



Ureteral Complications in Kidney Transplantation: Analysis and Management of 853 Consecutive Laparoscopic Living-Donor Nephrectomies in a Single Center

Y.S. Choi^a, K.S. Kim^a, S.W. Choi^a, W.J. Bae^a, S.H. Hong^a, J.Y. Lee^a, J.C. Kim^a, S.W. Kim^a, B.H. Chung^b, C.W. Yang^b, J.I. Kim^c, I.S. Moon^c, and H.J. Cho^{a,*}

^aDepartment of Urology, The Catholic University of Korea, College of Medicine, Seoul, Korea; ^bDepartment of Nephrology, The Catholic University of Korea, College of Medicine, Seoul, Korea; and ^cDepartment of Surgery, The Catholic University of Korea, College of Medicine, Seoul, Korea

ABSTRACT

Background. We report the incidence and nature of ureteral and surgical complications in our series of 853 consecutive living-donor renal transplants after laparoscopic living-donor nephrectomy. The aim of this study was to analyze the therapeutic approaches to ureteral complications in kidney transplantations and their relationship with recipient outcome.

Methods. The medical records of patients who underwent kidney transplantation from 2000 to 2014 were reviewed retrospectively. After the donor nephrectomies were performed with the use of laparoscopic, hand-assisted laparoscopic, and vesico-ureteral anastomosis, the recipient's ureteral complications were classified according to the mechanism and site of urinary tract involvement: anastomosis stricture, anastomosis leakage, vesico-ureteral reflux, and urolithiasis.

Results. Among the 853 cases of kidney transplantation, ureteral complications occurred in 66 patients (7.73%). The most common complication was urinary tract infection caused by vesico-ureteral reflux ($n = 24$, 2.81%), which was managed with by means of sub-ureteral polydimethylsiloxane injection. The second most common complication was the anastomosis site stricture ($n = 23$, 2.69%), which was treated by means of ureteral re-implantation or percutaneous nephrostomy. Anastomosis site leakage occurred in 11 patients (1.28%) and was managed by percutaneous nephrostomy with double-J stenting and drainage or ureteral re-implantation. Urolithiasis occurred in 8 patients (0.93%).

Conclusions. There was an 8% rate of recipient ureteral complications at our institution. Of the 66 patients, 46 (5.4%) required surgical repair. The remaining 20 patients with ureteral complications were treated with conservative care or minimally invasive procedures. The keys to successful management of these problems are early diagnosis and prompt reconstruction whenever possible. Most ureteral complications are easily managed with a successful outcome with early intervention.

UROLOGIC complications after renal transplantation cause significant morbidity and have the potential to cause early allograft failure or even death. The incidence of major urological complications is reported to be 2.9% to 21% [1–3]. Early diagnosis, based on a high index of suspicion and prompt treatment, remains the mainstay of the therapeutic approach.

*Address correspondence to Hyuk Jin Cho, Department of Urology, Seoul St. Mary's Hospital, The Catholic University of Korea, 505 Banpo-dong, Seocho-gu, 137-040, Seoul, Korea. E-mail: a0969@catholic.ac.kr

Because of the advantages of laparoscopic surgery and increased patient demand for minimally invasive surgery, laparoscopic living-donor nephrectomy is gaining worldwide acceptance. Large comprehensive studies have shown that the long-term outcomes of living-donor kidney transplants to be similar between laparoscopic and open-donor nephrectomy [4–6]. However, we believe that the impact of laparoscopic living-donor nephrectomy on ureteral complications in adult recipients must be determined.

We herein report the incidence and nature of recipient ureteral and surgical complications in our case series of 853 consecutive living-donor renal transplants after laparoscopic living-donor nephrectomy. The aim of this study was to analyze the therapeutic approaches to the ureteral complications in kidney transplantations and their relationship with recipient outcomes.

METHODS

Patients

We used our institution’s electronic medical record database system to search for kidney transplantation recipients of a laparoscopic or hand-assisted laparoscopic living-donor nephrectomy, from February 2000 to February 2014. The medical records of all patients were reviewed retrospectively for postoperative outcomes, with a focus on the incidence and treatment of urologic complications. Only patients with a minimum postoperative follow-up period of 12 months were included. With the principles and practices of The Catholic University of Korea Institutional Review Board, this study was performed under general guideline of institutional review board medical ethics.

