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SUCCESSFUL KIDNEY TRANSPLANTATION USING ELDERLY LIVING DONOR WITH EXTREMELY LARGE RENAL CYST AND DOUBLE ARTERIES

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ABSTRACT

The authors describe a kidney transplant procedure using a living donor with a large cyst and double arteries. Due to the lack of regular transplant activity from a deceased donors, we decided to use the, so called, expanded criteria living donors, which means older age (more than 65 years), hypertension, some structural anomalies of the kidneys (cysts, multiple renal arteries), ABO incompatible kidney transplant, etc. The surgical procedure was the unroofing of a large cyst and wadding with perirenal fat. The 10 years survival rate is quite successful and we can recommend it.

Keywords: kidney cyst, kidney transplantation, living donor, two arteries

INTRODUCTION

Renal cysts are the most present cases among the living kidney donors [1], especially in elderly donors. It is very well known that in older donor the cysts are present with different forms, size and infrastructure anomalies. Having in mind that donors are often older, it is quite possible to find more cysts among them [2]. In this article we report our experience with the elderly living donor over 65 years of age with a large renal cyst (10 cm) and double renal arteries, which was successfully transplanted on her son after unroofing the cyst and preparing of the allograft with ex vivo surgery.

CASE REPORT

A 40-year old male has been diagnosed for a kidney failure due to the high blood pressure without proteinuria. The patient was immediately sent on hemodialysis because of the high level of urea and creatinine. After approximately one year, a kidney transplantation was performed using his 65-year old mother, after solving all ethical dilemmas. Apart from the age, the donor had two additional conditions: the first was a very large simple renal cyst (Bosniak 1) with a size of 10 cm, and the second was double arteries on both kidneys. The whole renal function was about 79 ml/min/1.73

(eGFR–CKD EPI methodology). The radioisotopes investigation showed the kidneys were almost equal with a little lower functional capacity on the right side with the large cyst. The donor belongs to the expanded criteria living donors and according to our policy for accepting all people who wanted to donate, we decided to use the kidney with the large renal cyst and double arteries. A standard open transperitoneal donor nephrectomy was performed followed by bench surgery ex vivo. After the perfusion with a Custodiol, the kidney was prepared for transplant. The cyst was unroofed and decorticated with wadding using perirenal fat. The edges of the cyst were oversaw with a 4-0 PDS suture material. The fluid was aspirated and sent to cytology, and the removed cyst was a subject of histopathological analysis. Any malignancy was excluded. The allograft was implanted using the following techniques: Termino-lateral anastomosis of the renal vein with the external iliac vein and termino-terminal anastomosis of the two renal arteries with the branches of the hypogastric artery [3,4]. A triple drug immunosuppression (Cyclosporine, Mycophenolate Mofetil and Prednisolone) was done using ATG as an induction therapy. The renal function was established immediately. Both kidneys of the recipient and the donor were followed regularly all the time and there wasn't any complications in the renal function and the morphology of the graft including the appearance of the proteinuria. The ultrasound performed at 6 months and yearly thereafter was negative for the cysts recurrence of the allograft and the contralateral kidney of the donor. After8 years of the transplantation the patient developed a severe pneumonia with a septic temperature with a life-threatening state. A diagnosis of the Aspergillus infection with the PCR was done and the patient was treated successfully for two weeks with Amphotericin B as an intravenous therapy. Due to the nephrotoxic effect of the drug we observed a degradation of the renal function. After two years the patient restarted dialysis [5].

DISCUSSION

We are facing an increased use of the expanded criteria donors having in mind that there aren't enough kidney transplants from deceased donors in the country. Every year our dialysis patients pool is increasing and there is a gap between the need for kidneys and the potential organ procurement. The use of the expanded criteria living donors (elderly donors even in the advanced age, donors with urological anomalies, emotionally related and ABO incompatible donors, etc.) was an acceptable practice in our center and we have a big experience with that [6]. The use of kidneys with cysts is now a well-established clinical practice around the world with excellent results, eEspecially when Bosniak 1 cyst is considered acceptable in terms of cancer risk in the further development, as well as the implication in the long-term renal function of the donor [7]. Our case with an older donor, a large cyst of over 10 cm and double arteries of the kidney is among the expanded criteria living donors. The surgical technique we used with the unroofing and decortication of the cyst and the wading with perirenal fat is one of the best in the literature [8]. The short-term and long-term kidney function was very well, which confirmed our decision to make a kidney transplantation. Also, there aren't any complications for the donor after 15 years of the transplantation, and we did not find any cyst in the remaining kidney. Having in mind the condition of the donor, we consider this transplantation successful [9,10].

The appearance of the Aspergillus infection after 8 years of the kidney transplantation with septic temperature was also a challenge for the clinical course of the kidney recipient. APCR technique has been used for the diagnosis and the patient was treated successfully for two weeks with Amphotericin B as an intravenous therapy despite the knowledge of some nephrotoxic effects of the drug. A slight decrease of the renal function (creatinine about 200 micromol/L) was seen at the dismiss of the patient. In the following two years we observed a drug resisted worsening of the kidney function until the recipient became a dialysis patient [11].

