International Braz J Urol
Official Journal of the Brazilian Society of Urology
Vol. 31 (4): 390-413, July - August, 2005

UROLOGICAL SURVEY

FRANCISCO J.B. SAMPAIO
Urogenital Research Unit
State University of Rio de Janeiro (UERJ), Brazil

EDITORIAL COMMITTEE

STONE DISEASE

Shock wave lithotripsy at 60 or 120 shocks per minute: a randomized, double-blind trial

Pace KT, Ghiculete D, Harju M, Honey RJ; University of Toronto Lithotripsy Associates
Division of Urology, Department of Surgery, St. Michael's Hospital, University of Toronto, Toronto, Ontario, Canada

J Urol. 2005; 174: 595-9

Purpose: The rate of shock wave administration is a factor in the per shock efficiency of shock wave lithotripsy (SWL). Experimental evidence suggests that decreasing shock wave frequency from 120 shocks per minute results in improved stone fragmentation. To our knowledge this study is the first to examine the effect of decreased shock wave frequency in patients with renal stones.

Materials and Methods: Patients with previously untreated radiopaque stones in the renal collecting system were randomized to SWL at 60 or 120 shocks per minute. They were followed at 2 weeks and 3 months. The primary outcome was the success rate, defined as stone-free status or asymptomatic fragments less than 5 mm 3 months after treatment.

Results: A total of 220 patients were randomized, including 111 to 60 shocks per minute and 109 to 120 shocks per minute. The 2 groups were comparable in regard to age, sex, body mass index, stent status and initial stone area. The success rate was higher for 60 shocks per minute (75% vs 61%, $p = 0.027$). Patients with larger stones (stone area 100 mm or greater) experienced a greater benefit with treatment at 60 shocks per minute. The success rate was 71% for 60 shocks per minute vs 32% ($p = 0.002$) and the stone-free rate was 60% vs 28% ($p = 0.015$). Repeat SWL was required in 32% of patients treated with 120 shocks per minute vs 18% ($p = 0.018$). Fewer shocks were required with 60 shocks per minute (2,423 vs 2,906, $p < 0.001$) but treatment time was longer (40.6 vs 24.2 minutes, $p < 0.001$). There was a trend toward fewer complications with 60 shocks per minute ($p = 0.079$).

Conclusions: SWL treatment at 60 shocks per minute yields better outcomes than at 120 shocks per minute, particularly for stones 100 mm or greater, without any increase in morbidity and with an acceptable increase in treatment time.

Editorial Comment

Over the last decade, lithotripter technology has been disappointingly stagnant. Indeed, current lithotripters are less effective at stone fragmentation than the original Dornier HM3 lithotripter. As a result, endoscopic stone management, which has advanced substantially during this same time frame, has become an increasingly attractive option for the treatment of renal calculi. Recent efforts, however, have been underway to improve SWL efficacy and efficiency through optimization of treatment parameters.

Paterson and colleagues first demonstrated in a novel porcine model that slowing the rate of shock wave delivery improved stone fragmentation (1). In the current study, Pace and co-workers report the first prospective, randomized clinical trial comparing slow with fast shock wave delivery on SWL outcomes. Among 220 patients with > 5 mm renal calculi randomized to slow (60 shocks/minute) versus fast (120 shocks/minute) shock wave delivery, "success rates" (defined at stone free or asymptomatic fragments less than 5 mm) were superior in the slow shock wave group. When stratified by stone size into smaller and larger stones (< 100 mm^2 or ≥ 100 mm^2), the difference in success rates and stone free rates between the 2 treatment groups was more pronounced in the larger stone group.

While small stones are generally successfully fragmented under most conditions, larger stones have been less successfully treated, particularly with newer generation lithotripters. Therefore, slowing the rate of

shock wave delivery may provide a means of achieving acceptable outcomes with SWL for stones which are increasing being treated by endoscopic means. The small increase in treatment time associated with slower shock wave delivery should be more than compensated for by the less frequent need for retreatment and the fewer complications associated with poorer fragmentation. Perhaps with optimization of SWL treatment parameters, non-invasive management will once again become the preferred treatment option for renal calculi.

Reference

1. Paterson RF, Lifshitz DA, Lingeman JE, Evan AP, Connors BA, Fineberg NS, Williams JC Jr, McAteer JA: Stone fragmentation during shock wave lithotripsy is improved by slowing the shock wave rate: studies with a new animal model. J Urol. 2002; 168: 2211-5.

Dr. Margaret S. Pearle
Associate Professor of Urology
University of Texas Southwestern Med Ctr
Dallas, Texas, USA

Randomized controlled study of mechanical percussion, diuresis, and inversion therapy to assist passage of lower pole renal calculi after shock wave lithotripsy

Chiong E, Hwee ST, Kay LM, Liang S, Kamaraj R, Esuvaranathan K
Department of Surgery, National University of Singapore, Singapore
Urology. 2005; 65: 1070-4

Objectives: To determine whether mechanical percussion, diuresis, and inversion (PDI) therapy after shock wave lithotripsy (SWL) improves the clearance rates of lower pole renal stones.

Methods: In this single-blind study, 108 patients who underwent SWL treatment for lower pole renal stones with a total diameter of 2 cm or less were prospectively randomized into two groups. One group (n = 49) received SWL only and the other group (n = 59) received a median of four sessions of PDI therapy (range 1 to 12), 1 to 2 weeks after each SWL session. PDI therapy was performed as follows. Patients drank 500 mL of water 30 minutes before therapy; they then lay in a prone Trendelenburg position on a 45 degrees -angle couch, and received continuous 10-minute manual mechanical percussion applied over the flank. Stone clearance was documented with plain abdominal radiography, with additional imaging, if indicated, 1 and 3 months after initial SWL therapy.

Results: The patients from both groups were comparable in terms of total stone diameter, infundibular neck diameter, infundibular length, caliceal height, infundibular-pelvic angles, infundibular-ureteral angles, infundibular-vertebral angles, lower pole cortical thickness, and caliceal number. All patients underwent a maximum of four SWL treatments. For all assessable patients, the radiologically documented complete stone clearance rate at 3 months for the SWL-alone group was 35.4% and for the SWL plus PDI group was 62.5% (chi-square test, P = 0.006).

Conclusions: PDI therapy is a valuable adjunct in assisting passage of lower pole renal stone fragments after SWL therapy.

Editorial Comment

The dependent location of the lower pole calyces has been shown to constitute an impediment to passage of fragments after SWL. Other anatomic factors, such as the length, width and angle of the lower pole infundibulum also likely contribute to the probability of fragment clearance. Pace and colleagues previously

showed in a randomized trial that a regimen of percussion, diuresis and inversion therapy in patients left with residual < 4 mm lower pole calyceal fragments after SWL resulted in an additional 40% of patients clearing fragments from the kidney compared with no further clearance in the observation group (1).

In the current study, Chiong and associates randomized patients with lower pole stones to undergo 4 formal sessions of percussion, diuresis and inversion therapy starting 1-2 weeks after SWL versus no additional therapy and found a significant improvement in stone free rates in the treated group compared with the control group (63% versus 35%). Although the mean stone size in the 2 groups was 1 cm in the control group and 0.8 cm in the treated group, patients with stones up to 2 cm in size were included, a group that has previously been shown to respond poorly to SWL (2). As such, this regimen offers promise for improving stone free rates in a group of patients who have historically done poorly with SWL. Perhaps combining these mechanical maneuvers with pharmacotherapy using potassium citrate, which has been shown in a randomized trial to improve clearance of residual fragments after SWL of lower pole stones (3), will further improve treatment outcomes in this problematic patient group.

References

1. Pace KT, Tariq N, Dyer SJ, Weir MJ and D'A Honey RJ: Mechanical percussion, inversion and diuresis for residual lower pole fragments after shock wave lithotripsy: a prospective, single blind, randomized controlled trial. J Urol. 2001; 166: 2065-71.
2. Albala DM, Assimos DG, Clayman RV, Denstedt JD, Grasso M, Gutierrez-Aceves J et al.: Lower pole I: a prospective randomized trial of extracorporeal shock wave lithotripsy and percutaneous nephrostolithotomy for lower pole nephrolithiasis-initial results. J Urol. 2001; 166: 2072-80.
3. Soygur T, Akbay A, Kupeli S: Effect of potassium citrate therapy on stone recurrence and residual fragments after shockwave lithotripsy in lower caliceal calcium oxalate urolithiasis: a randomized controlled trial. J Endourol. 2002; 16: 149-52.

Dr. Margaret S. Pearle
Associate Professor of Urology
University of Texas Southwestern Med Ctr
Dallas, Texas, USA

ENDOUROLOGY & LAPAROSCOPY

Laparoscopic rectovesical fistula repair

Sotelo R, Garcia A, Yaime H, Rodriguez E, Dubois R, Andrade RD, Carmona O, Finelli A
Section of Laparoscopic and Minimally Invasive Surgery, Department of Urology, "La Floresta" Medical Institute, Caracas, Venezuela
J Endourol. 2005; 19: 603-7

Background and Purpose: Rectovesical fistula (RVF) is a rare complication of radical prostatectomy. A 62- year-old man with clinically localized prostate cancer underwent open radical prostatectomy that was complicated by rectal injury and subsequent RVF development. Conservative management failed, and the patient was referred for surgical correction.