Surgical Techniques

From 2000, laparoscopic or hand-assisted laparoscopic donor nephrectomy was the standard procedure in our institution. Four urologists performed living-donor nephrectomy via laparoscopic and hand-assisted laparoscopic donor nephrectomy. During surgery, extreme care was taken to avoid monopolar cautery for ureteral preparation. If necessary, clips or traditional chromic ties were used sparingly, between the proximal ureter and the lower pole of the kidney. The vesico-ureteric anastomosis was fashioned after revascularization of the kidney and after distension of the bladder. The preferred technique during the decade was the stented extravesical technique [7]; the full thickness of the ureter was anastomosed with a continuous or 6-0 synthetic absorbable glyconate monofilament suture to the bladder mucosa over a 14-cm, 4.7F double-pigtail ureteric stent. The bladder detrusor muscle layer was then closed over the distal ureter to form a tunnel [8]. In all cases, a urethral catheter was indwelling for at least 5 days. The ureteric stent was removed cystoscopically between 4 and 6 weeks after transplantation.

Immunosuppression

For the included patients, the initial immunosuppressant was tacrolimus in combination with mycophenolate mofetil and prednisolone. Basiliximab was used as additional induction therapy at 2 hours before transplantation and on day 4 after transplantation. The initial dose of tacrolimus was 0.16 mg/kg per day orally, and target trough levels were 8 to 12 ng/mL during the first 3 months and 3 to 8 ng/mL afterward. Methylprednisolone (1 g/d) was

administered by intravenous infusion on the day of transplantation and was tapered to prednisolone at 30 mg/d on day 4 after transplantation. The initial dose of mycophenolate mofetil was 1.5 g/d, and the dose was modified to minimize adverse effects such as diarrhea or leukopenia.

Graft Function and Ureteral Complication Assessment

After surgery, graft function and urologic complications were closely monitored by means of serum creatinine, urine output, urine analysis, Doppler ultrasonography, and patient symptoms. In cases of hydronephrosis, flank pain, fever, or pyuria, urologic complications such as anastomosis leakage, stricture, vesico-ureteral reflux (VUR), or urolithiasis formation were suspected, and special evaluation including computed tomography, pyelography, or ureteroscopic examination was performed. Ureteral complications were classified according to the underlying cause and its site on the urinary tract: hydronephrosis caused by anastomosis stricture, urine leakage caused by anastomosis site leakage, urinary tract infection caused by VUR, and urolithiasis.

The risk factors for the development of ureteral complications were assessed with the use of logistic regression analysis.

RESULTS

Overall, among 853 cases of laparoscopic living-donor kidney transplantations, ureteral complications occurred in 66 recipients (7.73%). Eleven patients had complications during the first postoperative month, 32 between the 2nd and 6th postoperative months and 23 after the 6th postoperative month. VUR was the most common ureteral complication among our patients (24 cases), followed by anastomosis site stricture (23 cases), anastomosis leakage (11 cases), and urolithiasis (8 cases) (Table 1).

As mentioned above, the most common complication among our case series was chronic urinary tract infection caused by VUR (n = 24, 2.81%). The mean period of VUR manifestation was 23.25 months (1–62 months). All patients had symptomatic VUR and were treated cystoscopically. Subureteral polydimethylsiloxane (PDS) injection with use of a cystoscopic technique is a minimally invasive and efficient treatment for VUR. The overall success rate of PDS injection was 70.8% (17/24 patients) and did not produce any significant complications.

The second most common complication was anastomosis site stricture (n = 23, 2.69%). The mean onset of ureteral stricture was 10.3 months (1–32 months). Ureteral re-

Table 1. Demographics of 66 Ureteral Complication in 853 Consecutive Renal Transplant Patients Between 2000 and 2014

Complication	Number	Mean Period of Manifestation
Vesicoureteral reflux	24	23.25 months (1–62 months)
Hydronephrosis due to anastomosis stricture	23	10.3 months (1–32 months)
Urine leakage due to anastomosis leakage	11	8.5 days (1–21 days)
Urolithiasis	8	27.3 months (5–80 months)

Download English Version:

<https://daneshyari.com/en/article/5729206>

Download Persian Version:

<https://daneshyari.com/article/5729206>

[Daneshyari.com](https://daneshyari.com)