STONE DISEASE

Third prize: contemporary percutaneous nephrolithotripsy: 1585 procedures in 1338 consecutive patients

Duvdevani M, Razvi H, Sofer M, Beiko DT, Nott L, Chew BH, Denstedt JD
Division of Urology, The University of Western Ontario, London, Ontario, Canada
J Endourol. 2007; 21: 824-9

Background and Purpose: The approach to urinary-stone disease has changed dramatically over the last three decades with a transition from open surgery to minimally invasive procedures. Percutaneous nephrolithotripsy (PCNL) is a cornerstone of the treatment of kidney and selected upper-ureteral stones and continues to evolve with advances in techniques and instrumentation. The purpose of this study was to assess outcomes and trends prospectively in a large contemporary group of patients undergoing PCNL.
Patients and Methods: Between July 1990 and December 2005, all 1338 patients at a single center scheduled for PCNL (N = 1585 procedures) were enrolled. Their mean age was 53 years (range 4-89 years). Data including comorbidities, stone burden, stone location, surgical time, hospital length of stay, rate of secondary procedures, and adverse events were collected prospectively. The primary outcome measures were stone-free rate and complications.
Results: There was a substantial incidence of comorbid medical conditions (48.8%) and anatomic renal abnormalities (25.3%), demonstrating the diverse and challenging patient population in this contemporary series. The overall stone-free rate at 3 to 6 months of follow-up was 94.8%.
Conclusions: Percutaneous nephrolithotripsy is a highly effective procedure and may be performed in a diverse group of patients with comorbid conditions and renal abnormalities. Improved intracorporeal lithotripters, balloon dilation of the tract, use of flexible instruments, and liberal use of secondary nephroscopy result in excellent stone-free rates with low morbidity.

Editorial Comment

This large contemporary series provides important information that is helpful with regards to counseling patients on the risk:benefit ratio of percutaneous nephrolithotomy (PCNL). It is important to emphasize that these results are from a very experienced tertiary center with a large volume of procedures (over 100 PCNL's per year), and one might expect that success rates may be somewhat lower and complication rates somewhat higher at sites with lower surgical volumes.

The broad applicability of the PCNL is supported by the wide age range treated (4-89), the substantial comorbidity (in 49% of patients) and the significant proportion of patients with renal abnormalities (25%). In spite of this challenging patient population, the success rate of 90% at time of discharge is commendable. We should note that no computerized tomography was utilized for postoperative follow-up – recent studies would suggest that more sensitive CT scans would detect residual stones in approximately 20% of those deemed stone-free by traditional imaging.

Importantly, the high success rate in this series was obtained without the need for routine upper pole access as has been recommended by other investigators. It may have been useful to stratify efficacy and safety based on the presence of renal anomalies and patient comorbidites or based on the need for multiple or supracostal access.

The authors report that they converted from a serial Amplatz dilator system to a balloon dilation system in 1995, following reports by other investigators of decrease in bleeding with this approach. It would have been interesting to know if their 7% bleeding complication rate (minor and major) decreased after the switch to

balloon dilation. The low rates of pulmonary complications and major bleeding set new standards for preoperative counseling of patients.

Dr. Manoj Monga
Professor, Department of Urology
University of Minnesota
Edina, Minnesota, USA

Determination of ideal stent length for endourologic surgery

Jeon SS, Choi YS, Hong JH
Department of Urology, Samsung Medical Center, Sungkyunkwan University School of Medicine, Seoul, South Korea
J Endourol. 2007; 21: 906-10

Purpose: To assess whether direct measurement of ureteral length correlates with patient height or the ureteral length measured on intravenous urography in order to determine the appropriate ureteral stent length to be used for ureteroscopic surgery.
Patients and Methods: Sixty-five patients (70 ureters) who underwent ureteroscopic procedures were evaluated. The ureteral length between the ureteropelvic and ureterovesical junctions was determined either by preoperative intravenous urography (straight ureteral length; SUL) or intraoperatively with the aid of a guidewire (practical ureteral length; PUL). We regarded the PUL as a clinically useful measurement. The height, SUL, and PUL for each patient was determined. For a postoperative comparison of proper stent position, we selected another 36 patients in whom the length of the stent was based on patient height.
Results: The SUL values correlated significantly with the PUL ($R2 = 0.482$ on the right v 0.564 on the left side) and might be used as a predictor of stent length. However, patient height did not correlate with the PUL. Postoperative stent position tended to be better in the patients who had direct ureteral measurements than in those with stents chosen on the basis of patient height.
Conclusion: Determination of stent length according to patient height does not correlate well with the length needed for endoscopic procedures. Direct measurement of the ureteral length is easy and minimizes stent-associated complications and stent migration.