Technique: The operative steps consisted of (1) cystoscopy, (2) RVF catheterization, (3) ureteral catheterization, (4) five-port transperitoneal laparoscopic approach, (5) cystotomy, (6) opening of the fistulous

tract, (7) dissection between the bladder and the rectum, (8) closure of the rectum, (9) interposition of omentum, (10) suprapubic cystostomy placement, (11) bladder closure, and (12) colostomy creation.

Results: The operative time was 240 minutes. The hospital stay was 3 days. The urethral catheter was kept indwelling for 4 days. At 8 weeks postoperatively, the suprapubic tube was removed and the colostomy reversed. At 1-month follow-up, the patient remains free of fistula recurrence.

Conclusion: Laparoscopic rectovesical fistula repair is feasible and represents an attractive alternative to the standard approaches.

Editorial Comment

Rectovesical fistula is a rare complication after radical prostatectomy but when it occurs, it is very frustrating for the patient and the surgeon involved. The authors describe a novel laparoscopic approach to a problem that traditionally has been managed with complex reconstructive open surgery. This manuscript demonstrates the universally well known attractive benefits of minimally surgery, including faster recovery and better cosmetic results.

Dr. Fernando J. Kim
Chief of Urology
Denver Health Medical Center
Denver, Colorado, USA

Outpatient laparoscopic pyeloplasty

Rubinstein M, Finelli A, Moinzadeh A, Singh D, Ukimura O, Desai MM, Kaouk JH, Gill IS
Section of Laparoscopic and Robotic Surgery, Glickman Urological Institute, Cleveland Clinic Foundation, Cleveland, Ohio, USA
Urology. 2005; 66: 41-3; discussion 43-4

Objectives: To assess the feasibility of ambulatory laparoscopic pyeloplasty. Laparoscopic pyeloplasty aims to reproduce the excellent functional outcomes of open pyeloplasty while diminishing procedural morbidity.

Methods: Six patients fulfilled specific inclusion criteria for outpatient laparoscopic pyeloplasty: informed consent, body mass index of 40 kg/m2 or less, primary ureteropelvic junction obstruction, uncomplicated laparoscopic surgery completed by 12:00 pm, and postoperative pain control by oral analgesics. All patients had a double-J ureteral stent placed cystoscopically before laparoscopic access. No drains were placed postoperatively.

Results: All 6 patients successfully underwent laparoscopic dismembered pyeloplasty (3 left, 3 right) using the retroperitoneal (n = 5) or transperitoneal (n = 1) approach. The average patient age was 22 years. The mean surgical time was 223 minutes (range 165 to 270), the mean blood loss was 82 mL (range 10 to 250), and the mean postoperative hospital stay was 359 minutes (range 226 to 424). Postoperative analgesia comprised a mean of 6 mg morphine sulfate and 32 mg of ketorolac. No complications or readmissions occurred postoperatively. Intravenous urography and Lasix technetium-99m mercaptoacetyltriglycine renal scans documented resolution of obstruction. With long-term follow-up (mean 38.4 months), no recurrences have developed.

Conclusions: We report our initial series of ambulatory laparoscopic pyeloplasty. In this well-selected patient population, outpatient pyeloplasty was feasible and safe.

Editorial Comment

Advancement in the area of laparoscopy allowed better and minimally invasive management of ureteropelvic junction obstruction, departing from the less cosmetic but highly successful open technique. Other less invasive surgical techniques (i.e.; retrograde and anterograde endopyelotomy and Acucise endopyelotomy) offered an attractive outpatient setting but the success rates remained less than optimal. This article reveals that we have not explored all the benefits of minimally invasive laparoscopic surgery with an important caveat demonstrating that great results and low morbidity can only be achieved in high volume and experienced centers in laparoscopic surgery.

Dr. Fernando J. Kim
Chief of Urology
Denver Health Medical Center
Denver, Colorado, USA

IMAGING

Use of extended pattern technique for initial prostate biopsy

Siu W, Dunn RL, Shah RB, Wei JT
Departments of Urology and Pathology, University of Michigan, Ann Arbor, Michigan, USA
J Urol. 2005; 174: 505-9

Purpose: An extended prostate biopsy schema has been advocated at initial prostate biopsy to decrease the rate of false-negative cancer cases. However, critics have raised concerns that this may lead to the greater detection of clinically insignificant cancers. We examined the impact of using an extended pattern schema on cancer detection and also on the finding of smaller and clinically insignificant cancer.

Materials and Methods: Clinical data, including patient age, race, prebiopsy prostate specific antigen (PSA), digital rectal examination, prostate volume, number of needle cores and biopsy findings were abstracted from the medical records of all patients who underwent prostate biopsy in a 5-year period. Extended pattern prostate biopsy was defined as more than 10 cores. Clinically insignificant cancer was defined as a maximal tumor dimension of 1.0 cm or less, Gleason sum 6 or less and organ confined disease at radical prostatectomy. Adjusted regression models were developed to assess the independent effects of using an extended biopsy pattern on the detection of cancer overall and on the detection of clinically insignificant cancer.

Results: A total of 740 men with a mean age of 62.6 years were referred for prostate biopsy. Median PSA was 5.7 ng/ml and prostate volume was 39.7 cc. The OR for detecting prostate cancer was 1.55 (95% CI 1.09 to 2.19) for the extended pattern compared with standard biopsy. Of the subset of 136 patients who underwent radical prostatectomy 12.6% had clinically insignificant cancer. However, in contrast to overall cancer detection, extended pattern prostate biopsy was not found to be associated with an increased risk of detecting smaller or clinically insignificant cancer. PSA density was the single parameter found to be independently associated with the detection of clinically insignificant cancer (95% CI 0.20 to 0.98).

Conclusions: Using an extended prostate biopsy pattern involving more than 10 cores increases the likelihood of detecting prostate cancer. A significant association between more needle cores at initial prostate biopsy and finding smaller and clinically insignificant cancer was not apparent.

Editorial Comment

There is a worldwide tendency to perform an extended biopsy for the initial evaluation of a patient suspecting of prostate cancer. When both scheme of biopsy (sextant and extended) are performed in the same group of patients overall yield of prostate cancer detection varies from 0 to 35%. When we compare the results of both schemes in distinct group of patients the yield is still significant. In a recent review of our clinical database we had a 24.6% detection rate in a group of 2,647 patients submitted to sextant biopsy and a 39.7% detection rate in the group of 1,000 patients who underwent a 12-cores-scheme of biopsy (yield of 15.1%).We have to consider that in the last group many patients were biopsied because their PSA level was > 2.5 ng/mL. The authors reviewed the results of initial prostate biopsy performed in a group of 740 patients in which 136 patients with prostate cancer were treated by radical prostatectomy. The extended pattern prostate biopsy technique (more than 10 cores) increased the cancer detection rates when compared with the sextant scheme, without a significant increase in clinically insignificant disease. Clinically insignificant cancer was defined as cancer with maximal dimensions of 1.0 cm or less at prostatectomy (i.e. a diameter of 1.0 cm or less, corresponding to a volume of 0.5 cc or less), Gleason sum 6 or less and organ confined disease. This article brings us an important information about an intriguing phenomenon, which is related to the potential increasing in the number of clinically insignificant tumors by increasing the number of cores. Similarly to others studies the authors report that they found the lack of an association between an extended biopsy technique and the detection of smaller or clinically insignificant tumors. From a practical point of view one limitation of this study is that the authors used the surgical pathology results for define clinically insignificant cancer. It would be interesting to have this information before surgery. But this issue is also controversial since there are different criteria to predict insignificant prostate cancer on prostate needle biopsy (1): needle biopsies with prostate carcinoma in fewer than 3 cores (from a 6-core biopsy sample), absence of Gleason grade (pattern) 4 or 5, no more than 50% prostate carcinoma involvement in any of these cores, stage T1c and PSA density < 0.15 ng/mL (2) and focal carcinoma on sextant biopsy defined as < 3 mm in length in only one core, no Gleason grade (pattern) 4 or 5, and PSA density (PSAD) cut-off level of < 0.10 ng/mL (3). Other new information is related to PSAD, which was found to be the single parameter independently associated with the detection of overall cancer and clinically insignificant cancer. The authors found that at lower PSAD prostate cancer was less likely to be detected but a greater proportion of them were insignificant cancers and that PSAD greater than 0.2 was the threshold at which there was a lower likelihood of detecting insignificant cancer. Beyond PSAD greater than 0.3 all cancers detected were clinically significant. The authors state that the simple calculation of PSAD may be useful for determining whether the cancer detected by extended biopsies is potentially insignificant disease. Unfortunately, at least in our experience, the majority of patients submitted to the initial biopsy has PSAD < 0.2. This finding is even more pronounced when we biopsy patients with PSA level > 2.5 ng/mL.

