recommended for all patients with stones and renal insufficiency in hopes of maximally preserving renal function and delaying renal functional deterioration.

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ENDOUROLOGY & LAPAROSCOPY

Laparoscopic versus open donor nephrectomy: ureteral complications in recipients

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Objectives: To describe our experience with laparoscopic donor nephrectomy (LDN) and open donor nephrectomy (ODN) regarding ureteral complications. LDN has proved to be safe and to offer significant benefits to the donor compared with ODN. Of major importance is the effect of the surgical technique on the graft. Studies have shown an increased incidence of ureteral complications in recipients of laparoscopically procured kidneys. Operative reconstruction results in additional morbidity for the recipient.

Methods: Living donors and their recipients, who underwent surgery from January 1994 to April 2002, were included in this retrospective study. A total of 122 LDN and 77 ODN recipients were included.

Results: Of the 122 LDN and 77 ODN recipients, 15 (12%) and 10 (13%), respectively, required percutaneous nephrostomy drainage. In total, 5 LDN (4.1%) and 5 ODN (6.5%) recipients required reconstruction of the ureter because of obstruction of the ureter or urine leakage (P value not statistically significant, excluding reconstruction required for technical errors). The operating time, warm ischemia time, and serum creatinine were comparable between recipients with or without ureter complications requiring reconstruction.

Conclusions: In our experience, LDN was not associated with an increased incidence of ureteral complications in the recipient compared with ODN.

Editorial Comment

Dr. Stephen Jacobs, one of the pioneers of laparoscopic donor nephrectomy, wrote an excellent commentary following this article that touched on all of the important points. He pointed out that, although the results of the study are reassuring with regards to no difference between the open surgical and laparoscopic kidneys in terms of recipient ureteral complications, the results must be interpreted cautiously because the groups were not synchronous and therefore significant bias could enter. Nonetheless, all recipients underwent ultrasonography and nuclear medicine scanning, and percutaneous nephrostomy tubes were used for initial management in all cases. In addition, in those patients who required operative repair the findings were similar. One criticism of the study that cannot be easily addressed is the low power for detecting a difference between groups, given the expected 3 – 5% frequency of transplant ureteral complications. That the incidence appears greater in this study (in both groups) is likely due at least in part to the routine assessment of all kidneys with ultrasonography and nuclear medicine scanning. What we can take home from this study is that any difference in ureteral complications between the 2 harvest methods is unlikely to be great. A small difference would have

been missed by this study. Certainly, however, the fears that laparoscopically harvested ureters might be stripped of their vascularity and cause a dramatic increase in the incidence of ureteral complications appears to be unfounded.

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Complications of abdominal urologic laparoscopy: longitudinal five-year analysis

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Objectives: To analyze complications of abdominal laparoscopic surgery of the urinary tract at a single institution during a 5-year period.

Methods: From 1996 to 2000, we identified 894 abdominal laparoscopic procedures performed at a single institution: 600 nephrectomies (live donor, simple, radical, nephroureterectomy, and partial), 112 pyeloplasties, 61 renal biopsies, 35 retroperitoneal lymph node dissections, 31 renal cyst ablations, 18 adrenalectomies, and 37 other abdominal procedures. The charts were retrospectively reviewed for complications, which were classified as operative, postoperative, or medical. Complications were correlated with patient age and American Society of Anesthesiologists score. Statistical analysis was performed with Fisher's exact test and chi-square tests.

Results: A total of 118 complications (13.2%) occurred. Two patients (0.2%) died. As a result of operative complications, the procedure of 13 patients (1.5%) was converted to an open one. As a result of postoperative complications, 13 (1.5%) underwent operative and 6 (0.7%) nonoperative intervention. The most common intraoperative complications were vascular (n = 23), adjacent organ (n = 10), and bowel (n = 9) injuries. The most common postoperative complications were neuromuscular pain (n = 12), hematoma (n = 11), urine leak (n = 7), and wound infection (n = 7). The differences in the annual complication rates for all procedures did not attain statistical significance (P = 0.5). Among all procedures, excluding live donor nephrectomy, complications of any kind correlated with a greater patient American Society of Anesthesiologists score (P = 0.01).

Conclusions: Rather than decreasing, the overall incidence of laparoscopic complications did not change significantly during a 5-year period at our institution. The factors contributing to this observation likely included the progression of inexperienced individual surgeons through the learning curve, the introduction of new, more sophisticated laparoscopic procedures, and stable rates of patient comorbidity. This experience may represent the average complication rate for urologic laparoscopy at a large-volume, academic training center.

Editorial Comment

For years I have been counseling patients pre-operatively that, overall, there is a about a 5% risk of major complication and about a 10% risk of a minor complication associated with laparoscopic nephrectomy. The data from this very large and long series supports those approximations. The context of these figures is important to consider. On one hand, a lower rate of complications might have been expected given the expertise of the senior surgeons at this institution. On the other hand, as pointed out in this article, the performance of many inexperienced trainees is included in this series. In addition, the typical referral patterns that lead the

sicker patients to the large medical centers also might tend to increase complication rates. Overall the rates have been stable over time, suggesting that this is about what anyone might expect given a certain level of experience and capability with laparoscopy.

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IMAGING

MRI for preoperative staging of renal cell carcinoma using the 1997 TNM classification: comparison with surgical and pathologic staging

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Objective: The purpose of our study was to determine the accuracy of MRI for preoperative staging of renal cell carcinoma using the 1997 TNM classification.

Materials and Methods: We conducted a retrospective review of MRI performed in 40 consecutive patients with 42 renal cell carcinomas before radical (n = 35) or partial (n = 4) nephrectomy or exploratory laparotomy (n = 3). The interval between imaging and surgery ranged from 1 to 59 days (mean, 17.9 days). Imaging was performed with T1- and T2-weighted, dynamic gadolinium-enhanced, and time-of-flight sequences. MRI and surgical-pathologic staging was performed using the 1997 TNM staging system. MRI staging was compared with surgical-pathologic staging as the gold standard. Agreement between the two staging methods was assessed using the kappa statistic.

Results: Agreement between MRI and surgical-pathologic staging was good for T staging (kappa = 0.72 and 0.78 for reviewers 1 and 2 respectively), poor for N staging (kappa = 0.13, both reviewers), good for M staging (kappa = 0.66, both reviewers), and excellent for the assessment of venous involvement (kappa = 0.93, both reviewers). MRI overestimated the T stage in five patients and the N stage in five and underestimated the T stage in three, the N stage in four, the M stage in one, and the extent of venous thrombosis in two patients.

Conclusion: MRI is a reliable method for preoperative staging of renal cell carcinoma using the 1997 TNM classification, in particular for assessing venous involvement.

Editorial Comment

The TNM staging system for renal cell carcinoma was revised by the American Joint Committee on Cancer (AJCC) and the International Union Against Cancer (UICC) in 1997. The 1997 TNM staging system for renal cell carcinoma reclassifies tumors using criteria for size and for extent of renal vein / vena cava involvement that are different from the criteria used in the 1987 staging system. With this new TNM staging classification the size limit for T1 tumor was changed from 2.5 to 7 cm.This paper adresses very clearly the problems of the imaging criteria for adequate preoperative evaluation of tumor size, presence of perirrenal extension and regional adenomegaly. It's well known that on the basis of imaging features distinction between stage T1/T2 and stage T3a tumor cannot be reliably made. This occurs because the assessment of invasion of the renal capsule and Gerota's fascia in tumor larger than 3 cm of diameter is based on the utilization of poor predictive radiological