Surgical Complications of Renal Transplantation; Single Centre Single Surgeon Experience Over 4 Years

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ABSTRACT

Background: The incidence of end stage renal disease has been increasing steadily over years. The change in life style, the epidemic proportion of diabetes mellitus and increasing cost of access to health care have all contributed to this. Renal transplantation has been the best treatment option in this situation. Historically the first renal transplantation in Kerala was performed in 1986 in Medical College Calicut under the leadership of Dr Roy Chally and Dr Thomas Mathew. Since then several centres have taken up performing this procedure in the state. Many more new centres are needed to bridge the gap between the needy and the actual numbers performed. Several factors are involved in the successful outcomes after renal transplantation. Prompt recognition of postoperative problems, excellent intensive care management of the recipient in the preoperative, intraoperative and postoperative settings and access to correct Immunosuppression regimes impact surgical outcomes.

Aim: The purpose of this study was to analyse and present our single-centre single surgeon experience concerning surgical complications among a series of 78 renal transplantations.

Methods: The study was a retrospective descriptive analysis in a series of 78 successive renal transplantations performed by a single surgeon in a single centre at the Department of Urology Medical College Trivandrum from January 2010 to August 2014 and analysing the surgical complications occurring in the followup period.

Results: Surgical complications occurred in 20 patients (25.64%). Both vascular (7.69%) and urologic (8.97%) complications occurred in equal incidence followed by lymphoceles (5.12%), wound related problems (3.84%) and other complications.

Conclusion: The study showed that the incidence of surgical complications among the 78 renal transplantations analysed were within the range seen in other series.

Keywords: Renal Transplantation, Stenosis, Thrombosis, Lymphoceles, Rejection and graft dysfunction

*See End Note for complete author details

INTRODUCTION

Renal transplantation is the best treatment option that can be offered for end-stage renal disease (ESRD). The improvement in graft survival has led renal transplantation as the preferred treatment for the majority of patients with ESRD. Even though surgical techniques and immunosuppressive regimens have improved, surgical complications remain an important cause for increased morbidity, hospitalization, and costs. The prompt recognition and treatment of these surgical complications can save the patient and the graft The purpose of this study was to present our single centre single surgeon experience concerning surgical complications among a series of 78 renal transplantations.

METHODS

We retrospectively analyzed surgical complications among 78 renal transplantations performed from January 2010 to August 2014. The mean age of the recipients was 32.84±10.8 and that of live donors were 42.1±8.5 years. There were 60 (76%) male and 18 (24%) female patients. Standard immunosuppressive method consisting of 3-drug regimen was used. The surgical technique used the internal iliac vessels to perform end-to-end vascular anastomoses in the earlier 20 patients which were changed to end-to-side with external/common iliac vessels with running sutures in the majority of patients. A modified Lich–Gregoir ureteroneocystostomy technique with temporary ureteral stenting usually for 1month was used in all patients. All patients were closely and regularly followed at our department, with a mean follow-up of 21±10months. We divided all surgical complications into vascular, urologic, lymphatic, wound related or other types. For statistical analyses, we used SPSS version 16.0 (SPSS, Inc., Chicago, Ill).

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RESULTS

Surgical complications occurred in 20 patients (25.64%). Both vascular and urologic complications were equal in incidence followed by lymphoceles, wound-related problems and other complications. The urologic complications were seen in 6 patients (7.69%). It included 3 (3.84%) ureteral strictures; 1 of which required open intervention with redo ureteroneocystostomy and 2 were managed endoscopically. Ureteral leak was seen in 2 patients (2.56%); of which one patient required reimplantation for distal ureteral necrosis.