References

1. Billis A: Comment on: Postma R, Vries SH, Roobol MJ, Wildhagen MF, Schroder FH, van der Kwast TH: Incidence and follow-up of patients with focal prostatic carcinoma in 2 screening rounds after an interval of 4 years. Int Braz J Urol. 2005; 31: 280-281.
2. Epstein JI, Walsh PC, Carmicahel M, Brendler CB: Pathologic and clinical findings to predict tumor extent of nonpalpable (stage T1c) prostate cancer. JAMA. 1994; 271: 368-74.
3. Bastian PJ, Mangold LA, Epstein JI, Partin AW: Characteristics of insignificant clinical T1c prostate tumors. A contemporary analysis. Cancer. 2004; 101: 2001-5.

Dr. Adilson Prando
Chief, Department of Radiology
Vera Cruz Hospital
Campinas, São Paulo, Brazil

MDCT urography of upper tract urothelial neoplasms

Caoili EM, Cohan RH, Inampudi P, Ellis JH, Shah RB, Faerber GJ, Montie JE
Department of Radiology, University of Michigan Health System, Ann Arbor, MI, USA

AJR Am J Roentgenol. 2005; 184: 1873-81

Objective: The purpose of our study was to review the MDCT urography appearance of pathologically proven transitional cell carcinomas of the renal collecting system and ureter and to correlate the MDCT urography findings with pathology findings.

Materials and Methods: Of 370 MDCT urography examinations performed over an 18-month period, 18 patients were diagnosed with 27 renal collecting system or ureteral urothelial neoplasms at endoscopic biopsy (n = 8) or surgery (n = 19). Initial MDCT reports were reviewed to determine the sensitivity of original reviewers in detecting these neoplasms. Two radiologists also retrospectively reviewed these scans and characterized the CT appearance of the neoplasms on both axial CT and 3D reformatted images. Findings at retrospective review were correlated with pathology results to determine whether any CT features could be used to predict tumor grade.

Results: Eighteen of 27 neoplasms were prospectively identified on MDCT urography, and an additional six neoplasms were detected on retrospective review. Three ureteral neoplasms could not be visualized. The 24 retrospectively detected neoplasms had three distinct MDCT appearances: circumferential urothelial wall thickening (n = 14), small masses (> 5 mm in maximal diameter) (n = 5), and large masses (> 5 mm in maximal diameter) (n = 5). All detected lesions could be seen on axial excretory phase images provided wide window settings were reviewed; however, only six were detected on 3D reconstructions. MDCT urography appearance did not correlate with tumor grade.

Conclusion: MDCT urography is a promising technique for detecting upper urinary tract neoplasms. The static 3D reconstructions used in this study are insufficient for visualization. Axial image review remains essential for tumor identification.

Editorial Comment

Multidetector CT (MDCT) urography has been shown to be a promising and effective single comprehensive examination in the evaluation of patients with hematuria or with risk for the development of urothelial malignancies. During MDCT urography the images are obtained in the unenhanced phase (detection of calculi), nephrographic-phase (detection of renal masses) and excretory-phase (detection of urothelial lesions).

The authors nicely presents the imaging findings of 24 neoplasms retrospectively detected in 18 out 370 patients submitted to the “state of the art” MDCT urography. In this investigation 89% of malignant upper tract foci were detectable with this relatively new technique. One of the several important contributions showed by this study was the possibility of detecting small tumors. These small tumors, similarly to larger ones, were both papillary and flat and both high grade and low grade. The authors were able to retrospectively detect small (< 5 mm) tumors. Similarly to larger lesions, these tumors appeared as intraluminal masses and ureteral wall thickening. Most of these small lesions were seen only on the axial images and with wide window settings.

Our early experience with MDCT has also been rewarding since we have been able to prospectively detect some cases of small urothelial malignancies, two of these confirmed as carcinoma in situ. The use of virtual endoscopy in both of theses cases was useful to confirm the presence of such small lesions and to differentiate them from ectopic or prominent papillae. Additional information was also offered to the surgeon when endoscopic resection was the modality of treatment.

As pointed out by the authors MDCT will not identify all urothelial tumors due to either its peculiar location or small size or more frequently due to technical problems (lack of opacification of the pelviocalyceal system and ureter).

Dr. Adilson Prando
Chief, Department of Radiology
Vera Cruz Hospital
Campinas, São Paulo, Brazil

UROGENITAL TRAUMA

Management of penile fracture

El-Taher AM, Aboul-Ella HA, Sayed MA, Gaafar AA
Urology Department, Faculty of Medicine, Assiut University, Assiut, Egypt
J Trauma. 2004; 56: 1138-40

Background: Penile fracture is not a frequent event. It consists of rupture of the tunica albuginea of the corpora cavernosa. Fracture occurs when the penis is erect, as the tunica is very thin and not flexible.

Methods: This prospective study was carried out over a period of 1 year and included 12 patients presenting with penile fracture.

Results: Diagnosis was made clinically, and there was no need to perform cavernosography in any case. The most common cause of fracture was trauma to the erect penis during intercourse. Mean age of patients was 29.5 (+ /- 8.96) years, and mean time of presentation was 15.5 (+/- 8.04) hours. Subcoronal circumferential degloving incision was done in all cases. Nine patients were operated on, and three patients refused surgery and were treated conservatively. Repair consisted of evacuation of hematoma and repair of the tunical defect with absorbable sutures. The mean operative time was 33.9 (+/- 8.2) minutes. Preoperative and postoperative antibiotics were used, and all operated cases were discharged on the second postoperative day. All operated cases were able to achieve full erection with straight penis except one, in whom mild curvature and pain during erection was observed.

Conclusion: Penis fracture is a true urologic emergency. It should be treated surgically as early as possible to ensure a better outcome.

Editorial Comment

This Egyptian study is a nice review that emphasizes the importance of prompt surgical repair for the management of penile fractures. Fractures that were repaired had no organic impotence and had straight, painless erections. Those who were managed conservatively developed penile nodules and plaques, and/or penile curvature and erectile dysfunction. Penile fracture is the result of axial forces to the erect penis that result in a tear in the tunica and/or Buck's fascia of the penis. The tear in the fascia is typically transverse, involves the mid to proximal penis and is on ventral to lateral aspect. The tear can be close to or travel under the urethra, and in rare instances can extend into the corpus spongiosum or into urethra (partial or complete transactions). Patients with blood at the meatus or any degree of hematuria and penile fracture need to have the urethra evaluated for concomitant injury. This can be done preoperatively with a retrograde urethrogram or intraoperatively by flexible cystoscopy or by injecting blue-tinged saline retrograde and evaluating for extravasation. The diagnosis of

penile fracture is based on history and physical examination. In rare instances, rupture of the dorsal vein can mimic a penile fracture. Otherwise, the diagnosis is often easy to make. Cavernosography is cumbersome, invasive, rarely ever performed, and generally unnecessary to make the diagnosis. In equivocal cases, magnetic resonance imaging may have a role in the diagnosis of penile fracture, since it is a noninvasive and sensitive and specific modality.

Dr. Steven B. Brandes
Associate Professor, Division of Urologic Surgery
Washington University in St. Louis
St. Louis, Missouri, USA

Treatment of pelvic fracture-related urethral trauma: a survey of current practice in the UK

Andrich DE, Greenwell TJ, Mundy AR
Institute of Urology, London, UK
BJU Int. 2005; 96: 127-30

Objective: To quantify experience of pelvic fracture-related urethral trauma (PFUT), a condition not often encountered and managed by urologists.

Methods: The consultant urologists of the UK and Ireland were contacted informally to establish their experience with PFUT and its management, both immediate and delayed. In addition, particular individuals thought to have a specific interest in PFUT were targeted for more data.

Results: The overall response rate was 49% (235 responders), representing 78% of urological departments, including all the targeted individuals. Of the responders, 129 (55%) had never seen PFUT in 1-25 years of consultant practice. Only four urologists (2% of responders) saw three or more cases a year. Another four (2%) saw one or two cases per year and the remaining 98 (41%) saw PFUT less frequently. Acutely, 69% of urologists who treated PFUT did so by placing a urethral catheter. Subsequent strictures were treated endoscopically for as long as this was possible. The other 31% inserted a suprapubic catheter and referred the patient for reconstructive surgery if needed. Those who used urethroplasty for strictures after PFUT were identified and targeted; half used urethral mobilization and spatulated anastomosis alone. Only three surgeons performed more than five procedures a year.

Conclusion: Whatever a specialist reconstructive unit might do, practice in the wider urological community is different. Even within specialized units, PFUT is rare and the surgical management is often significantly different from published ‘expert’ opinion.

