Renal Cell Carcinoma in a Transplanted Kidney: Successful Organ-Preserving Procedure

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Key Words
Renal cell carcinoma
Renal transplantation
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Abstract
We report a case of a de novo renal cell carcinoma in a transplanted kidney, which was detected 3 years after the transplantation. The tumor was excised under hypothermia and perfusion. Immunosuppression was not stopped and the function remained excellent. Close-mesh follow-up of 45 months showed no evidence of recurrence or metastasis.

Discussion
The Cincinnati Transplant Tumor Registry (CTTR) recorded 24 de novo renal cell carcinomas (RCC) developed in a renal allograft [1]. The management in that situation is controversial. The most reliable procedure is to perform a transplant nephrectomy, because the immunosuppression can be stopped subsequently. On the other hand, the patient has to return to dialysis. There are only few reports on conservative surgery on a transplant kidney tumor [2].

Case Report
In 1988, a 52-year-old woman underwent renal transplantation for end-stage renal failure. The completely normal looking donor kidney had been removed from a 27-year-old man who had died from a cerebral trauma. Three years later routine ultrasound demonstrated an exophytic tumor in the well-functioning allograft (fig. 1), which was confirmed by computed tomography (fig. 2). No metastasis was detected by further examinations. Patient’s own kidneys were free of tumor at any time.

A graft-preserving tumor resection under hypotension and perfusion via the exposed renal artery without venting the renal vein was performed (fig. 3, 4) without any complication. Biopsies of the resection ground and borders were tumor-free, histological findings showed a renal cell carcinoma stage T1 G1. Immunosuppression was not interrupted, renal function remained excellent.

After a follow-up period of 45 months there is no evidence of recurrence or metastases, serum creatinine is constantly 1.0 mg/dl.
In case of a small tumor in a solitary kidney partial nephrectomy has become established as an effective treatment option [3,4].

In this immunosuppressed patient presenting a neoplasm in the transplanted kidney, first allograft nephrectomy was considered, but the patient refused to return to dialysis. The tumor proved to be resectable (fig. 2, 4), so an organ-preserving operation was performed. Follow-up demonstrates no recurrence up to now and a persisting excellent renal function.

Since 1954 [5], more than 350,000 renal transplantations were performed worldwide. De novo cancer in the graft occurred very rarely [1]. In 14 instances, CTTR registered renal carcinoma in a cadaver donor, which were excised or biopsied in 7 cases and subsequently transplanted nevertheless [1]. In view of the high incidence of the development of carcinoma in end-stage kidneys [6], we performed a repeated staging but did not find any evidence of a tumor in the original kidneys. In our patient de novo genesis is suggested as the donor kidney was completely macroscopically at the time of transplantation.

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Fig. 1. Exophytic tumor in the renal allograft. Ultrasound findings 3 years after transplantation.
Fig. 2. CT scan showed a peripherally located tumor.
Fig. 3. Intraoperative situation after perfusion and cooling. Renal artery isolated and snared with a vessel loop.
Fig. 4. Totally resected tumor: renal cell carcinoma stage T1 G1.

References

Renal Graft Preserving Tumor Resection
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