Postoperative Urological Complications of Renal Transplantation; Al Karama Hospital Experience

Yousuf M. Alhallaq*, Shawqi Ghazala, Mohammad Batal ***, Ausama Saadi Abdul Muhsin******

ABSTRACT:

BACKGROUND:

Studying early post kidney transplant urological complication will provide a feed back evaluation for the surgical technique used and the way of complication management.

OBJECTIVES:

To study the postoperative urological complications and their management in the first 6 months following renal transplantation.

METHODS:

This is a retrospective study in which 123 patients with end stage renal disease (ESRD) underwent renal transplantation from January 2001 to October 2004 in Al Karama teaching hospital, Baghdad – Iraq. All the transplanted kidneys were from living donors. Direct matching between the serum of recipient and lymphocytes of the donor was negative. Extravesical ureteroneosystostomy was carried out using a stent across the anastomotic site. Postoperatively recipients were followed for 6 months by clinical and regular laboratory tests. Ultrasound and color Doppler examinations were performed when there was any evidence of decreased urinary output, allograft dysfunction, or clinical suspicion of rejection.

RESULTS:

In 123 patients aged 5 – 59 years with a mean age of 34 years, renal transplantation was carried out. Postoperative urological complications within the first 6 months were reported in 12 (9.75%) patients including urinary leakage in 6 (4.8%), ureteral obstruction in 3 (2.4%), and lymphocele in 3 (2.4%) patients.

CONCLUSION:

Major urological complications after renal transplantation contribute to patient morbidity and compromise graft function. Early diagnosis and treatment will avoid loss of the graft.

KEYWORDS: kidney transplantation, urological complications.

INTRODUCTION:

Urological complications constitute significant problem following renal transplantation. The most important aspects concerning these complications are early diagnosis and prompt treatment, any delay in diagnosis and management may lead to deterioration of renal graft function or graft loss [(1)]. In the series published during the seventies, the post – transplantation complications rate ranged from 3.5-30% [(2)], while in the recent publications the figure ranges from 3-12% [(3,4)]. These complications occur as a consequence of the alterations in ureteral vascularization during graft manipulation in the context of harvesting and posterior implantation ,and in relation to ureterovesical reimplantation. Such vascular impairment generates ischemic damage with subsequent necrosis, which most often affects the distal third of the ureter resulting in graft loss in 10 – 15% of cases. Traditionally these have been subjected to open surgery involving ureteral reimplantation techniques. However, since the introduction of endourological techniques in the eighties, the management of fistulas and ureteral stenosis by means of such procedures has been shown to constitute an effective treatment alternative [(2)]. The aim of this study is to evaluate the frequency of postoperative urological complications in the first 6 months following renal transplantation and their management among Iraqi patients.

* Department of Urology, Renal Transplantation Center, Surgical Specialties Hospital, Medical City.
** Department of Renal Transplantation, Al Karama Teaching Hospital.
*** Al Karama Teaching Hospital.
****College of Medicine, Nahrain University.

MATERIALS AND METHODS:

In this retrospective study 123 patients with end stage renal disease (ESRD) underwent kidney transplantation from January 2001 to October 2004 in Al Karama teaching hospital, Baghdad – Iraq. All the transplanted kidneys were taken from living donors. Direct matching between the serum of recipient and lymphocytes of the donor was negative. Hot and cold ischemia times were recorded in every transplantation procedure.

Technique: The vascular anastomosis of the transplanted kidney was an end to end of the renal artery / arteries to the internal iliac artery, and an end to side of the renal vein / veins to the external iliac vein. Cold Ringer's solution was used for preservation. Ureteroneocystostomy was carried out using an extravesical technique and ureteral stent was used across the site of anastomosis. The stent was removed 10 days postoperatively. The immnuosuppresive drugs used were Cyclosporin A, methyl prednisolone, cellcept, and simulect. Patients were followed up for 6 months postoperatively. Clinical evaluation included physical examination particularly of the abdomen and lower extremities in addition to vital signs, input, and output charts. A 24 hour estimation of renal function tests was carried out. Renal allograft dysfunction was defined as a case of persistent/or progressive elevation of serum creatinine. Conventional ultrasound and color Doppler examinations were done when there was an evidence of decreased urinary output, allograft dysfunction, or rejection. Postoperative ureteral leakage was considered if there was persistent drainage of urine with or without allograft dysfunction. Postoperative ureteral obstruction was considered in patients who had combination of the following criteria; allograft dysfunction, postoperative ipsilateral or bilateral leg oedema, Ultrasound features of moderate – severe dilatation of upper urinary tract, in addition to the presence of fluid collection around the transplanted kidney and its ureter.