Editorial Comment

This British paper eloquently states what those of us who specialize in trauma and urethral reconstructive surgery have experienced in practice for years. Despite a wealth of literature supporting that managing urethral distractions by a “reconstructive ladder” is antiquated and prone to failure, this is the most common method practiced by contemporary British and Irish urologists. Furthermore, most UK urologists manage only a handful of urethral distraction injuries their entire career, and even fewer have performed a posterior urethroplasty. It is this general lack of experience and knowledge of the literature that makes minimally invasive methods of management disproportionably popular. Posterior urethral injury from pelvic fracture is a distraction injury where the space between the separated ends of the urethra fills with scar. Thus, posterior urethral distraction

injuries are not really urethral strictures, and thus minimally invasive methods and “cut to the light” procedures do not have any durable success.

Dr. Steven B. Brandes
Associate Professor, Division of Urologic Surgery
Washington University in St. Louis
St. Louis, Missouri, USA

PATHOLOGY

Prognostic and predictive factors and reporting of prostate carcinoma in prostate needle biopsy specimens

Amin M, Boccon-Gibod L, Egevad L, Epstein JI, Humphrey PA, Mikuz G, Newling D, Nilsson S, Sakr W, Srigley JR, Wheeler TM, Montironi R
Department of Pathology and Laboratory Medicine, Emory University School of Medicine, Atlanta, Georgia, USA
Scand J Urol Nephrol Suppl. 2005; 216: 20-33

The information provided in the surgical pathology report of a prostate needle biopsy of carcinoma has become critical in the subsequent management and prognostication of the cancer. The surgical pathology report should thus be comprehensive and yet succinct in providing relevant information consistently to urologists, radiation oncologists and oncologists and, thereby, to the patient. This paper reflects the current recommendations of the 2004 World Health Organization-sponsored International Consultation, which was co-sponsored by the College of American Pathologists. It builds on the existing work of several organizations, including the College of American Pathologists, the Association of Directors of Anatomic and Surgical Pathologists, the Royal Society of Pathologists, the European Society of Urologic Pathology and the European Randomized Study of Screening for Prostate Cancer.

Editorial Comment

This consensus meeting was held in Stockholm in 2004 and sponsored by the World Health Organization. I will emphasize some topics of interest for the urologist.

1. Histopathologic type: greater than 99% of all carcinomas are acinar. The remain types include urothelial, ductal (endometrioid), mucinous, signet ring cell, adenosquamous, small cell carcinoma and sarcomatoid carcinoma. Although uncommon, the aggregate data on these variants suggest that they may have diagnostic, prognostic or therapeutic importance. Urothelial carcinoma is not hormone dependent. Small cell carcinoma (with or without neuroendocrine differentiation) is usually associated with widespread, often concurrent, metastasis (frequently to unusual locations) and rapid acceleration of clinical course. Sarcomatoid carcinoma (carcinosarcoma) of the prostate, like small cell carcinoma, has an extremely poor prognosis with a median survival of 3 years.

2. Gleason score: it predicts findings in radical prostatectomy (pathologic stage), biochemical progression, local recurrences, and lymph node or distant metastasis. The most significant recommendation is to separately report the Gleason score for each recognizable core irrespective of whether the cores are individually submitted (in individual container signifying specific anatomic location), or submitted together. Another important change is the recognition and reporting of the tertiary pattern of higher grade in needle biopsies. A case with primary pattern 3, secondary pattern 4, and tertiary pattern 5 should be assigned a Gleason score 3 + 5 = 8.

3. Extent of involvement of needle core: there is lack of consensus in the literature and, hence, to some extent in clinical practice as to the best method of reporting the extent of tumor involvement. It is recommended that the report should provide the number of involved cores, the percentage estimate of involvement of each of the cores derived by visual estimation and the linear length in increments of 0.5 mm.

4. Local invasion: the prostate has not a true fibrous capsule. Terms such as “capsular invasion” or “capsular penetration” should not be used. The proper term is extraprostatic extension. Only exceptionally rarely is fat present within the normal prostate. Hence, tumor in adipose tissue in a needle biopsy specimen can safely be interpreted as extraprostatic extension.

5. Perineural invasion: although perineural invasion in needle biopsy specimens is not an independent predictor of prognosis when Gleason score, serum PSA and extent of cancer are factored in, some studies indicate that its presence correlates with extraprostatic extension. The data are conflicting. Clinicians should be aware that all cases of perineural invasion on needle biopsy would not necessarily have extraprostatic extension.

6. Reporting of atypical foci suspicious but not diagnostic of malignancy: atypical small acinar proliferation (ASAP) is not a diagnostic entity and is not synonymous with high-grade prostatic intraepithelial neoplasia (HGPIN). It represents descriptive diagnostic terminology in which there is architectural and/or cytologic atypia that does not reach an individual pathologists’ threshold required for the diagnosis of cancer. The term ASAP may be confusing for the urologist. The committee members recommended designating atypical biopsies as either suspicious or highly suspicious for cancer. These patients should have a close clinical follow-up and re-biopsied.

Dr. Athanase Billis
Full-Professor of Pathology
State University of Campinas, Unicamp
Campinas, São Paulo, Brazil

Prognostic factors and reporting of prostate carcinoma in radical prostatectomy and pelvic lymphadenectomy specimens

Epstein JI, Amin M, Boccon-Gibod L, Egevad L, Humphrey PA, Mikuz G, Newling D, Nilsson S, Sakr W, Srigley JR, Wheeler TM, Montironi R
Department of Pathology, The Johns Hopkins Hospital, Baltimore, Maryland, USA
Scand J Urol Nephrol Suppl. 2005; 216: 34-63

This paper, based on the activity of the Morphology-Based Prognostic Factors Committee of the 2004 World Health Organization-sponsored International Consultation, describes various methods of handling radical prostatectomy specimens for both routine clinical use and research purposes. The correlation between radical prostatectomy findings and postoperative failure is discussed in detail. This includes issues relating to pelvic lymph node involvement, detected both at the time of frozen section and in permanent sections. Issues of seminal vesicle invasion, including its definition, routes of invasion and relationship to prognosis, are covered in detail. The definition, terminology and incidence of extra-prostatic extension are elucidated, along with its prognostic significance relating to location and extent. Margins of resection are covered in terms of their definition, the etiology, incidence and sites of positive margins, the use of frozen sections to assess the margins and the relationship between margin positivity and prognosis. Issues relating to grade within the radical prostatectomy specimen are covered in depth, including novel ways of reporting Gleason grade and the concept of tertiary Gleason patterns. Tumor volume, tumor location, vascular invasion and perineural invasion are the final variables discussed relating to the prognosis of radical prostatectomy specimens. The use of multivariate

analysis to predict progression is discussed, together with proposed modifications to the TNM system. Finally, biomarkers to predict progression following radical prostatectomy are described, including DNA ploidy, microvessel density, Ki-67, neuroendocrine differentiation, p53, p21, p27, Bcl-2, Her-2/neu, E-cadherin, CD44, retinoblastoma proteins, apoptotic index, androgen receptor status, expression of prostate-specific antigen and prostatic-specific acid phosphatase and nuclear morphometry.

Editorial Comment

This is a long paper of the Consensus meeting held in Stockholm in 2004 and sponsored by the World Health Organization. I will emphasize only some of the topics of interest for the urologist.

1. Seminal vesicle invasion: this finding in a radical prostatectomy specimen markedly diminishes the likelihood of cure. In contemporary series of men with positive seminal vesicles and negative pelvic lymph nodes, 5-year biochemical progression-free rates range from 5% to 60%. The diagnosis of invasion should be restricted to invasion of the muscle layer of the seminal vesicle that is a structure exterior to the prostate. Cases that some have diagnosed as invasion of the "intraprostatic portion" of the seminal vesicle should be regarded as invasion of the ejaculatory duct. Possible routes of seminal vesicle invasion are: 1) extension into soft tissue adjacent to the seminal vesicle and then into the muscle layer; 2) invasion via the sheath of the ejaculatory duct and extending up into the seminal vesicle muscle layer; and 3) discontinuous metastases. There are conflicting studies as to whether the first or second method is most common. Metastases are the least common mode of spread.

2. Extraprostatic extension: because the prostate lacks a discrete capsule, the term extraprostatic extension should be used instead of "capsular" penetration to describe tumor that has extended out of the prostate into periprostatic soft tissue. Prognosis has relation to extraprostatic extent. This evaluation, however, is controversial. Unfortunately, the most prognostic method to substratify the degree of extraprostatic extent remains the subjective designation of focal versus nonfocal.

