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Case Report

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Kidney Donor Developing End-Stage Renal Failure: Case Report

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ABSTRACT

While kidney donors were generally not expected to experience any serious late-onset health problems, it was observed that hypertension and chronic kidney disease (CKD) may develop over time. This situation can occur many years after the transplant. Here, the end-stage renal failure (ESRF) picture that developed 8 years after an individual donated a kidney to his wife is presented, to draw attention to the follow-up of donors.
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INTRODUCTION

Kidney transplantation, either from a living donor or cadaver, is considered to be the most outstanding treatment for end-stage renal failure (ESRF). Living-donor kidney transplantation is the preferred treatment method, because of its advantages in terms of graft function and patient survival, compared to transplantation from a cadaver. In addition, kidney transplantation from a living donor, also known as preemptive transplantation, may provide the advantage of transplanting without starting the patient on dialysis.[1]

In previous years, while the donor was informed in preparation for live transplantation, it was stated more clearly that there would be no significant risk in being a kidney donor, that is, living with one kidney. Long-term follow-up results of donors have revealed that these people should be followed up regularly, due to the increased risk of developing hypertension, glomerulonephritis, and chronic kidney disease (CKD). Kidney donation may lead to a decrease in kidney function in relation to an increase in proteinuria and an increase in blood pressure disproportionate to age.[2-4] This may lead to an increased risk of ESRF and mortality from cardiovascular diseases or other causes, compared to the general population.[3]

In this study, a patient who developed ESRF 8 years after donating a kidney is presented, because of the rarity of the occurrence.

CASE REPORT

A 59-year-old male patient, who applied to the emergency department with complaints of shortness of breath, weakness, and back pain for 3-4 days, was referred to our hospital in October 2020 because of the high creatinine value in his examinations and the need for hemodialysis. In the examinations performed on admission to our hospital, the values were as follows: blood urea nitrogen: 145 mg/dL, creatinine: 12.3 mg/dL, estimated glomerular filtration rate (eGFR): 4 ml/min, sodium: 138 mmol/L, potassium: 6 mmol/L, pH: 7.35, and HCO_3:19.6. Non-contrast thorax CT (Figure 1) obtained for complaint of dyspnea was evaluated by the infectious diseases and radiology clinics. It was stated that Covid-19 pneumonia was not considered,

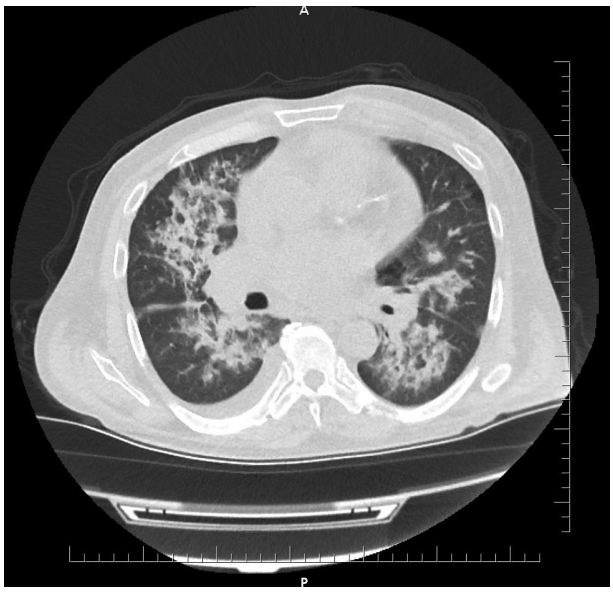

Figure 1. Thorax CT scan of the patient.

and it was primarily evaluated as compatible with uremic lung. Subsequently, the patient was admitted to the nephrology ICU. A temporary hemodialysis catheter was inserted and the patient underwent sequential hemodialysis. In the follow-ups, the uremic lung findings regressed.

