk for developing fatal metastatic disease as a result of immune incompetence. Historically, the graft would be sacrificed with the patient placed back on dialysis and offered re-transplantation, if appropriate, after a 2-year waiting period. Recent clinical experience with partial nephrectomy for RCC in non-transplant patients has demonstrated this technique to be a highly effective means of treating localized RCC with minimal risk for recurrence or development of metastatic disease with very acceptable operative risk.^{2,3} The indication

for partial nephrectomy for RCC continues to encompass a growing patient pool as more experience is gained with traditional as well as newer and less invasive technologies (e.g., cryotherapy, radio frequency ablation). Recent reports demonstrate that localized RCC within a renal allograft can be safely and effectively treated by partial nephrectomy with minimal potential for recurrent or metastatic disease.⁴ This case report contributes to a growing body of evidence demonstrating the effectiveness and desirability of partial nephrectomy for the management of RCC.

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