3. Margins of resection: the pathological definition of positive margins of resection is "tumor extending to the inked surface of the prostatectomy specimen which the surgeon has cut across". There are two causes for positive margins: transection of intraprostatic tumor (iatrogenic incision) and non-iatrogenic. Tumors in stage T2 with positive surgical margins are designated stage T2+. This is because the pathologist cannot evaluate if the tumor in the area with positive margin is confined to the gland or has extraprostatic extension. The pathology report should also indicate the presence of normal prostate tissue at the resection margin level. This might help the urologist explain why the serum PSA in patients with such a feature remains detectable after radical prostatectomy. In fact, the serum PSA value, even though very low, is not linked to tumor recurrence and persistence, but to incomplete resection of the prostate gland.

4. Gleason score: is a very powerful predictor of progression following radical prostatectomy. Gleason scores 2-4 are rarely seen. Most of the cases were tumors incidentally found on transurethral resection (stages T1a and T1b). All men with only Gleason scores 2-4 tumor at radical prostatectomy are cured. The prognosis of Gleason scores 5-6 shows a spectrum in its biologic behavior depending on other variables such as margin status and organ-confined status. Gleason score of 7 have a significantly worse prognosis than those with Gleason score 6. It is controversial the prognostic significance of Gleason score 3 + 4 versus Gleason score 4 + 3. Gleason scores 8-10 account for only 7% of the grades seen at radical prostatectomy. Typically, these tumors are highly aggressive and present at an advanced stage such that are not amenable to localized therapy.

Dr. Athanase Billis
Full-Professor of Pathology
State University of Campinas, Unicamp
Campinas, São Paulo, Brazil

INVESTIGATIVE UROLOGY

Pelvic floor exercises for erectile dysfunction

Dorey G, Speakman MJ, Feneley RC, Swinkels A, Dunn CD
The Somerset Nuffield Hospital, Taunton, UK
BJU Int. 2005; 96: 595-7

Objective: To examine the role of pelvic floor exercises as a way of restoring erectile function in men with erectile dysfunction.

Patients and Methods: In all, 55 men aged > 20 years who had experienced erectile dysfunction for ≥ 6 months were recruited for a randomized controlled study with a cross-over arm. The men were treated with either pelvic floor muscle exercises (taught by a physiotherapist) with biofeedback and lifestyle changes (intervention group) or they were advised on lifestyle changes only (control group). Control patients who did not respond after 3 months were treated with the intervention. All men were given home exercises for a further 3 months. Outcomes were measured using the International Index of Erectile Function (IIEF), anal pressure measurements and independent (blinded) assessments.

Results: After 3 months, the erectile function of men in the intervention group was significantly better than in the control group ($P < 0.001$). Control patients who were given the intervention also significantly improved 3 months later ($P < 0.001$). After 6 months, blind assessment showed that 40% of men had regained normal erectile function, 35.5% improved but 24.5% failed to improve.

Conclusion: This study suggests that pelvic floor exercises should be considered as a first-line approach for men seeking long-term resolution of their erectile dysfunction.

Editorial Comment

The first time that pelvic floor exercise was discussed and documented as a realistic alternative for treatment of erectile dysfunction was in 1993 by Claes & Baert, for patients with mild degrees of venous leakage (1). The authors randomized a group of 150 consecutive male patients with erectile dysfunction and proven venous leakage to surgery of to a program of pelvic floor training. Surgery was not superior to the pelvic floor training program either subjectively or objectively. 42% of patients was satisfied with the program and refused surgery (1). Since then, a couple of works have been done on this subject, with somewhat good results (2,3).

Doctor Grace Dorey and co-workers have been extensively working in this field, examining the role of pelvic floor muscle exercises (focusing on the bulbocavernosus and ischiocavernosus muscles) as a key to restoring erectile function. The present work is one more important contribution from this group. The authors concluded that pelvic floor muscle exercises should be considered as a first-line approach for erectile dysfunction. This might be more important in men seeking long-term resolution of erectile dysfunction without acute pharmacological and surgical interventions, which can cause significant side-effects.

References

1. Claes H, Baert L: Pelvic floor exercise versus surgery in the treatment of impotence. Br J Urol. 1993; 71: 52-7.
2. Ballard DJ: Treatment of erectile dysfunction: can pelvic muscle exercises improve sexual function?J Wound Ostomy Continence Nurs. 1997; 24: 255-64.
3. Van Kampen M, De Weerdt W, Claes H, Feys H, De Maeyer M, Van Poppel H: Treatment of erectile dysfunction by perineal exercise, electromyographic biofeedback, and electrical stimulation. Phys Ther. 2003; 83: 536-43.

Dr. Francisco J.B. Sampaio
Full-Professor and Chair, Urogenital Research Unit
State University of Rio de Janeiro
Rio de Janeiro, Brazil

Apoptosis and proliferation in human undescended testes

Ofordeme KG, Aslan AR, Nazir TM, Hayner-Buchan A, Kogan BA
The Urological Institute of Northeastern New York, and the Division of Urology, Department of Surgery, and Department of Pathology, Albany Medical College, Albany, NY, USA

BJU Int. 2005; 96: 634-8

Objective: To study apoptosis and proliferation in the testes of children with undescended testes; the degree to which undescended testes contributes to a patient's ultimate fertility is debatable, but undescended testes have fewer germ cells, and some have proposed that apoptosis is an important cause.

Patients and Methods: Testis biopsies were taken at the time of orchidopexy in a consecutive series of children undergoing surgical repair for undescended testes. Immunohistological techniques were used to detect apoptosis and proliferation, and the numbers of cells undergoing apoptosis or proliferation per 50 seminiferous tubules were recorded.

Results: Inguinal testes had less apoptosis than abdominal testes, with a mean (sd) of 0.71 (1.31) vs 1.63 (1.95) apoptotic cells per 50 seminiferous tubules ($P < 0.02$). Similarly, there was less apoptosis in children aged > 1 years than in children aged < 1 years (0.68 (1.40) vs 1.35 (1.56); $P < 0.03$). Proliferation was very limited in all cryptorchid testes. In contrast to cryptorchid testes, five autopsy controls had many more apoptotic cells, (10.60 (1.34) per 50 seminiferous tubules), and many more proliferating cells, (8.40 (6.43) per 50 seminiferous tubules).

Conclusion: In contrast to animal studies, neither apoptosis nor proliferation was common in undescended testes from 6 months of age onward. However, apoptosis was more common in abdominal testes and in children aged < 1 year. It is likely that, if substantial apoptosis occurs in human undescended testes, it occurs before 6 months of age.

Editorial Comment

Apoptosis has been implicated in testicular germ cell loss in experimental models of cryptorchidism. Using the rat as an experimental model, it was demonstrated that apoptosis is the predominant mechanism of germ cell death rather than atrophy and necrosis in cryptorchidism (1,2). The mechanisms of germ cell apoptosis have been associated with oxidative stress or testicular exposure to elevated temperature, and there are evidence that endothelial nitric oxide synthase plays a functional role in mouse spermatogenesis in cryptorchidism-induced apoptosis (3).

In the present elegant and well designed study, doctor Kogan and his group, by the first time, showed us that surprisingly and different from animal studies, neither apoptosis nor proliferation was common in undescended testes from children with more than 6 months of age. The authors discussed that this unexpected result is probably due to the timing of the biopsies, as significant apoptosis might have taken place before the typical time of surgical intervention (6 months).

References

1. Kocak I, Dundar M, Hekimgil M, Okyay P: Assessment of germ cell apoptosis in cryptorchid rats. Asian J Androl. 2002; 4: 183-6.
2. DeFoor WR, Kuan CY, Pinkerton M, Sheldon CA, Lewis AG: Modulation of germ cell apoptosis with a nitric oxide synthase inhibitor in a murine model of congenital cryptorchidism. J Urol. 2004; 172(4 Pt 2): 1731-5; discussion 1735.
3. Ishikawa T, Kondo Y, Goda K, Fujisawa M: Overexpression of endothelial nitric oxide synthase in transgenic mice accelerates testicular germ cell apoptosis induced by experimental cryptorchidism. J Androl. 2005; 26: 281-8.

Dr. Francisco J.B. Sampaio
Full-Professor and Chair, Urogenital Research Unit
State University of Rio de Janeiro
Rio de Janeiro, Brazil

RECONSTRUCTIVE UROLOGY

An artificial somatic-autonomic reflex pathway procedure for bladder control in children with spina bifida

Xiao CG, Du MX, Li B, Liu Z, Chen M, Chen ZH, Cheng P, Xue XN, Shapiro E, Lepor H
Departments of Urology, Tongji Medical College, Xiehe Hospital, Huazhong University of Science and Technology, Wuhan, China
J Urol. 2005; 173: 2112-6

Purpose: Neurogenic bladder is a major problem for children with spina bifida. Despite rigorous pharmacological and surgical treatment, incontinence, urinary tract infections and upper tract deterioration remain problematic. We have previously demonstrated the ability to establish surgically a skin-central nervous system-bladder reflex pathway in patients with spinal cord injury with restoration of bladder storage and emptying. We report our experience with this procedure in 20 children with spina bifida.

