

De novo Renal Transplantation after Kaposi Sarcoma: Favorable Outcome in a Patient Receiving Sirolimus and Mycophenolate-Based Immunosuppression

F. Friedersdorff^a M. Giessing^d C. Roller^a D. Baumunk^a
S. Deger^a K. Budde^b L. Liefeldt^b V. Hartmann^c
T.F. Fuller^a

Departments of ^aUrology, ^bNephrology, and ^cDermatology, Charité Campus Mitte, Universitätsmedizin Berlin, Berlin, and ^dDepartment of Urology, Heinrich-Heine Universität, Düsseldorf, Germany

Key Words

Sirolimus · Kidney transplantation · Kaposi sarcoma · Mycophenolate mofetil · Remission

Abstract

Immunosuppressive treatment increases the risk of infection and malignancy in organ transplant recipients. We report on a 42-year-old male renal transplant recipient who lost his first graft after reduction of immunosuppressive treatment due to Kaposi sarcoma and who successfully underwent a second renal transplant 10 years later. The patient's current treatment consists of low-dose prednisone, and the two antiproliferative immunosuppressants mycophenolate mofetil and rapamycin. 4.5 years after his second transplant, the serum creatinine is 1 mg/dl and the patient has no signs of recurrent disease.

Introduction

Renal transplant recipients have a higher risk for infection and malignancy due to immunosuppression than the general population. A specific type of skin cancer is Kaposi sarcoma ([fig. 1](#)) originating from the dermal blood vessels. Kaposi sarcoma is classified in 4 types: 1 = classic Kaposi sarcoma, 2 = iatrogenic (immunosuppressive Kaposi sarcoma), 3 = AIDS-associated (epidemic) Kaposi sarcoma and 4 = endemic Kaposi sarcoma.

It is well known that Kaposi sarcoma is associated with human herpes virus 8 (HHV-8). In 0.5–5% of seropositive transplant recipients reactivated HHV-8 leads to Kaposi sarcoma [1, 2].

In Northern Europe the seroprevalence of HHV-8 is 0–8%, whereas in the Mediterranean area and in the Middle East the seroprevalence is 10–25%. Kaposi sarcoma after renal transplantation is mainly found in patients of the Mediterranean area and of Middle Eastern descent [3].

We report for the first time a case of a successful second renal transplantation using sirolimus in a patient with a history of Kaposi sarcoma. The study by Stallone et al. [3] showed a complete remission of Kaposi sarcoma after conversion from calcineurin inhibitor to sirolimus within 6 months.

Case Report

We report on a 42-year-old male patient who developed Kaposi sarcoma with visceral involvement 38 months after living-related renal transplantation. The patient originates from Turkey and has been living in Germany since he was born.

End-stage renal disease was due to chronic glomerulonephritis, and the patient was on hemodialysis for 6 months prior to transplantation. The initial immunosuppressive regimen comprised prednisone, azathioprine and cyclosporine. Upon diagnosis of Kaposi sarcoma immunosuppression was reduced. Thereafter the patient had an episode of acute rejection requiring steroid treatment. Subsequently, the patient lost his graft 30 months after diagnosis of Kaposi sarcoma due to chronic rejection. A transplantectomy was performed 2 months after return to dialysis. No signs of recurrent disease were present on physical examination and on CT scan 13 months after cessation of immunosuppression.

The patient was wait-listed after a period of 10 years and received a second transplant 5 weeks thereafter. His immunosuppressive regimen includes sirolimus (2 mg/day), mycophenolate mofetil (1,000 mg/day) and prednisone (4 mg/day). After a follow-up of 4.5 years, the patient showed stable graft function with a serum creatinine of 1.2 mg/dl (fig. 2). Recurrence of Kaposi sarcoma is closely monitored by physical examination and CT scans. To date our patient has no signs of tumor recurrence.

Discussion

To our knowledge, this is the first report on a renal transplant recipient with a previous history of transplant-related Kaposi sarcoma undergoing de novo renal transplantation with favorable long-term graft function and tumor control. Stallone et al. [3] reported on 15 renal transplant recipients with Kaposi sarcoma in whom cyclosporine was replaced by sirolimus to achieve tumor control. A complete remission within several months was documented for the entire patient cohort, with no impact on graft function and no acute episodes of rejection.

The mTOR inhibitor sirolimus has a known anti-tumor effect [4]. Previously, sirolimus-based immunosuppression has been shown to protect renal transplant recipients from de novo malignancies [5].

