
Case report

Transitional-cell carcinoma in a 25-year-old renal allograft

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Introduction

Patients who undergo renal allotransplantation (RAT) and subsequent immunosuppressive therapy are at increased risk of developing malignancies. We observed a case of widespread transitional-cell carcinoma, developing 25 years after transplantation in a renal allograft that had failed to function for 5 years. The case illustrates the importance of careful monitoring or removal of a non-functioning graft.

Case

A man aged 22 with no previous history of renal disease presented in February 1971 with hypertension, oedema, and terminal renal insufficiency. Open renal biopsy showed changes consistent with an advanced chronic glomerulonephritis and severe hypertensive vessel changes. Since his hypertension was uncontrollable by intensive oral and intravenous medication, bilateral nephrectomy was performed in April 1971 and the patient began haemodialysis (HD).

He had an unsuccessful RAT in June 1971 (the graft being removed shortly after), and a second RAT in December 1971. This graft functioned for 20 years. The non-functioning second graft was left in the left fossa iliaca, and he received a third RAT in June 1992. This graft continued to function.

Beginning in November 1996 the patient complained of increasing pain in the region of the second non-functioning graft. Clinical examination revealed local tenderness of the graft which felt firm and enlarged. Blood tests showed moderately elevated serum C-reactive protein and alkaline phosphatase, and slight leukocytosis. Ultrasound examination of the graft revealed signs of calcification and a narrow low-eccogenic edge at its lower part. The graft was surgically removed in January 1997. The graft appeared macroscopically yellowish-grey and when sectioned was found to be changed to lobulated masses with focal necrosis. Microscopy disclosed a solid dedifferentiated transitional-cell tumour originating from the renal pelvis and infiltrating the graft, perirenal fat and connective tissue. The patient was reoperated in February 1997, but died in April 1997 from widespread cancer of the abdomen.

During the initial 20 years the immunosuppressive treatment consisted of prednisone and azathioprine, and subsequently of prednisolone and cyclosporin. The recipient was a smoker until 1994. The donor of the second graft was a middle-aged man (born 1914) who had died from a subarachnoid haemorrhage. Unfortunately the occupation of the donor and his smoking status are unknown. There was no evidence of malignant disease in this nor any of the other two donors.

Discussion

Recipients of renal transplants are at increased risk of developing malignancies. In a large Nordic study [1] a 2–5-fold increased risk for cancers of the colon, larynx, lung, bladder, prostate, and testis was found, whereas there was a 10–30-fold increase of the risk of developing non-Hodgkin’s lymphoma or cancer of the lip, skin (non-melanoma), endocrine glands, kidneys, and lower genital tract (women), as compared to the background population. Other studies [2,3] confirm that the most frequent tumours seen after kidney transplantation are malignant lymphomas, cancers of the skin (especially squamous-cell carcinoma) and of the urogenital system.

Patients with analgesic nephropathy or acquired cystic disease of their native kidneys have especially high risks of developing carcinomas of the pelvis and renal adenocarcinoma respectively. The cancer risk seems to be independent of the number of performed transplantations [1,2].

Urological malignancies are relatively common in renal-transplant patients. Most of the urological tumours are renal-cell carcinomas [5,6]. In the Nordic study [1] cancers in the urinary system accounted for...
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58 of the 471 cancers. The observed to expected ratios (SIR) for the urinary system cancers were highest in the first years of follow up.

Cancer in grafts is not a very common condition. It can either occur de novo, or be present at the time of the transplantation [2]. In a study by Penn [7] comprising 7596 kidney recipients with 8091 de novo tumours, primary renal carcinomas accounted for 4.6% of all cancers in renal-transplant patients when non-melanoma skin cancers and in situ cancers of the cervix were excluded. The tumour involved the native kidney in 222 of 256 patients and the allograft in 24 patients (in 10 cases the site was not stated). Transitional-cell carcinoma of the allograft was found in five of the 256 de novo kidney tumours.

Gaya et al. [3] found that the relative risk for non-skin cancers was not increased from 5 to 15 years post-transplantation. The cumulative risk of non-skin cancer development, however, rose from 12.7% at 10 years to 31.9% after 20 years. In a single-centre retrospective cohort study [8] the long-term cumulative risk of developing neoplasia after renal transplantation was estimated to be 13.6% by 10 years and 40% by 20 years (the cumulative 20-year risk of neoplasia in the general population was reported to be 6%).

As regimens for kidney transplantation have improved in the past, and hopefully will improve in the future, we believe that in the future more people will be long-term carriers of renal transplants.

Our patient developed a transitional-cell carcinoma in a 25-year-old renal allograft following almost continuous immunosuppression since his first RAT. Transitional-cell carcinoma of the allograft, although very rare, has been reported previously [7]. Several factors could have contributed to the development of cancer in our patient. Among these are nearly 26 years of immunosuppressive treatment, and the fact that the biological age of the graft exceeded 80 years when the cancer manifested itself.

The management of the failed renal allograft is a poorly studied subject. Graft failure occurring early after transplantation will nearly always lead to removal of the graft. When the graft failure occurs later, as in our case, there is no general agreement whether the graft should be removed or left in place. Vanrenterghem and Khamis [9] recently reported that surgical removal of the graft was a safe procedure, recording no mortality in a group of 90 nephrectomized patients, and severe complications occurring in less than 10%. Although 25 (28%) of the patients had carried their grafts for more than 6 months, the removal of very old grafts may carry a different prognosis, since these patients may be older and the surgical procedure more complicated.

Our case illustrates the well-known need to bear constantly in mind the increased cancer risk in immunosuppressed renal transplant patients. In particular biologically old non-functioning grafts should be carefully monitored, if not simply removed.

References


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