Materials and Methods: All children with spina bifida and neurogenic bladder underwent limited laminectomy and a lumbar ventral root (VR) to S3 VR microanastomosis. The L5 dorsal root was left intact as the afferent branch of the somatic-autonomic reflex pathway after axonal regeneration. All patients underwent urodynamic evaluation before and after surgery.

Results: Preoperative urodynamic studies revealed 2 types of bladder dysfunction- areflexic bladder (14 patients) and hyperreflexic bladder with detrusor external sphincter dyssynergia (6). All children were incontinent. Of the 20 patients 17 gained satisfactory bladder control and continence within 8 to 12 months after VR microanastomosis. Of the 14 patients with areflexic bladder 12 (86%) showed improvement. In these cases bladder capacity increased from 117.28 to 208.71 ml, and mean maximum detrusor pressure increased from 18.35 to 32.57 cm H2O. Five of the 6 patients with hyperreflexic bladder demonstrated improvement, with resolution of incontinence. Urodynamic studies in these cases revealed a change from detrusor hyperreflexia with detrusor external sphincter dyssynergia and high detrusor pressure to nearly normal storage and synergic voiding. In these cases mean bladder capacity increased from 94.33 to 177.83 ml, and post-void residual urine decreased from 70.17 to 23.67 ml. Overall, 3 patients failed to exhibit any improvement.

Conclusions: The artificial somatic-autonomic reflex arc procedure is an effective and safe treatment to restore bladder continence and reverse bladder dysfunction for patients with spina bifida.

Editorial Comment

A successful but not rewarding patient treatment of malfunctioning bladders with spina bifida became possible with both the introduction of sphincterotomy of the external urethral sphincter and intermittent clean self-catherisation in order to protect and preserve the upper urinary tract.

In the last two decades there was no real breakthrough in the treatment options for pediatric spina bifida patients. The most commonly used drugs in adults were not approved for children. This includes the direct injection of Botulinum toxin into the detrusor or the external sphincter (1-3).

Through the extraordinary work of Shapiro et al., it was recognized that in patients with spinal cord changes apart from lower urinary tract malfunction, fetal muscle and innervation changes could be seen (4). The “defect in the development” of the lower urinary tract is complete by the 20th week of pregnancy, but that there is no correlation between the smooth muscle cell mal-development and the severity of the spinal cord defect.

It is stunning to see in the present paper that surgery on the spinal roots might be a treatment solution for the malfunction of the lower urinary tract (5). Xiao et al. presented initially their work by creating an artificial somatic-autonomic reflex pathway to treat neurogenic bladder in spinal cord injured patients (6).

They have now apparently found a way for a successful treatment using the same technique in spina bifida patients (7).

In the present study they enrolled 20 children with spinal bifida and performed intradural anastomoses of the ventral root of the L5 with the ventral root of S3. Twelve of 14 patients with a former areflexic bladder improved their bladder pressure from 18.35 to 32.57 cm H_2O. Five of the 6 patients with a detrusor-sphincter dyssynergia increased their bladder capacity from 94.33 to 177.83 mL and postoperatively decreased the post voiding residual from 70.17 to 23.67 mL within 8 to 12 months.

Most of these children (12 male, 8 female; 5 - 14 years) had successful results and were able to void voluntarily (n = 16), whereas one had to scratch the skin dermatome of L5 to initiate the micturation (n = 1). In 17 (85%) patients, they noted improved bladder function (the young patients had an increased bladder storage and bladder sensory in the emptying function and maintained the ability to sense for a full bladder and felt the desire to void). However, some possible side effects might be the partial loss of the L5 motor function.

The surgical option to improve the neurogenic bladder of young patients with spina bifida will increase possibilities in their future life. Because of the success rate, specialized groups should confirm these results with an equivalent follow-up. It seems to be possible that this surgical approach will teach us that the pathology described by Shapiro et al. might be reversible, partial or complete, up to a certain age (4).

References

1. Aslan AR, Kogan BA: Conservative management in neurogenic bladder dysfunction. Curr Opin Urol. 2002; 12: 473-7.
2. Cruz F, Silva C: Botulinum toxin in the management of lower urinary tract dysfunction: contemporary update. Curr Opin Urol. 2004; 14: 329-34.
3. Schurch B, Corcos J: Botulinum toxin injections for paediatric incontinence. Curr Opin Urol. 2005; 15: 264-7.
4. Shapiro E, Seller MJ, Lepor H, Kalousek DK, Hutchins GM, Perlman EJ, Meuli M: Altered smooth muscle development and innervation in the lower genitourinary and gastrointestinal tract of the male human fetus with myelomeningocele. J Urol. 1998; 160 (3 Pt 2): 1047-53; discussion 1079.
5. Sievert KD, Xiao CG, Hennenlotter J, Seibold J, Merseburger AS, Kaminsky J, Nagele U, Stenzl A: Voluntary micturition after intradural nerve anastomosis. Urologe A. 2005; 44: 756-61. [in German]
6. Xiao CG, Du MX, Dai C, Li B, Nitti VW, de Groat WC: An artificial somatic-central nervous system-autonomic reflex pathway for controllable micturition after spinal cord injury: preliminary results in 15 patients. J Urol. 2003; 170(4 Pt 1):1237-41.
7. Xiao CG, Du MX, Li B, Liu Z, Chen M, Chen ZH, Cheng P, Xue XN, Shapiro E, Lepor H: An artificial somatic-autonomic reflex pathway procedure for bladder control in children with spina bifida. J Urol. 2005; 173: 2112-6.

Dr. Karl-Dietrich Sievert, Dr. M. Horstmann, Dr. Markus Kuczyk & Dr. Arnulf Stenzl
Department of Urology
Eberhard-Karls-University Tuebingen
Tuebingen, Germany

Combined buccal mucosa graft and local flap for urethral reconstruction in various forms of hypospadias

Li Q, Li S, Chen W, Xu J, Yang M, Li Y, Wang Y, Zhao Z
Plastic Surgery Hospital, PUMC and CAMS, Beijing, China

J Urol. 2005; 174: 690-2

Purpose: Hypospadias is one of the most common congenital deformities in the male urogenital system. Although there are more than 250 techniques for treating hypospadias, it is often difficult to repair severe hypospadias using conventional methods.

Materials and Methods: We combined a buccal mucosa graft with a local onlay flap for urethral reconstruction in cases of severe hypospadias or a failed previous operation. A total of 162 patients with hypospadias (glandular 11, penile 40, penoscrotal 49, scrotal 34 and perineal 28) were treated between July 2000 and November 2003. For patients whose urethral meatus was perineal 2 treatment steps were taken. First, we used the aforementioned method to construct the penile urethra, and then we constructed the scrotal and perineal urethra with a local flap.

Results: Of the 134 nonperineal cases 127 were managed successfully in 1 stage, and 26 of 28 perineal cases were managed successfully in 2 stages. Most patients had a satisfactory penile appearance. A urethral fistula resulted in 8 cases, of which 4 closed spontaneously within 1 month postoperatively. Meatal stenosis occurred in 1 case.

Conclusions: This technique is simple, safe and reliable, especially in cases of failed previous operation or for salvage hypospadias repair with deficient local tissue.

Editorial Comment

The reconstruction of the pediatric urethra requires knowledge of the anatomical system, specifically of blood supply of both the native urethra and a pedicled flap as well as other peculiarities of certain flaps e.g. hair growth after puberty, thickness of the basement membrane etc. Whereas buccal mucosa has become a frequent way of urethral reconstruction in circumcised adult patients, its use in pediatric patients is rare for various reasons. The data presented in this paper of more than 160 patients deals with the use of a combination of buccal mucosa with a pedicled flap to resolve different forms of severe or previously unsuccessfully operated hypospadias.

Various techniques exist both for the simple as well as the complicated cases of urethral malformations. It has been shown like in many other fields of reconstructive surgery that the best results may be obtained with the simplest possible technique and the use of a pedicled instead of a free flap.

In our experience, the distal hypospadias reconstruction can be performed with an excellent outcome by the MEMO technique (meatus-mobilization technique) (1) with an acceptable surgery time (mean 85 minutes in this series), and no need for a tissue transfer. If necessary a lengthening of the penile shaft is possible in some cases by reconstruction of the penile skin.

Why do we want to mention this paper then? Not always do we have enough pedicled epithelial tissue for a single stage reconstruction, especially in the previously operated penoscrotal or scrotal hypospadias cases. Although we are not totally convinced that pedicled tissue flaps combined with buccal mucosa may be best solution despite the good results presented here, the recent progress with urothelial cell cultivation (2) may be the future in desperate cases. Instead of harvesting buccal mucosa and transposing it to the urethra, expanded urothelium applied to well vascularized flaps may cause less foreign reaction and less morbidity.

This paper is a good preparation for applying tissue engineering in combination with pedicled flaps for complicated urethral reconstruction. Such a combination for the time being is probably the best way to successfully introduce tissue engineering into urologic surgery.

