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LETTER TO THE EDITORS

Fifteen-year survival of a polycystic kidney transplant

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Dear Sirs,

In light of the persisting donor organ shortage, expanded criteria donors (ECDs) are accepted more often today. This is true for living donors (*e.g.,* overweight/obese donors, older donors, donors with hypertension and/or vascular multiplicity/anomalies) [1] as well as deceased donor organs (donors aged 60 and older, or 50–60 with two of the following—elevated serum creatinine, cerebrovascular accident as cause of death, or medical history of hypertension) [2]. Deceased donor kidneys containing multiple cysts at the time of organ procurement are often rejected for transplantation. However, there are no hard criteria nor strict guidelines for the limit of small cysts present for the kidney still to be acceptable for transplantation. In currently available literature, a number of cases are described in which polycystic kidneys were successfully transplanted and remained fully functional for a long period of time [3–5]. It may therefore be considered to adopt a more lenient mindset with regard to the acceptance of deceased donor kidneys with (some) cysts present at the time of organ procurement.

We present a case of an 11-year-old girl with end-stage renal disease (ESRD) as a result of reflux nephropathy caused by Williams–Beuren syndrome. She had been on hemodialysis for three months when she received her first kidney transplant from a Deceased after Brain Death donor in February 1996 in the Eurotransplant Organ Exchange Program. The donor was an 11-year-old boy who died as a result of strangulation. Renal function was excellent at the time of organ procurement (serum creatinine 44 μmol/l, normal microscopic urine examination). Several small cysts were present in the left kidney, which was implanted in our patient's left iliac fossa. The right kidney did not contain any cysts at the time of donation and was successfully transplanted in another center. No information on a possible positive family history of the donor with regard to polycystic kidney disease was available at the time. The kidney transplant functioned well, and she was discharged from hospital with a serum creatinine of 45 μmol/l, corresponding to an eGFR >60 ml/min/1.73 m^2 (calculated with the CKD-EPI formula). She received an immunosuppressive regimen consisting of cyclosporin and prednisone and was not treated with mammalian target of rapamycin (mTOR) inhibitors.

Five years after transplantation, renal function started to decline in our patient. Ultrasound investigation demonstrated multiple small cysts in the graft, and a tentative diagnosis of transplant polycystic kidney disease was made. We managed to retrieve limited information on the contralateral kidney through the Eurotransplant Foundation, and this kidney also turned out to be polycystic. The recipient of the contralateral kidney remains well, with a serum creatinine level of 130 μmol/l in July 2014. In our patient, the renal cysts increased in number and size over the years and renal function deteriorated further up to the point where she had again developed ESRD. This was accompanied by complaints of fatigue, anorexia, and nausea. Treatment with hemodialysis was re-started in 2011. At this time, she was still working part-time and had no difficulty performing mild exercise (*i.e.,* walking, climbing stairs). Meanwhile, workup was initiated for a second kidney transplantation.

Even though the transplant kidney had grown to such a size (Fig. 1) that our patient's small posture (height 153 cm, weight 45 kg) did not allow room for the new donor kidney, even in the contralateral iliac fossa, her main complaints were predominately uremic and not mechanical in nature. A transplant nephrectomy was performed in September 2011 without complications. Total operating time was 2 h and 12 min, with a total blood loss of 300 ml. The kidney measured 28 × 16 × 10 cm, weighed 2278 g, and its histopathological aspects were in accordance with polycystic kidney disease. In November 2011, our patient received her second kidney transplant from a living donor (the patient's father, aged 59 at the time of transplantation). The left donor kidney was placed in the patient's right iliac fossa. The anatomy of the iliac fossa was completely normal, and no surgical difficulties were encountered during this "routine" procedure. She developed a urinary tract infection, but the postoperative course was otherwise uneventful. She was discharged on the 10th postoperative day with a serum creatinine of 82 μmol/l (eGFR 85 ml/min/1.73 m^2).

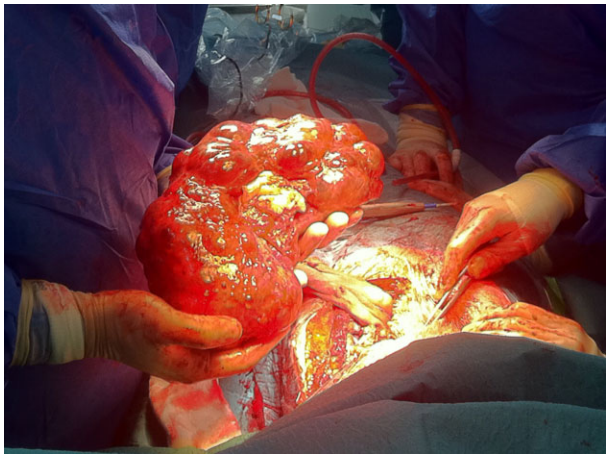

Figure 1 Polycystic kidney graft at time of transplant nephrectomy.

Our case demonstrates that a polycystic donor kidney with cysts already present during organ procurement can be transplanted and functional for a long time. Our patient's first kidney functioned well for 15 years, and the other kidney from the same donor is still functional, 18 years after transplantation. The cause of this discrepancy between the two kidneys is unknown but can possibly be explained by the fact that there were no cysts present in the right kidney at the time of organ procurement. The disease may thus have been less advanced in the right kidney at the time of transplantation. Alternatively, environmental factors may have played a role. Differences may have existed between the recipients of the two kidney allografts with regard to their fluid intake [6], blood pressure control [7], or immunosuppressive regimen [8]. However, we were unable to retrieve more information on the recipient of the contralateral kidney, and as such this remains speculative. Both life spans exceed the current average of 9.5 years for deceased donor kidneys in the Netherlands [9]. Our findings are in concurrence with the limited data in available literature [3–5]. The polycystic transplants described in these articles were all still functional at the time of publication, and most have been so for an even longer period of time than our kidney [3,4]. Even though ours is thus not the longest surviving polycystic kidney transplant, it is, to the best of our knowledge, the only case that presents the transplant nephrectomy of a giant polycystic donor kidney to facilitate a second kidney transplantation. We have performed this procedure without any complications, and no significant surgical difficulties were encountered. We believe that polycystic kidneys from young deceased donors should at least be considered for transplantation, which is supported by multiple other authors [3–5,10]. Physicians as well as patients must bear in mind that a transplant nephrectomy may be necessary in case of graft failure.

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