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Surgical complications: Live vs deceased donor renal transplantation at a tertiary care hospital from South India

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Abstract

The objective of this study was to compare the surgical complications of live and deceased donor kidney transplantations. All the renal transplants done at our institute from January 2013 to December 2017 were analyzed retrospectively. Although the complication rate was marginally higher in the cadaver group, the difference was found to be statistically insignificant. It can be inferred that cadaver kidney transplant is as safe as live kidney transplantation.

Keywords: Kidney, renal transplant, complications

Introduction

Renal transplantation is the treatment of choice for the patients with End Stage Renal Disease. It is cost effective and enables the patient to lead a near normal lifestyle ^[1]. The first kidney transplant with long term success was done in 1954 by Joseph and Murray and colleagues. In India the first cadaver renal transplant was done in May 1965 at KEM Hospital, Mumbai and first live kidney transplant was done by Johny and Mohan Rao in January 1971 ^[2]. At our center the live kidney transplant program started in June 1989 and the first cadaver renal transplant was done in May 2002.

AIMS and Objectives

To study and compare the surgical complications between live and deceased donor kidney transplant patients at our institute.

Materials and Methods

This is a retrospective study of renal transplants (Both live and deceased donor) done at our institute during the period from January 2013 to December 2017. A total of 482 renal transplants were done in this time including 482 live donor and 126 deceased donor transplants.

In live kidney transplantation the better functioning kidney is left with the donor. Another criterion for choosing the side of the donor kidney is to avoid the kidney with supernumerary arteries. Isotope (DTPA) renogram and renal angiogram is used to assess differential renal function and arterial anatomy respectively. Traditionally left kidney is preferred because it has a longer renal vein. In cadaver kidney transplantation most of the donor kidneys (95%) were of right side.

In the recipient the renal vein is anastomosed to external iliac vein (end to side) and the renal artery is anastomosed to internal iliac artery in end to end fashion. When multiple renal arteries are present, they are anastomosed end to side to external iliac artery. Extra vesical (Lich-Gregoir) ureteroneocystostomy is made over Double J stent.

Immunosuppression was given in two phases – induction and maintenance. During induction phase high dose glucocorticoid in the form of methylprednisolone 1 gm was given IV for three consecutive days. For emotionally related and deceased donors Basiliximab or Antithymocyte globulin was administered. Maintenance therapy consisted of tacrolimus, mycophenolate and prednisolone.

Patients were followed up on alternate days for two weeks, once a week for one month, once a month for one year and once in three months thereafter.

At follow up patients were observed for surgical complications – wound infection/by dehiscence, lymphoceles, ureteric strictures, urine leaks, arterial and venous thrombosis and pain at wound site.

Results

A total of 482 renal transplants were done in the period from January 2013 to December 2017. The number of live donor cases was 356 (73.85%). Most common age group was 41 to 60 years (61.11%). Mean age of live donors was 43.46 years (+/-9.519). Mean age of recipients was 31.8 years (=/-10.4). Most common age group of recipients was 21 to 40 years (67.01%). 428 (88.79%) patients were under maintenance hemodialysis and 412 (8.7%) were undergoing CAPD. Pre-emptive transplantation was done in 12 (2.48%) cases. Surgical complications were infrequent.

Table 1: Complications

	LDT (n=356)	DDT (n=126)	P value
Wound complications	12 (3.37%)	6(4.76%)	0.5841
Urine leaks	4 (1.12%)	1(0.79%)	1.0000
Lymphocele	14 (3.93%)	7(5.5%)	0.4505
Arterial leaks	0	Nil	
Venous Thrombosis	1(0.28%)	Nil	
Ureteral Injury	Nil	Nil	
Anastomotic leaks	Nil	Nil	
Incisional Hernia	3(0.84%)	1(0.79%)	1.000
Chronic pain at wound site	8(2.24%)	3(2.38%)	1.000
Total number of cases	42(11.79%)	18(14.28%)	0.5299

Most common complication was lymphocele which occurred in 4 (1.12%) live and 7 (5.5%) cadaver kidney recipients. These patients required drain for longer period (on average 4 weeks).



Fig 1: Ultrasound picture of lymphocele

Most common wound complication was seroma causing wound gaping. Two patients required secondary suturing. A total of 5 cases developed urine leak (Less than 1%). Four cases were managed conservatively. In one case re-ureteroneocystostomy was done. Post-operative hematuria is very common due to cystostomy. It usually subsides in a day or two. Sometimes clots can block catheter and patient develops retention. One case had venous thrombosis leading to graft loss. There were no complications like arterial injury and anastomotic leaks. Four cases developed incisional hernia. In three case hernia repair was done. One case is under follow up.

Discussion

The surgical complication rate in live donor transplant was 11.79% and 14.28% in deceased donor transplantation. The incidence of complication reported by various authors as compared with our study is summarized in the following table (3-5).

Table 2: The incidence of complication reported by various authors as compared with our study

	Reyna <i>et al.</i>	Marcello <i>et al.</i>	Risaliti <i>et al.</i>	Our study
Wound complications	4%	4.4%		4.6%
Lymphocele	2%	6.2%	12%	4.71%
Urine leaks	2%	5.7%	7.4%	0.9%
Arterial leaks	1%	0.9%		0
Venous thrombosis	2%	1%	1.4%	0.20%
Incisional hernia	2%			0.81%
total	13%	20%	20.8%	13.03%

Theoretically, cadaveric recipient patients appear to be more susceptible for surgical complications because of long term renal replacement therapy, chronic anemia and surgery done in emergency scenario.

Conclusion

Although the surgical complications are little higher in deceased donor cases, there is no significant statistical difference found between the two groups (p-value 0.5299, non-significant). Deceased donor transplantation is as safe as live donor transplant surgery with minimal complications from surgery point of view.

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