References

1. Seibold J, Nagele U, Sievert KD, Stenzl A: Urethral reconstruction in the adult and in infant and young male patients. Urologe A. 2005; 44: 768-73. [in German]

2. Maurer S, Feil G, Stenzl A: Tissue-engineered stratified urothelium and its relevance in reconstructive urology. Urologe A. 2005; 44: 738-42.

Dr. Karl-Dietrich Sievert, Dr. Joerg Seibold, Dr. M. Praetorius, Dr. Udo Nagele & Dr. Arnulf Stenzl
Department of Urology
Eberhard-Karls-University Tuebingen
Tuebingen, Germany

UROLOGICAL ONCOLOGY

External beam radiation therapy after radical prostatectomy: efficacy and impact on urinary continence

Petroski RA, Warlick WB, Herring J, Donahue TF, Sun L, Smith CV, Connelly RR, McLeod DG, Moul JW
Center for Prostate Disease Research (CPDR), Rockville, Maryland, USA
Prostate Cancer Prostatic Dis. 2004; 7: 170-7

Introduction and Objectives: The efficacy of adjuvant and salvage external beam radiation (AXRT+SXRT) for prostate cancer after radical prostatectomy (RP) has been debated because of the inability to rule out systemic occult metastasis, uncertainty that radiation eradicates residual local disease and the potential of exacerbating impotency and incontinence. To characterize the effectiveness and treatment morbidity a retrospective review was performed.

Methods: In all, 38 patients received AXRT and 91 received SXRT. The SXRT group was stratified by PSA level, age, race, pathologic stage, margin status, worst Gleason sum, radiation dose and pelvic field. Complications evaluated were impotence and incontinence. Median follow-up was 60.2 months.

Results: The 5-y disease-free survival (DFS) rate was 61.3% for AXRT and 36.3% for SXRT. Multivariate analysis of the SXRT cohort showed Gleason score, pathologic stage and pre-XRT PSA to be predictors of disease recurrence. After XRT 26% had worsened continence.

Conclusions: Patients who recur after RP whose pathologic stage is pT2 or pT3c, Gleason score of 8 or higher or pre-XRT PSA is > 2.0 ng/dL may have microscopic metastatic disease and a decreased chance of cure with SXRT alone. Continence was further impaired after XRT.

Editorial Comment

A current treatment option for positive margins after radical prostatectomy (RP) (required by up to 35% within 5 years after RP) is adjuvant external beam radiation (AXRT), if PSA progression already has occurred salvage external beam radiation (SXRT) often is performed. Outcomes and side effects of these approaches have been documented in the current paper from two large institutions.

The AXRT group had a 5-year disease-free survival (DFS) rate of 61.3%; the SXRT group DFS was 36.3%. Post-RP PSA below 2 ng/mL was a significant determinant of success.

Most interesting are data on side effects of this approach. In all groups a significant deterioration of continence occurred. After XRT 10% of previously continent patients became incontinent and 14% became partially incontinent. These data are even worse in partially continent patients after RP.

Thus, additional radiation treatment should be advocated with a note of caution to patients with PSA progression, and benefits should be weighted against disadvantages.

Dr. Andreas Bohle
Professor of Urology
HELIOS Agnes Karll Hospital
Bad Schwartau, Germany

FEMALE UROLOGY

Sexual function in women with pelvic organ prolapse compared to women without pelvic organ prolapse

Novi JM, Jeronis S, Morgan MA, Arya LA
Division of Urogynecology and Reconstructive Pelvic Surgery, Temple University School of Medicine, Philadelphia, Pennsylvania, USA
J Urol. 2005; 173: 1669-72

Purpose: We compared sexual function in women with pelvic organ prolapse to that in women without prolapse.

Materials and Methods: We collected sexual function data using a standardized, validated, condition specific questionnaire. The study group consisted of 30 women with pelvic organ prolapse and it was compared with 30 unmatched controls without evidence of prolapse.

Results: The 2 groups were similar in age, race, parity and postmenopausal hormone use. Subjects in the study group were more likely to have undergone previous pelvic surgery. Mean total Pelvic Organ Prolapse/ Urinary Incontinence Sexual Function Questionnaire scores +/- SD were lower in the study group compared with controls (81.4 +/- 7.3 vs 106.4 +/- 15.5, $p < 0.001$). In the study group total questionnaire scores in women with prior pelvic surgery were similar to those in women without prior pelvic surgery (79.3 +/- 14.9 vs 82.9 +/ - 10.2, $p = 0.61$).

Conclusions: Pelvic organ prolapse appears to have a significant negative impact on sexual function.

Editorial Comment

The authors report on a comparison of sexual function in women with pelvic organ prolapse and women without pelvic organ prolapse. They utilized an excellent statistical analysis involving a Likert scale as well as the PISQ (a validated, condition-specific, self-administered questionnaire that evaluates sexual function in women with pelvic organ prolapse and/or urinary incontinence). Statistical planning was utilized to identify the appropriate size study groups to detect a difference if present between the controls and the patients with prolapse.

This is a noteworthy paper that covers an issue, which is not frequently discussed in the medical office but is never far from the thoughts of a large portion of the population. The study's strength lies in the use of a validated self administered questionnaire as well as excellent statistical analysis. It did exclude women younger than 35 years perhaps to obtain a greater degree of similarity between the two groups. It addition, it only involved patients presenting for gynecological evaluation or therapy and not the general population. Several key points on which the paper may educate the reader include the findings that there was no significant difference in dyspareunia rate between women with and without previous hysterectomy as well as in women who have undergone anti-incontinence surgery those who did not. This fact will allow the urologic surgeon to clearly

respond to patients who wonder about their sexual function after their anti-incontinence operation. The publication helps characterize the sexual habits and desires of patients with prolapse compared to the general population including: observing that both groups were able to find a man when needed; both groups felt their men were sexually satisfied to the same degree; both groups wanted sex to the same degree; and both groups attempted to self pleasure at that same rate and had identical rates of anorgasmia. Differences between the two groups that were highlighted did include that women with prolapse, though masturbating at the same degree, were not able to achieve orgasm with the same degree of efficacy and that though both groups desired sexual activity to the same degree, women with prolapse were not able to participate in coitus at the same level of desired frequency.

This is an excellent paper, which should be read and appropriately digested. It would have been of extreme interest if the authors had been able to comment if there was an increased rate for women with prolapse utilizing different sexual techniques or acts of pleasure in order to allow their partner to achieve the same rate of partner satisfaction as those without prolapse in view of their altered vaginal anatomy. I recommend this article for all physicians actively involved in prolapse surgery.

Dr. Steven P. Petrou
Associate Professor of Urology
Mayo Clinic College of Medicine
Jacksonville, Florida, USA

Experience with the orthotopic ileal neobladder in women: a mid-term follow-up

Nesrallah LJ, Almeida FG, Dall'Oglio MF, Nesrallah AJ, Srougi M
Federal University of Sao Paulo (UNIFESP-EPM), Sao Paulo, Brazil
BJU Int. 2005; 95: 1045-7

Objective: To report our experience with orthotopic bladder reconstruction in women, as currently the ileal orthotopic neobladder is the diversion of choice for women requiring a bladder substitute at our institution.

Patients and Methods: From February 1995 to March 2001, 29 women with muscle-invasive bladder carcinoma underwent a nerve-sparing radical cystectomy and had an orthotopic ileal neobladder reconstructed. The outcome was evaluated at 2 and 6 months and then yearly, by a clinical history, physical examination, voiding diary, stress test and estimate of functional neobladder capacity.

Results: All patients were followed for at least 14 months (mean 27.5); there were no major complications related to the surgery. The mean (range) neobladder capacity 2 months after surgery was 250 (190-320) mL; at 6 months it increased, remaining stable for the remaining follow-up, at 450 (350-700) mL. Four patients (14%) had nocturnal incontinence and one stress urinary incontinence, associated with using three pads per day. Three patients (10%) required catheterization for a postvoid urinary residual of > 100 mL. Of the 29 patients, seven died with metastatic disease and three from causes unrelated to the reservoir or bladder cancer. Currently, 19 patients (65%) are alive and disease-free, with a mean follow-up of 35 months.

Conclusion: Orthotopic neobladder reconstruction in women, using 40 cm of ileum, is safe and gives high continence and low urinary retention rates. Therefore, it should be advised as the first option in women with good renal function and a tumour-free bladder neck.

Editorial Comment

The authors reviewed their experience with orthotopic ileal neobladder in a population of 29 women. The mean long term follow-up was 27.5 months. The authors point out their results as well as their specific technique and commentary on same. They noted that the bladder capacity stabilized at an appropriate volume at

six months with 14% of patients having nocturnal incontinence, 10% of patients requiring self intermittent catheterization to empty their reservoir and 2.5% of the study group having stress urinary incontinence.

