



MACROSCOPIC ALTERATIONS IN KIDNEYS RETRIEVED FOR TRANSPLANTS

ALTERACIONES MACROSCÓPICAS EN RIÑONES RECIBIDOS PARA TRASPLANTE.

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RESUMEN

Introducción: El análisis de alteraciones macroscópicas en riñones recibidos para trasplante es de gran importancia debido a que estas anomalías pueden impedir usar el órgano. *Materiales y Métodos:* Ciento cincuenta y cinco (155) descripciones de riñones recibidos para trasplante en el hospital de Santa Casa de São Paulo fueron realizadas entre enero y diciembre 2009. *Resultados:* De los 155 riñones recibidos desde donantes cadáveres durante el periodo, 22 (15%) presentaron alteraciones macroscópicas. La alteración más frecuente fue la presencia de quistes renales, encontrados en 12 (7,7%). Se reportaron otras alteraciones menos frecuentes, incluyendo hidroureteronefrosis en 4 (2,58%) casos, agenesia renal en 2 (1,3%), hematoma renal en 3 (1,93%) y un caso de trauma sólido (0,64%). De los riñones que presentaron alteración 15 (68%) fueron usados para trasplante y 7 (32%) se descartaron. *Conclusión:* La alteración macroscópica más común identificada en los riñones recibidos fue el quiste renal en 12 (7,7%) de los casos, un hallazgo que está en la línea de lo reportado en la literatura para el hallazgo de quistes renales en la población. La mayoría de los riñones con alteraciones (15/68%) fueron usados para el trasplante, demostrando que la mayor parte de las alteraciones no comprometen la viabilidad del órgano.

ABSTRACT

Introduction: the analysis of macroscopic alterations in kidneys for transplants is of great importance since such anomalies can preclude organ use. *Material and methods:* One hundred and fifty-five (155) surgical descriptions of kidneys retrieved for transplant at the Santa Casa de São Paulo hospital were carried out between January and December 2009. *Results:* Of the 155 kidneys retrieved from deceased donors during this analysis period, 22 (15%) showed macroscopic alterations. The most frequent isolated alteration was the presence of renal cysts, found in 12 (7.7%) cases. Other less frequent alterations were reported including ureterohydronephrosis in 4 (2.58%) cases, renal agenesis in 2 (1.3%) cases, hematoma in 3 (1.93%) cases, and 1 (0.64%) case of solid injury. Of all kidneys that presented alterations, 15 (68%) were still used for transplants and 7 (32%) were discarded. *Conclusion:* The most common macroscopic alteration identified in retrieved kidneys was renal cyst, occurring in 12 (7.7%) cases, a finding in line with incidence of renal cysts reported in the literature. The majority of the kidneys with alterations (15 - 68%) were still used for transplants, demonstrating that most alterations do not compromise organ viability.

Key words: Transplantation; Kidney; Tissue Donor.

INTRODUCTION

Kidney transplants have been carried out since 1906, although only after 1960, with the advent of new immunosuppressants, acknowledgment of the concept of brain death, and improvements in donor-recipient selection, did renal transplants become an option for patients with chronic renal failure. Renal transplantation is associated with improved patient quality of life, higher cost-benefit and possibly, a greater patient survival rate. In the pediatric population, transplants improve patient growth and development, especially when performed during early infancy¹⁻⁴.

The decision whether to use kidneys with congenital malformation (horseshoe kidney, multiple vessels, or with aneurysms), associated pathologies (cysts, hydronephrosis, trauma) or injury, but with good kidney function (an injury in a vessel or an artery), is based on the surgeon's evaluation, since in some cases these alterations can preclude organ use¹.

METHOD

A retrospective study, reviewing surgical descriptions of retrieved kidneys was carried out between January and December 2009, upon request of the Organs and Tissues Extraction Service (Serviço de Captação de Órgãos e Tecidos - SCOT) of the Santa Casa de São Paulo hospital.

All of the organs were removed by the same Urology team of the Santa Casa de São Paulo hospital, adopting standard techniques.

Morphological alterations and rate of use of kidneys retrieved for transplants were analyzed and the following results were found.

RESULTS

Out of the 155 kidneys retrieved from deceased donors during the analysis period, 22 (15%) showed macroscopic alterations. The most frequent isolated alteration was the presence of renal cysts, found in 12 (7.7%) cases. Other less frequent alterations were reported including ureterohydronephrosis in 4 (2.58%)

Tabla 1. Macroscopic alterations in cadaveric donors kidneys

	n	%
Renal cysts	12	7,7
Ureterohydronephrosis	4	2,5
Renal agenesis	2	1,3
Hematoma	3	1,9
Solid injury	1	0,6
Total	22	15

cases, renal agenesis in 2 (1.3%), hematoma in 3 (1.93%), and 1 (0.64%) case of solid injury.

Among all kidneys with alterations, 15 (68%) were still used for transplant.

DISCUSSION

The growing demand for renal transplantation and the challenges faced with a shortage of donors call for new strategies to increase the pool of kidneys available for transplantation. Along with the tendency toward greater use of kidneys from living donors who have no kinship with the recipients, the use of kidneys from deceased donors with less restrictive criteria for donation (expanded donor kidneys) is a rising trend seen in current clinical practice. In the United States, the number of patients on waiting lists for transplant is increasing by 20% every year, while the annual average of transplantations performed in the last five years increased by only 3.1%^{5,6}.

According to DATASUS, in 2009 the patient waiting list for renal transplantation numbered 34,640 individuals. Of this figure, only 1237 transplants were carried out in the first semester of 2009. Thus, actions contributing to an effective increase in notifications of potential donors, as well as in the viability and rational use of organs and tissues, will always be necessary in order to try to minimize the mortality of patients awaiting transplant⁷.

The use of expanded cadaveric donor kidneys is considered an effective method of raising the number of transplants in the short term. Although no universally accepted definition exists concerning the



limits of acceptance for donated organs, organs from donors older than 60 years of age, or between 50 and 59 years of age presenting with two or three additional risk factors (death caused by stroke, history of systemic arterial hypertension and serum creatinine above 1.5 mg/dL), are associated with 70% greater-than-average risk of graft loss^{5,8}.

Macroscopic anomalies are relatively frequent in kidneys retrieved for transplants yet do not necessarily compromise graft viability. Renal cysts are the most common benign lesion found in adult kidneys. The results of the present study corroborate this data, since this type of alteration was found in 7.7% of the cases analyzed⁸.

Peres et al.⁹ reported an incidence of renal anatomic alterations of 54% in patients with nephrolithiasis, the most frequent being renal cysts (3.9%), followed by pyelo-ureteral duplicity (18%) and ureteropelvic junction stenosis (11%).

The rejection rate of kidneys reported in the literature is around 5%. In a study of 623 renal transplants by Farid et al.¹⁰ (2009), 60 of which involved kidneys refused by one or more transplant

centers, found no statistical difference in survival of patients receiving refused organs compared with recipients of normal organs. The main reasons for these initial refusals included: elderly donor (mean age 61 years) in 25% of cases, need for better HLA compatibility in 33.3%, anatomy in 5%, virology in 4.8%, prolonged cold ischemia time in 3.3% (median 33.5 hours), organ injury (1.6%). In the present study, 68% of the kidneys with macroscopic alterations were transplanted, showing that most of these anomalies did not preclude their use for transplantation.

CONCLUSION

The most common macroscopic alteration found in retrieved kidneys was renal cyst, a finding in line with the incidence reported in the literature. The majority of kidneys with alterations (15 - 68%) were still used for transplantation, showing that the majority of the problems detected did not compromise the viability of organs for transplant.

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