The patient's history was explored. It was learned that he had been a kidney donor for his wife 8 years ago in an external center and he had applied to the nephrology outpatient clinic about 2 years ago. In the examinations made then, the values had been as follows: creatinine: 5.2 mg/dL, eGFR: 11 ml/min, protein in urogram: +3, erythrocyte: +3, and 24-hour urine proteinuria: 2.1 g/day. i. No pathology had been observed in the other kidney in the USG. Biopsy had not been performed because the patient had one kidney. His condition had been considered as glomerulonephritis, and low-dose steroid treatment had been started (prednol had been started at a dose of 16 mg/day, and the dose had been reduced for about 1 year in the follow-up). In the last examinations carried out in December 2019, the values had been as follows: creatinine: 4.4 mg/dL, eGFR:13.8 ml/min, and spot-urine proteinuria: 1.5 g.

The patient's condition was accepted as ESRF with the present findings. During the follow-up, the patient's need for dialysis continued. After inserting a hemodialysis catheter, the patient was included in the routine hemodialysis program and was discharged.

DISCUSSION

Some studies on long-term follow-up of kidney donors indicate that there is no increased risk for the development of kidney failure and mortality in kidney transplant donors compared to the normal population. In fact, some studies have even stated that this risk may be less than that of the normal population.[5,6] However, when these studies are carefully examined, they make comparisons with the whole population, including people who meet the necessary conditions to be a kidney donor, donors, and people with comorbid diseases (coronary artery disease, chronic obstructive pulmonary disease, diabetes mellitus, malignancy, etc.). Therefore, the results may be misleading.[7]

In a study conducted by Lentine et al.,[8] racial differences were observed in the development of ESRF after kidney transplantation.

In a study by Mjoen et al.,[3] when kidney donors were compared to the population that met the necessary conditions to become a kidney donor but did not donate, it was reported that an increase in ESRF, cardiovascular disease, and all-cause mortality was observed in donor patients. Of course, this situation can also be explained by genetic factors, since living kidney donors are often from family members and kidney disease is common among the relatives of people with kidney disease.[9]

In a study by Boudville et al.,[10] it was stated that hypertension was observed more frequently in donors after kidney transplantation than in the normal population. Especially in the first 5-year follow-up period, it was found that the blood pressure was 5 mmHg higher than in the control group.

Considering these different opinions, the ERA-EDTA DESCARTES study group has clarified the issue and stated that this risk varies from person to person, that it is partially predictable, that it would be appropriate for the transplant team to meticulously evaluate these risks with the patient at the kidney donation stage, and that it would be appropriate to decide together. In addition, it would be appropriate for the transplant team to explain the healthy lifestyle recommendations required to protect donor health in the long term after donation, and the requirements and importance of clinical follow-up to the donors.[11]

In our patient, the presence of proteinuria, hypertension, and decreased glomerular filtration rate 5-6 years after donor nephrectomy suggest that there may have been an underlying kidney disease. However, the inaccessibility of the patient's information pertaining to that time prevents us from reaching a clear idea on this issue. It would not be wrong to think that there may have been an underlying glomerular pathology that had not yet been reflected in the laboratory, by considering that the patient's pre-renal transplantation evaluations were normal. The fact that the patient is the spouse of the donor and that there is no kinship between them, and that the patient has no known history of kidney disease in his family excludes him in terms of inherited diseases.

Unfortunately, the majority of kidney transplants performed both in our country and in the world are performed from

living donors. There are many reasons behind this. The need to increase the cadaver pool has gained importance with the understanding of the problems that arise in the long-term follow-up of living donors. For this reason, it will be useful to increase public awareness, to increase interventions for the detection of brain death cases in ICU and converting them to donors, and to encourage health policies in this regard to eliminate this problem.

In conclusion, kidney transplantation from living donors will continue to be an option in the treatment of patients with ESRF with increasing importance and frequency, as it was before, due to its superiority in terms of treatment success and graft function. However, knowing that donors may also be candidates for kidney failure in the future, it would be appropriate to inform patients in detail after the operation and to explain to them the importance of regular follow-up.

Informed Consent: Written informed consent was obtained from the patient.

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