Statistical analysis: Data were analyzed using mean ± standard deviation (SD), frequency, and percentage. The software used in this paper was the Microsoft office Excel 2003.

RESULTS:

In this study 123 patients aged 5 -59 years with a mean age of 34 years. There were 103 (84%) males and 20 (16%) females. Table (1) shows the age group distribution of recipients. The mean hot ischemia time was 5.8 (range 3 – 9) minutes and the mean cold ischemia time was 58.6 (range 45 – 120) minutes. Transplanted kidneys were taken from related donors in 103 (84%) patients while 20 (16%) of kidneys were taken from unrelated donors. Postoperative urological complications were reported in 12 (9.75%) patients as follows; urinary leakage in 6 (4.8%), ureteral obstruction in 3 (2.4%), and lymphocele in 3 (2.4%) patients. Urinary leakage stopped following conservative management by urethral catheter and insertion of drainage tube through the leakage site in 5 patients. However, one patient needed surgical ureteral reimplantation . Ureteral obstruction was due to early development (within the first postoperative week) of pelvic hematoma in two patients and lower ureteral obstruction occurring two months postoperatively in one patient.

The pelvic hematoma was managed successfully by immediate exploration and evacuation while the lower ureteral obstruction was managed by temporary percutaneous nephrostomy. Lymphocele was managed in 3 patients by frequent aspirations under ultrasound guide until the collection disappeared.

Table 1: Age group distribution of recipients

Age (years)	n = 123
< 10	3
10 -19	8
20 - 29	30
30 - 39	47
40 -49	31
50 - 59	4

DISCUSSION:

Urological complications represent a common problem in kidney transplant surgery. Solving these complications may improve renal graft survival and, consequently, patient outcome [5]. Kidney transplantation in Iraq was initiated in 1973. Some studies evaluated the development of postoperative urological complications [6] and the patient and graft survival among Iraqi patients who underwent renal transplantation [7]. The incidence of urological complications in large series is 2.6 - 15%. This wide range probably reflects the method of reporting; some authors do not include lymphoceles as a urological complication, and others included urinary tract infection (UTI) [8]. In this study which included 123 recipients, postoperative urological complications were reported in 12 (9.75%) patients within the first 6 months postoperatively. Urinary leakage developed in 6 (4.8%) patients, and was treated conservatively except in one patient who needed ureteral reimplantation. We used stents routinely for all patients. Several authors advocate the routine use of ureteric stents as this would result in a lower incidence of urological complications, particularly urinary leaks and early postoperative obstruction [8, 9, 10]. Ureteral obstruction was reported early (within the first week postoperatively) in 2 patients due to perinephric collection diagnosed as hematoma which was surgically evacuated. This requires more careful surgical technique to avoid the possible future development of such complication. One patient with lower ureteral obstruction was managed successfully with percutaneous nephrostomy (PCN) which was followed by a reduction of serum creatinine and improvement of the general condition. PCN is a safe and effective method for the treatment of ureteral obstructions in kidney allograft recipients. It provides long-term success with few recurrences and low morbidity and mortality rates [11]. Lymphocele was managed successfully in 3 patients by frequent aspirations under ultrasound guidance. In comparison with other transplant centers worldwide, our frequency of urological complications was similar. Longer follow up is advised in the future studies for Iraqi renal allograft recipients, not only to assess the frequency of late complications, but to accurately assess the 5 – year patient and graft survival.

CONCLUSION:

Major urological complications after renal transplantation contribute to patient morbidity and compromise graft function. Early diagnosis and treatment will avoid loss of the graft.

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