Editorial Comment

The routine use of noncontrast cross-sectional imaging for the diagnosis and preoperative planning for urolithiasis makes the determination of ureteral length on IVP to a certain degree obsolete. As such, alternative methods to determine ureteral length at the time of surgery are attractive. The concept of direct ureteral length measuring at the end of the procedure is attractive. This can be accomplished as described in this study, by passing a guidewire. Alternatively, one can measure the distance on the ureteroscope as it is withdrawn from the UPJ to the UVJ. Lastly, one could use an open-ended ureteral catheter with inked-measurements. The authors note that ureteral dilation at the end of a ureteroscopic stone extraction could lead to overestimation by the PUL method.

The stent sizes utilized based on patient height were longer than we would traditionally utilize. For example, we commonly utilize 22 cm stents for patients shorter than 5’4”, and though the shortest patient in this study was 4’8”, the shortest ureteral stent placed was 24 cm.

The authors’ hypothesis that a poorly placed stent that crosses the midline is somewhat speculative without the evaluation of urinary symptoms and flank pain in this study. One could make a counter-argument that

a coil sitting flush on the sensitive trigone could cause more discomfort than one that has extra length in the bladder. As such, the impact of stent positioning on patient outcomes remains an area ripe for investigation.

Dr. Manoj Monga
Professor, Department of Urology
University of Minnesota
Edina, Minnesota, USA

ENDOUROLOGY & LAPAROSCOPY

Open versus laparoscopic live donor nephrectomy: a focus on the safety of donors and the need for a donor registry

Shokeir AA
Urology and Nephrology Center, Mansoura University, Mansoura, Egypt
J Urol. 2007; 178: 1860-6

Purpose: A review of the existing literature showed that the subject of live donor nephrectomy is a seat of underreporting and underestimation of complications. We provide a systematic comparison between laparoscopic and open live donor nephrectomy with special emphasis on the safety of donors and grafts.
Materials and Methods: The PubMed(R) literature database was searched from inception to October 2006. A comparison was made between laparoscopic and open live donor nephrectomy regarding donor safety and graft efficacy.
Results: The review included 69 studies. There were 7 randomized controlled trials, 5 prospective nonrandomized studies, 22 retrospective controlled studies, 26 large (greater than 100 donors), retrospective, noncontrolled studies, 8 case reports and 1 experimental study. Most investigators concluded that, compared to open live donor nephrectomy, laparoscopic live donor nephrectomy provides equal graft function, an equal rejection rate, equal urological complications, and equal patient and graft survival. Analgesic requirements, pain data, hospital stay and time to return to work are significantly in favor of the laparoscopic procedure. On the other hand, laparoscopic live donor nephrectomy has the disadvantages of increased operative time, increased warm ischemia time and increased major complications requiring reoperation. In terms of donor safety at least 8 perioperative deaths were recorded after laparoscopic live donor nephrectomy. These perioperative deaths were not documented in recent review articles. Ten perioperative deaths were reported with open live donor nephrectomy by 1991. No perioperative mortalities have been recorded following open live donor nephrectomy since 1991. Regarding graft safety, at least 15 graft losses directly related to the surgical technique of laparoscopic live donor nephrectomy were found but none was emphasized in recent review articles. The incidence of graft loss due to technical reasons in the early reports of open live donor nephrectomy was not properly documented in the literature.
Conclusions: We are in need of a live organ donor registry to determine the combined experience of complications and long-term outcomes, rather than short-term reports from single institutions. Like all other new techniques, laparoscopic live donor nephrectomy should be developed and improved at a few centers of excellence to avoid the loss of a donor or a graft.

Editorial Comment
The author performed a very comprehensive review of the literature (live donor laparoscopic nephrectomy) revealing only 7 randomized trials that concluded that when compared to open live donor nephrectomy, laparoscopic