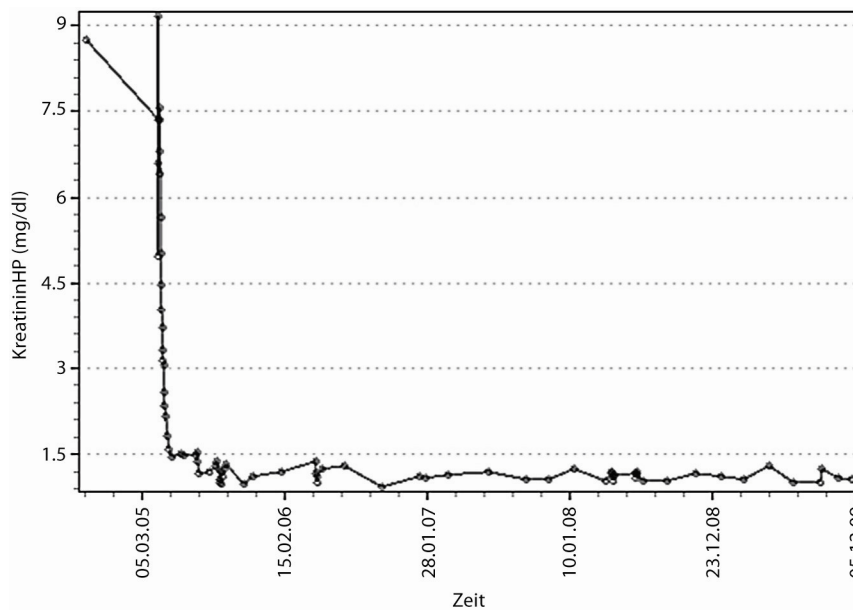
In renal transplant recipients diagnosed with transplant-associated Kaposi sarcoma, conversion to sirolimus-based immunosuppressive protocols may result in long-term tumor control [6]. However, the use of less potent immunosuppressives bears the risk of early graft loss due to acute or chronic rejection. An immunosuppressive protocol based on antiproliferative drugs, including sirolimus and MMF, has been shown to protect renal grafts from rejection and to provide reliable tumor control as compared to standard calcineurin-based immunosuppression [7].

Our present case and recent literature suggest that de novo renal transplantation in recipients with a history of transplant-associated malignancy is feasible using an immunosuppressive protocol based on sirolimus and MMF.

Fig. 1. Kaposi sarcoma, skin lesion.



Fig. 2. Creatinine follow-up.



References

- 1 Penn I: Kaposi's sarcoma in transplant recipients. *Transplantation* 1997;64:669–673.
- 2 Cattani P, Nanni G, Graffeo R, Capuano M, Cerimele F, La Parola IL, Diociaiuti A, Pozzetto U, Cerimele D, Fadda G, Castagneto M: Pretransplantation human herpes virus 8 seropositivity as a risk factor for Kaposi's sarcoma in kidney transplant recipients. *Transplant Proc* 2000;32:526–527.
- 3 Stallone G, Schena A, Infante B, Di Paolo S, Loverre A, Maggio, Ranieri GE, Gesualdo L, Schena FP, Grandaliano G: Sirolimus for Kaposi's sarcoma in renal-transplant recipients. *N Engl J Med* 2005;352:1317–1323.
- 4 Stallone G, Infante B, Grandaliano G, Schena FP, Gesualdo L: Kaposi's sarcoma and mTOR: a crossroad between viral infection neoangiogenesis and immunosuppression. *Transpl Int* 2008;21:825–832.
- 5 Wimmer CD, Rentsch M, Crispin A, Illner WD, Arbogast H, Graeb C, Jauch KW, Guba M: The janus face of immunosuppression – de novo malignancy after renal transplantation: the experience of the Transplantation Center Munich. *Kidney Int* 2007;71:1271–1280.
- 6 Lebbe C, Euvrard S, Barrou B, Pouteil-Noble C, Garnier JL, Glotz D, Legendre C, Francès C: Sirolimus conversion for patients with posttransplant Kaposi's sarcoma. *Am J Transpl* 2006;6:2164–2168.
- 7 Flechner SM, Goldfarb D, Solez K, Modlin CS, Mastroianni B, Savas K, Babineau D, Kurian S, Salomon D, Novick AC, Cook DJ: Kidney transplantation with sirolimus and mycophenolate mofetil-based immunosuppression: 5-year results of a randomized prospective trial compared to calcineurin inhibitor drugs. *Transplantation* 2007;83:883–892.