Impact of Shockwave Coupling on Efficacy of Extracorporeal Shockwave Lithotripsy

Weiland D, Lee C, Ugarte R, Monga M
Department of Urologic Surgery, University of Minnesota, Minneapolis, Minnesota, USA
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Purpose: To evaluate the impact of a slow gated treatment rate on the efficacy of extracorporeal shockwave lithotripsy (SWL).
Patients and Methods: From August 1990 to July 2002, 40,462 SWL procedures were performed using the slow frequency electrocardiography (ECG)-gated lithotripter (82.5%) and fast frequency ECG-ungated (17.5%) modes for the Medstone STS lithotripter. Treatment characteristics, including the mode of SWL, location and size of the stone, re-treatment status, auxiliary procedures required, perioperative complications, and treatment outcomes, were recorded. The stone-free rate was reported by the treating physician on the basis of the finding of no residual stone fragments on a plain radiographic image.
Results: The treatment rate for the slow mode was a mean of 79.6 shocks/min, while the rate for the fast mode was 120/min. The total procedure time was 47.0 minutes for the slow mode and 40.6 minutes for the fast. The overall stone-free rate was higher for slow (66.9%) than fast (63.6%) procedures ($P < 0.001$). The stone-free rate for 1- to 10-mm stones was higher for the slow procedures (75.7%) than the fast procedures (70.7%; $P < 0.001$). Upper-ureteral stones responded better to slow treatment in terms of stone-free rate (79.5% v 72.6%; $P < 0.001$), re-treatment rate (6.5% v 8.0%, $P = 0.05$), auxiliary-procedure rate (6.1% v 8.9%; $P = 0.01$), and efficiency quotient (71 and 62). There was no significant difference in complication rates overall between slow and fast treatment. Conclusions: With a minimal increase in procedure time, greater efficacy can be obtained for the treatment of radiopaque stones with a slower shock-delivery rate. In particular, upper-ureteral calculi and calculi <10 mm benefit from a slower treatment rate.

Editorial Comment

Treating at a gated setting has been demonstrated to decrease the risk of cardiac dysrhythmias from 20% to 0.3% (Reference 15 in the article). In vitro and clinical trials have demonstrated that stone fragmentation and stone-free rates are superior with a slower (60 shocks/min) versus faster (120 shocks/min). This study suggests that a practical approach to slower treatments is to revert back to gating shockwave to the cardiac rhythm – thereby improving stone-free rates while preventing cardiac morbidity. Stones greater than 3 cm in size and distal ureteral stones did not benefit from a slower treatment protocol – as such, these stones are better suited for an endoscopic procedure.

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

ENDOUROLOGY & LAPAROSCOPY

Reoperative Laparoscopic Pyeloplasty in Children: Comparison with Open Surgery

Piaggio LA, Noh PH, Gonzalez R.
Department of Surgery, Division of Urology, A. I. duPont Hospital for Children, Wilmington, Delaware, and Department of Urology, Thomas Jefferson University, Philadelphia, Pennsylvania
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Purpose: We assessed the feasibility of pediatric redo laparoscopic pyeloplasty in comparison to redo open pyeloplasty for safety, efficacy, operative time, blood loss, postoperative analgesic requirements, length of hospitalization, complications, need for readmission and subsequent procedures.
Materials and Methods: We performed a retrospective chart review of consecutive patients undergoing reoperative pyeloplasty between June 2003 and July 2006.
Results: A total of 10 patients (11 redo pyeloplasties) were divided into 2 groups, ie those undergoing redo open (4) and laparoscopic (6) pyeloplasty. Groups were similar in age, sex, weight, laterality, and number and type of prior interventions to repair ureteropelvic junction obstruction. Surgical time for redo laparoscopic pyeloplasty was longer than for redo open pyeloplasty (290 vs 203 minutes, $p < 0.05$). Success rate was the same in both groups (80%). The redo laparoscopic pyeloplasty group had a shorter hospital stay (mean 2.5 vs 4.6 days, $p < 0.05$), decreased use of parenteral narcotics (0.2 vs 5 mg/kg, $p < 0.01$), and a trend toward decreased oral narcotics (0.2 vs 2.1 mg/kg, $p = 0.09$) and fewer complications (0 vs 4, $p < 0.05$).
Conclusions: We confirm the feasibility of redo laparoscopic pyeloplasty in the pediatric population. In experienced hands pediatric redo laparoscopic pyeloplasty can be performed safely with a success rate similar to that of open surgery, and it may provide a faster recovery with decreased narcotic requirements and morbidity. Further studies are needed to better define the role of laparoscopic pyeloplasty for secondary ureteropelvic junction obstruction in the pediatric population.

