

The Urologic Complications in One Hundred Live Unrelated Allograft Kidney Recipients

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Abstract

Kidney replacement is the best choice for treatment of chronic renal failure patient. In this modality treatment, the life style of the patient will be normal. Along with the life style, the fertility and sexual activity of the patient will be normal. The most common surgical complication of the kidney transplant is urologic complication. The urologic complications in the kidney transplant are associated with high rate of mortality and morbidity. The success rate of the kidney transplant is center dependent and it depends on the experience of the surgeon. We describe the urologic complications of the kidney transplant center (which has the kidney transplant experience of more than 20 years) during last three years.

Methods: In one hundred unrelated live donor kidney recipients, 51 males and 49 females, their age ranging 15-60 years, all of them have been operated since 2008-2012, the urologic complications have been evaluated. They have been followed for at least 6 months post operation.

Results: In 100 kidney transplant recipients, there were no urologic complications including urine leak, ureter stricture and urinary infection.

Conclusions: Regarding the results of urologic complication studies at this center, it may be useful for considering reducing urologic complications.

Keywords: Stricture urete; Estenosis ureter; Ureter implantation; Allograft ureter; Kidney transplant complication

Introduction

The kidney transplant is the best option for the chronic renal failure patient because after the kidney replacement treatment, the life style and quality of life will be like normal [1-3]. The surgical complications of kidney transplant are two kinds including: urologic and vascular. The urologic complication is the most complication [4,5]. The urologic complication is important because it associates with high rate of morbidity and mortality and sometimes grafts loss [6]. The incidence of urologic complication has been reported in the range of 10% to 25%, and the mortality due to the urologic complication in the range of 20% to 30% has been reported [7,8]. At the beginning of kidney transplant mortality 50% because of urologic complication has been reported [9-11]. The urologic complication is almost technical [6]. In our kidney transplant center which has experience of more than 20 years, we investigate the urologic complications of one hundred kidney transplants from 2008-2011.

Materials and Methods

One hundred kidney recipients (51 males and 49 females) with the age in the range of 15-60 years 5 patients for second time and 95 patients for first time have been operated for kidney transplantation, in all of them extra peritoneal space at right side of iliac (for patients a first time referred for kidney transplant) and left iliac space (for patients that second time referred for kidney transplantation) have been prepared. In all of patients for renal artery anastomosis at the first internal iliac artery has been selected and if it has not been in good condition, alternatively the external iliac artery has been selected. Also if the right side of the kidney donor was selected for transplant the external iliac artery of the recipient has been selected for renal artery anastomosis. The renal vein of the allograft has been anastomosed to the external iliac vein of the kidney recipient. Prolen third for anastomosis of the vessels has been used (5-o for vein and six-o for artery).

For anastomosing of allograft ureter, after making spatula larger

than 2 cm at allograft ureter (Figure 1) with method of modified Lich extravascular, the ureter has been anastomosed to the lateral side of bladder with third of monocryl 4-o (Figures 2-4). Detrusor has been approximated over the anastomosis with chromic. Before finishing the anastomosis stent (DJ double J) has been inserted and after

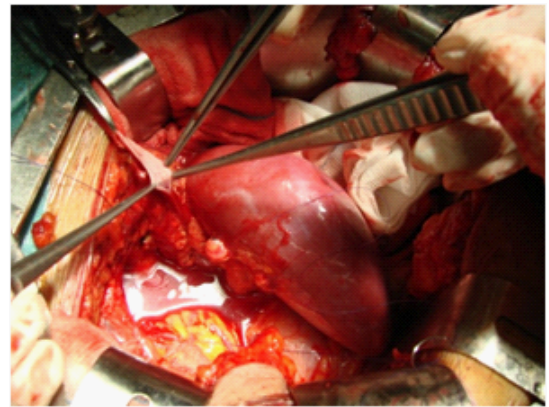


Figure 1: The large spatula at the posterior of the allograft ureter more than 2 cm.

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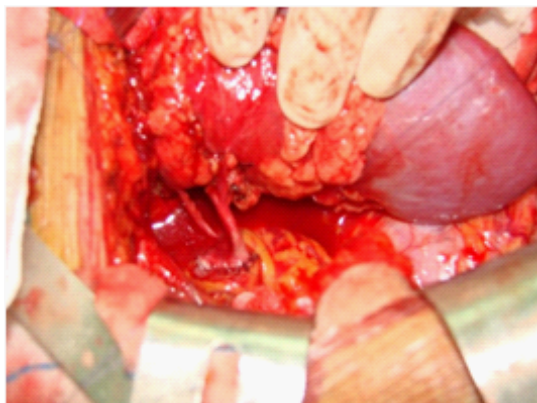


Figure 2: As much as possible laterally the ureter anastomosing to the bladder.