As a conclusion, the described case is possible and feasible. A skilled surgical team is necessary to prepare the kidney with a bench surgery and to perform the transplant for the expanded criteria living donors. The good clinical investigation of the renal function and the morphology of the remaining kidney is a crucial point that should guarantee the further long term renal function and the donor's health.

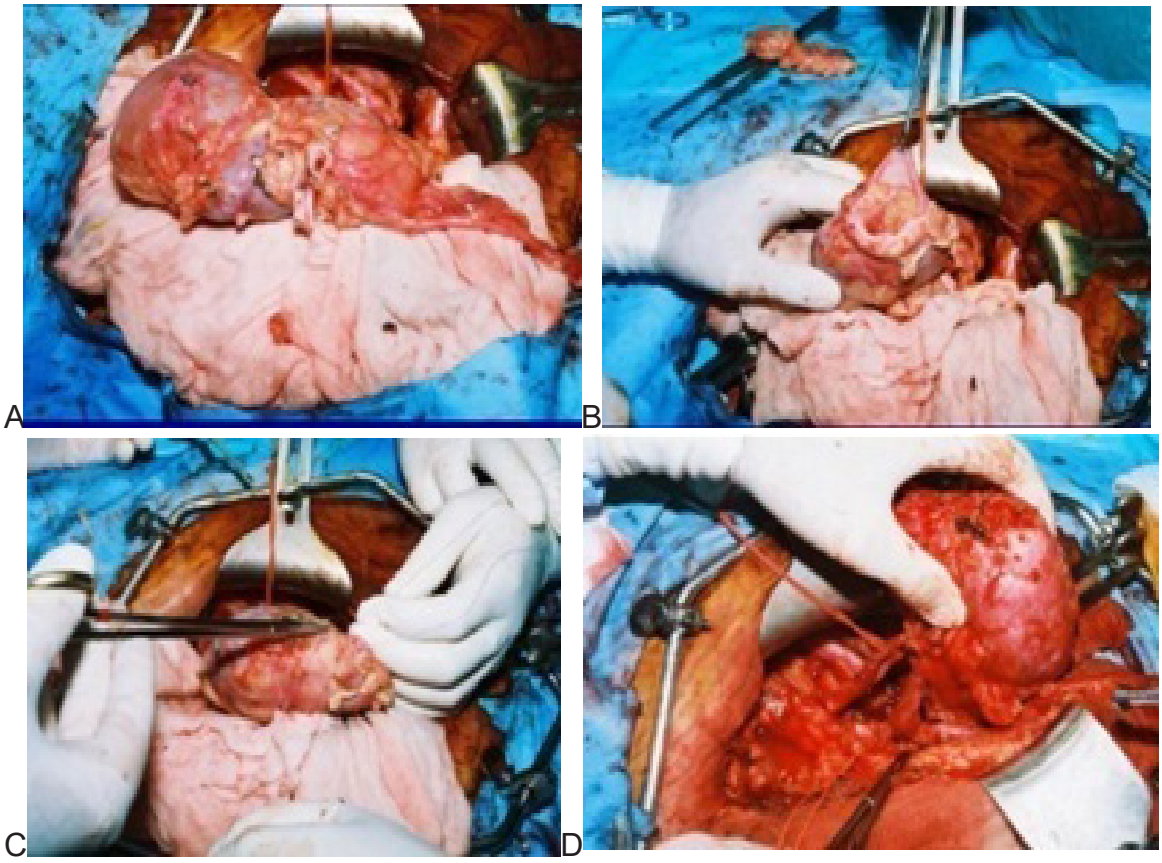


Figure 1. *A. The living donor kidney with a large simple cyst. B and C: Decortication and unroofing of the cyst with wadding of perirenal fat. D. Termino-lateral anastomosis of the renal vein with the external iliac vein and termino-terminal anastomosis of the two renal arteries with the branches of the hypogastric artery*

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Резиме

УСПЕШНА ТРАНСПЛАНТАЦИЈА НА БУБРЕГ ОД ПОСТАР ЖИВ ДОНАТОР СО ЕКСТРЕМНО ГОЛЕМА БУБРЕЖНА ЦИСТА И ДВОЈНИ АРТЕРИИ

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Авторите опишуваат една трансплантациска процедура во која е користен жив дарител на бубрег со голема циста и двојни артерии. Поради недостиг од трансплантација од починат дарител, одлучивме да употребиме таканаречен жив дарител со проширени индикации, што подразбира постара возраст (повеќе од 65 години), присуство на хипертензија и некои структурни аномалии на бубрегот (цисти, повеќебројни артерии), АБО инкомпатибилни донори, и сл.

Хируршката процедура се состоеше од празнење на цистата и нејзино полнење со перирenално масно ткиво. Артериите беа споени со две гранки на хипогастричната артерија на примателот.

Клучни зборови: бубрежна циста, трансплантација на бубрег, жив дарител, две артерии