Overall, vascular complications was noted in 7 (8.97%) patients. DVT was the most common vascular complication seen in 4 patients (5.12%) followed by TRAS (Transplant Related Renal Artery Stenosis) noted in 2 patients (2.56%). Both cases of TRAS were seen in patients who underwent end to end renal artery to internal iliac artery. Other vascular complications were renal artery thrombosis in 1 (1.28%). We observed graft infarction in 2 patients (2.56%); both of whom underwent graft nephrectomy. All of those patients with TRAS underwent PTA with stenting where as DVT was managed conservatively. All other vascular problems were managed with open surgery. One patient died of biopsy related haemorrhage. There were 4 cases (5.12%) of symptomatic lymphoceles with alterations in graft function. Treatment was mostly conservative with USG aspiration in 3, although 1 patient had to undergo surgical drainage and decortication. Wound-related problems developed in 3 cases (3.84%). Seroma was seen in 1 patient (1.28%) and wound separation was seen in 2 patients (2.56%). Facial dehiscence was seen in 1 patient who required secondary repair. 1 year patient survival was 91.8% and 1 year overall graft survival was 86%.Death censored graft survival was 94.1%. Functional graft survival was 91.7%.Death with functioning graft was the commonest cause of graft loss(33%). There were 3 cases of primary non function,3 cases of acute rejection and 2 were related to surgical complications. Delayed graft function (DGF) was seen in 15 (10.71%) patients. There were 13 (9.28%) biopsy proven acute rejection (BPAR) episodes. Of these, 10 (77 %) were antibody mediated rejection and 3(23%) were due to acute cellular rejection. 8.2% patients were lost, mainly due to infections. Primary graft non function was noted in 2 patients (1.4%) for which graft nephrectomy were done.

DISCUSSION

Renal transplantation is considered as a safe surgical treatment option for ESRD. Surgical complication follows any procedure; but the rates of such complications have come down in the recent years due to improvement in immunosuppressive regimes and operative technique refinement. As the expectation in the field increases, easier and safer techniques are adopted to reduce complications. Graft survival depends on how well these surgical complications are dealt with as they can lead to graft loss if not intervened at the appropriate time. Urological complications are the most common surgical complications ranging from 2.5% to 25% depending on the volume of patients studied. Rarely may they lead to failure of graft or patient death, but they will lead to increased hospitalisations and increased costs. The main cause of urological complication is due to decreased blood supply to the ureter and faulty surgical technique. Other problems such as immunosuppressive drugs, BK virus infection and rejection don't contribute much to the burden of urological problems; though they can cause obstruction in later stages. The latest low dose steroid immunosuppressive regimes and improved meticulous operative techniques have reduced the complications in high volume centres. With the advent of deceased donor transplantation and extended criteria for donors, poor ureteral vascularisation has recently been noted.

Vascular complications though less frequent compared to urological complications occurs with incidence rates ranging from 1% to 23%.Generally, these problems have a devastating course, especially arterial thrombosis, with graft loss in the majority of patients. TRAS is considered to be the most common vascular complication. It can result from an inadequate suture technique, vascular-type rejection, atherosclerosis of the donor or the recipient arteries, kinking of the artery, and rarely due to renal artery trauma. Its initial management consists of percutaneous transluminal angiography with balloon dilatation or placement of an endovascular stent. Surgical revision is considered when there is failure of PTA. Venous thrombosis is another rare complication after renal transplantation. It is generally an early postoperative event and is one of the most common causes of early graft loss. The aetiology is often multifactorial the most common being technical problems. Arterial thrombosis is a rare complication reported in high volume centres. It represents a major cause of graft loss in the early post transplant period. It usually results from operative technique problems, although other causes can be implicated, such as hypotension and coagulation disorders. The management consists of immediate surgical thrombectomy with revision of the anastomosis is the rule. Lymphoceles occur mainly due to the vascular dissection that opens lymphatic

channels. In the majority of patients it is an incidental finding on follow up ultrasound examination. These fluid collections are usually asymptomatic and require no treatment. When larger collections are present or associated with dilatation of the collecting system, pain, fever, or an unexplained decline in renal function, then intervention is needed. The first line of management is ultrasound guided aspiration. If an uninfected lymphocele recurs, it is usually treated by deroofing into the peritoneal cavity by either open or laparoscopic surgery. To conclude, surgical complications among our series of 78 renal transplants were within the range of other series. In our series both urological as well as vascular complications were of the same range. A meticulous surgical technique is mandatory to prevent them. Early diagnosis and management can decrease the morbidity usually associated with these complications, potentially saving the graft and the patient.

END NOTE

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Conflict of Interest: None delcared

Editorial Comments

Renal Transplantations are being done in Kerala from 1986 when Calicut Medical College under the leadership of Dr Roy Chally and Dr Thomas Mathew first performed this procedure. Initially only live donor renal transplantations were being performed. Deceased donor renal transplantations are being done since 2012. This article examines the surgical complications experienced in this field.

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