This is an excellent review and instructional presentation by these authors. The paper is extremely strong in the area of voiding dysfunction. The use of a voiding diary and the strict criteria of urinary incontinence should be applauded. The authors' notations on their surgical technique and its positive effects should be carefully read by others performing this type of surgery and reconstruction. The very surgically precise technique including nerve sparing has done nothing but reward these physicians with excellent postoperative results. In addition, their explanation of the use of 40 cm of ileal segment for reconstruction and its positive results should be noted. A reader may question why this group required their patients with a residual > 100 cc to undergo clean intermittent catheterization. Perhaps these patients had recurring urinary tract infection or voiding dysfunction that was not clearly stated. In view of this excellent study group and their notations on the quality of life of patients after cystectomy, the authors if able should consider performing a sexual function questionnaire such as the PISQ and report their results on the sexual habits of this group that have had undergone a major yet successful urinary reconstruction. This may have a great value. The study group had a very low level of postoperative stress urinary incontinence. The authors' opinion on options for this subgroup would be of keen interest in view of other reports describing postoperative catastrophes at the time of sub urethral sling placement (1). Would they consider a trans obturator technique in view of its extra peritoneal position? The ileal conduit has been used for an extended period of time, even much to the surprise of the original describers (2). With excellent publications such as this, ileal neo-bladders will continue to increase in use when appropriate thus potentially one day surpassing ileal conduits as the most frequent urinary diversion in women. If dismissive of the orthotopic ileal neobladder, one should not discount the complications associated without diversion including stomal problems, peristomal dermatitis, stomal ischemia, peristomal hernias as well as stomal prolapse (2).

References

1. Quek ML, Ginsberg DA, Wilson S, Skinner EC, Stein JP, Skinner DG: Pubovaginal slings for stress urinary incontinence following radical cystectomy and orthotopic neobladder reconstruction in women. J Urol. 2004; 172: 219-21.
2. Hinman Jr F: Atlas of Urologic Surgery. Philadelphia, WB Saunders Co, 1989.

Dr. Steven P. Petrou
Associate Professor of Urology
Mayo Clinic College of Medicine
Jacksonville, Florida, USA

PEDIATRIC UROLOGY

Routine voiding cystourethrography is of no value in neonates with unilateral multicystic dysplastic kidney

Ismaili K, Avni FE, Alexander M, Schulman C, Collier F, Hall M
Department of Perinatal and Pediatric Nephrology, Hopital Universitaire des Enfants-Reine Fabiola and Hopital Erasme, Brussels, Belgium
J Pediatr. 2005; 146: 759-63

Objectives: To determine if two successive ultrasound examinations could rule out the presence of clinically significant contralateral anomalies in neonates with multicystic dysplastic kidney (MCDK), thereby avoiding unnecessary voiding cystourethrography (VCUG).

Study Design: We followed 76 newborn infants with antenatally discovered MCDK. Two successive neonatal renal ultrasound examinations were performed, one within the first week and one at around 1 month of life. VCUG and isotopic studies were performed in all infants.

Results: Urologic anomalies of the contralateral kidney were present in 19 of 76 children (25%): vesicoureteral reflux (VUR) in 16 (21%), ureteropelvic junction obstruction in 2 (3%), and renal duplex kidney in 1 (1%). Sixty-one infants (80% of total) had normal contralateral urinary tract on the 2 successive neonatal renal ultrasound scans. Among them, 4 of 61 (7%) infants presented with low-grade VUR on VCUG that had resolved spontaneously before 2 years of age. The sensitivity, specificity, positive predictive value, and negative predictive value of two successive ultrasound scans in the neonatal period to predict contralateral urological anomalies on VCUG were 75%, 95%, 80%, and 93%, respectively.

Conclusions: In infants with antenatally diagnosed MCDK, two successive normal neonatal renal ultrasound scans will rule out clinically significant contralateral anomalies, thereby rendering the need for a neonatal VCUG unnecessary.

Editorial Comment

The authors reviewed retrospectively their experience since 1990 with prenatally diagnosed multicystic kidney disease. They look specifically at the need for a VCUG. They show that about 21% of patients had reflux. This number is comparable to that seen in the literature. Mostly the reflux was low grade, although 7 of 16 had reflux of Grade III, IV or V. The authors show that all cases of high grade reflux, and most of those with low grade reflux, had an abnormal ultrasound. They propose that VCUG should not be done routinely; only when the ultrasound is abnormal.

This is an interesting and somewhat controversial proposal. In general, little severe pathology occurs in the contralateral kidney of a neonate with an isolated multicystic kidney, making the author's proposal attractive. On the other hand, the authors provide no data on the use of prophylactic antibiotics and the rate of urinary tract infection (either with or without antibiotics). Although I intuitively agree with the concept, the data behind the proposal are, in my mind, limited. If they demonstrated that there were no UTIs, even without antimicrobials, this would provide data that diagnosing reflux is truly unimportant in the great majority of cases.

An even more interesting question is the cost-benefit of annual ultrasound examinations. Presumably, these are performed in order to follow the size of the kidney and to rule out a neoplasm. On the other hand, the size of the kidney is largely irrelevant and in the absence of symptoms (extremely rare), there is little need to know the size. Moreover, the disease does not exist in adulthood; hence, virtually all multicystic kidneys must involute over time. Neoplasm is vanishingly rare and even in that rare instance; will an annual ultrasound pick it up in reasonable time? Hence, on theoretical grounds, annual ultrasound is unnecessary. A formal study of this would be valuable.

Dr. Barry A. Kogan
Chief and Professor of Urology and Pediatrics
Albany Medical College
Albany, New York, USA

Myogenic bladder decompensation in boys with a history of posterior urethral valves

Androulakakis PA, Karamanolakis DK, Tsahouridis G, Stefanidis AA, Palaeodimos I Department of Paediatric Urology, Aghia Sophia Children's Hospital, Athens, Greece

BJU Int. 2005; 96: 140-3.

Objective: To investigate whether myogenic bladder decompensation in patients treated for congenital posterior urethral valves (PUV, the most serious cause of infravesical obstruction in male neonates and infants) may be secondary to bladder neck obstruction, as despite prompt ablation of PUV these patients can have dysfunctional voiding during later childhood or adolescence, the so-called 'valve bladder syndrome'.

Patients and Methods: The study comprised 18 boys (mean age 14 years, range 6.2-18.5) who had had successful transurethral ablation of PUV between 1982 and 1996, and had completed a follow-up which included serial assessment of serum creatinine, completion of a standard voiding diary, ultrasonography with measurement of urine before and after voiding, a urodynamic examination with simultaneous multichannel recording of pressure, volume and flow relationships during the filling and voiding phases, coupled with video-cystoscopy at least twice. The mean (range) follow-up was 9.3 (6-17) years.

Results: Urodynamic investigation showed myogenic failure with inadequate bladder emptying in 10 patients; five with myogenic failure also had unstable bladder contractions. On video-cystoscopy the posterior bladder neck lip appeared elevated in all patients but in those with myogenic failure it was strongly suggestive of hypertrophy, with evidence of obstruction. At the last follow-up one patient with myogenic failure who had had bladder neck incision and four others who were being treated with alpha-adrenergic antagonists had a significant reduction of their postvoid residual urine.

Conclusion: Despite early valve ablation, a large proportion of boys treated for PUV have gradual detrusor decompensation, which may be caused by secondary bladder neck obstruction leading to obstructive voiding and finally detrusor failure. Surgical or pharmacological intervention to improve bladder neck obstruction may possibly avert this course, but further studies are needed to validate this hypothesis.

Editorial Comment

The authors review their experience treating 18 boys with posterior urethral valves, diagnosed from 1982-1996. Many of the children eventually developed myogenic failure. The authors propose that this is due to secondary bladder neck obstruction.

The observation of progressive myogenic failure in these patients is not new and is increasingly observed as valve patients get older. Clearly this is something that all clinicians should be aware of. The etiology of this is, no doubt, multifactorial, but among the causes is high urine flow and infrequent voiding. The proposal that bladder neck obstruction contributes is intriguing and suggests a potential treatment. However, the data presented are quite limited. Fluro-urodynamic studies are key to the diagnosis and unfortunately no urodynamic data are presented in the paper! The authors present cystoscopic findings, but this condition can not be diagnosed during cystoscopy under anesthesia (or even local anesthesia for that matter). Moreover, the bladder neck musculature is connected to the bladder muscle and it is during bladder contraction that the bladder neck opens. In the case of myogenic bladder decompensation, the bladder neck would not be expected to open. Hence this condition is even more difficult to diagnose once myogenic failure has developed.

Nonetheless, the proposal to consider alpha-adrenergic antagonist therapy in these patients has some merit. Careful documentation of urodynamic function in patients before and after pharmacological intervention would be very interesting. However, this study should be done early on, before myogenic failure. The ultimate would be to demonstrate that years of alpha-adrenergic antagonist therapy prevents myogenic failure, but this will require a large multi-center, long-term study and probably is not realistic.

Dr. Barry A. Kogan
Chief and Professor of Urology and Pediatrics
Albany Medical College
Albany, New York, USA