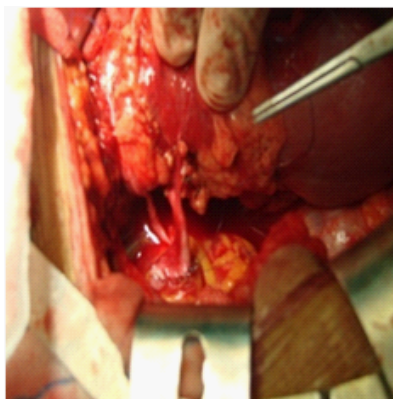


Figure 3: Compare the spatula and length of the ureter, the ureter is short length.

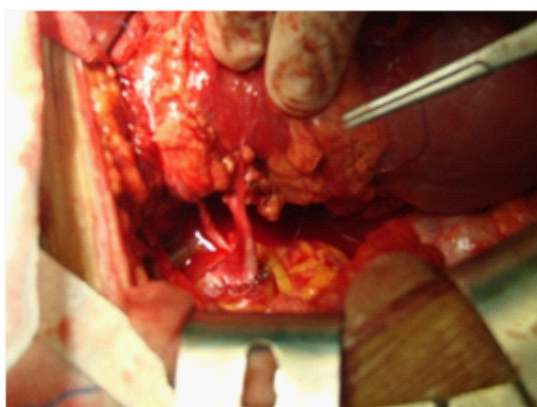


Figure 4: Monocryl for anastomosing a short length ureter.

finishing the anastomosis of the ureter a drain catheter inserted to the extra peritoneal. The bladder has been drained for seven days with Foley catheter and extra peritoneal drain catheter has been removed one day after removing urethral catheter. The stent (DJ) has been removed 4 weeks post operation. Post operation the patients have been followed by three anti reject drugs including: cyclosporine, MMF (mycophenolate mofetil), prednisolone. From the first day of operation

the patients have taken antibiotic (co -trimoxazole and cefazolin and before removing the urethral catheter, urine sampling for urine analysis and culture has been taken. Almost at the first day post operation, the patients have urinated at volume in the range of 12-16 liters which reduced to normal volume at second or third day of operation. Also all patients have taken 30 unite heparin per kg (at time of operation and continued for two times daily until the patient completely mobilized). The patients followed by ultrasonography color Doppler radioisotope scanning.

Results

All patients followed by ultrasound and radio isotope scan. At least for six months post operation there were not any urologic complications with the recipients including urine leak and ureteral stricture, urinary infection.

Discussion

Kidney replacement is the best option for management of the chronic renal failure patient because in this modality of treatment the quality of life is like normal and also this modality treatment is cost effective [1]. The success rate of kidney transplant depends to the center of kidney transplant, the donor of kidney, and the kidney recipient patient. The center of kidney transplant depends to the experience of team of kidney transplant, more experience associates with low complication [12,13]. One of the most common surgical complications of the kidney transplant is urological complication which can causes patient and graft loss [6]. The incidence of urological complication has been reported in the range of 10%-25% [7,8]. As the time has passed the incidence of complication has been changed (more experience). At the early time of beginning of our kidney transplant center the urologic complications have been reported at the rate of 18% [13], but in our study at the same center but at the recent time the urologic complications have been reported at the rate of 0% (without any significant urologic complication), this large difference in the results of urologic complication is due to increase in the experience of the center. Many factors are important at the outcome of implantation of the allograft ureter, including; circulation and ischemia of the ureter, spatula of the ureter, size of anastomosis, place of the anastomosis, stent with anastomosis, corner saving suture and kind of suture.

Blood circulation of ureter: It is clear that the blood circulation of ureter at the allograft kidney is just only from renal artery, so as much as the ureter to be small in length the circulation will be enough, so, as possible as we must short the length of ureter.

Spatula ion of the ureter: Spatula ting of the posterior of the ureter is very important at the outcome of anastomosis, as much as spatula increase the chance of stenosis will be decrease.

Place of anastomosis: The place of anastomosis on the bladder is very important because as much as the place of anastomosis will be laterally at the bladder it will result in need of the short length of ureter for reaching to the bladder and anastomosing also in this position endoscopy and ureteroscopy may be possible and consequently doing any necessary handling [14].

Stent of ureter: Many study and also metanalysis support the using stent at improving the outcome of transplant [15].

Corner saving suture: Starting suture some distance from the middle of posterior ureter (corner saving suture) may help for saving diameter [16].

Kind of suture: Monocryl for suture (5-0 or 4-0) is important for reducing reaction of ureter and for changing in size at the diameter of ureter.

Conclusion

The urologic complication of the allograft ureter is very important, it can be result in losing the graft and the recipient, with regarding the length of ureter and the size of spatula and the place of anastomosing and gentle handling of the ureter and kind and method of suture it may be possible to have a very low urologic complication with allograft ureter implantation.

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