Editorial Comment
Historically, laparoscopy in pediatric urology was very controversial. It raised several questions about feasibility, safety and outcome. Time demonstrated that even in complex cases such as, the redo pyeloplasties, the laparoscopic approach maybe performed offering faster recovery time, decreased hospitalization and morbidity, as well as, less use of narcotics compared to the open approach.

Dr. Fernando J. Kim
Chief of Urology, Denver Health Med Ctr
Assistant Professor, Univ Colorado Health Sci Ctr
Denver, Colorado, USA

Laparoscopic Extraperitoneal Radical Prostatectomy in Complex Surgical Cases

Rodriguez AR, Kapoor R, Pow-Sang JM
Department of Interdisciplinary Oncology, Division of Genitourinary Oncology, H. Lee Moffitt Cancer Center and Research Institute, University of South Florida, Tampa, Florida
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Purpose: Patients with a high body mass index, previous pelvic surgery or large prostate size are not considered ideal candidates for radical prostatectomy. We assessed the impact of body mass index, previous pelvic surgery and prostate weight on perioperative and pathological outcomes in patients treated exclusively with laparoscopic extraperitoneal radical prostatectomy.
Materials and Methods: From January 2004 to May 2005, 300 patients underwent laparoscopic extraperitoneal radical prostatectomy. Patients were divided into groups, including body mass index groups 1 (25 kg/m(2) or less), 2 (25.1 to 30), 3 (30.1 to 36) and 4 (greater than 36); prostate weight groups 1 (20 gm or less), 2 (20.1 to 40), 3 (40.1 to 60) and 4 (more than 60); and prior surgery groups 1 (no previous pelvic or prostatic surgery) and 2 (previous pelvic or prostatic surgery).

Results: Logistic regression demonstrated that body mass index, large prostate size and previous pelvic surgery did not affect margin status. The Kruskal-Wallis test was performed to analyze if body mass index, large prostate size and previous pelvic surgery had an effect on perioperative variables. Only prostate weight correlated with a delay in Foley catheter removal (3 days, p = 0.0005). The Wilcoxon rank sum test showed that patients with a higher body mass index had a slightly prolonged hospital stay (16 hours, p = 0.02). Patients with a prostate of more than 40 gm had slightly increased blood loss (56 cc, p = 0.03), which did not affect the transfusion rate.
Conclusions: Laparoscopic extraperitoneal radical prostatectomy can be performed in complex surgical cases without increased perioperative morbidity. Obese patients and those with a large prostate who prefer surgery as a treatment option for localized prostate cancer may benefit from the advantages that laparoscopic extraperitoneal radical prostatectomy offers.

Editorial Comment
The new era of minimally invasive surgery demonstrates the feasibility of laparoscopic retropubic radical prostatectomy in patients with high body mass index, previous pelvic surgery or large prostate size. In general surgery laparoscopic procedures are highly encouraged for patients that are more complex due to better outcomes compared to open surgery. In urology, we are still taken "baby steps" demonstrating slowly the advances in minimally invasive surgery. The authors should be congratulated for the elegant manuscript demonstrating the feasibility and good outcome of laparoscopic surgery in complex surgical patients.

Dr. Fernando J. Kim
Chief of Urology, Denver Health Med Ctr
Assistant Professor, Univ Colorado Health Sci Ctr
Denver, Colorado, USA

IMAGING

Diagnostic Yield of 58 Consecutive Imaging-Guided Biopsies of Solid Renal Masses: Should We Biopsy All That Are Indeterminate?

Beland MD, Mayo-Smith WW, Dupuy DE, Cronan JJ, DeLellis RA
Department of Radiology, Diagnostic Imaging, Rhode Island Hospital, Providence, RI, USA
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Objective: The purpose of our study was to report the diagnostic yield of 58 consecutive imaging-guided biopsies of solid renal masses.
Materials and Methods: We retrospectively reviewed all percutaneous renal biopsies of solid masses performed at our institution over 83 consecutive months from May 1998 to March 2005 through a query of our radiology department procedure database. Fifty-five CT and three sonographic biopsies were performed at our institution during this time. A solid renal mass was documented prior to biopsy by contrast-enhanced CT (n = 48), gadolinium-enhanced MRI (n = 6), or sonography (solid noncystic masses, n = 4). The average maximal mass diameter was 3.1 cm (range, 1.0-11.0 cm). Forty-seven (81%) of the 58 biopsies were performed