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UROLOGICAL SURVEY

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STONE DISEASE

Impact of body mass index on cost and clinical outcomes after percutaneous nephrostolithotomy

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Urology. 2008; 72: 756-60

Objectives: To evaluate the impact of body mass index (BMI) on clinical outcomes and costs associated with percutaneous nephrostolithotomy (PCNL).
Methods: We reviewed charts of 200 consecutive patients who underwent PCNL between September 2005 and May 2007. We recorded patient and stone characteristics and perioperative outcomes. BMI was available for 150 patients (75%), who comprised our study group. We obtained direct and subcomponent costs (room and board, laboratory, pharmacy, radiology, operating room, surgical supplies, anesthesia, and recovery room). We divided patients into four BMI categories: normal weight (BMI < 25), overweight (25 </= BMI < 30), obese (30 </= BMI < 40), and morbidly obese (BMI >/= 40). We compared groups with regard to baseline characteristics, intraoperative parameters, stone-free and complication rates, and hospital length of stay.
Results: Mean stone size and proportion of patients with staghorn, multiple, and bilateral calculi were similar among groups. The normal weight cohort had proportionately fewer recurrent stone formers and patients with a history of stone surgery, compared with the other groups (P = .005 and P = .03, respectively). We found no significant differences among groups with regard to stone-free and complication rates, operative time, length of stay, or need for multiple accesses. Median direct cost was marginally, but not significantly, higher in normal weight ($8124) compared with overweight ($6746), obese ($6740), and morbidly obese ($6719) patients (P = .75).
Conclusions: Body mass index had no impact on efficacy or complication rates of PCNL. Despite greater perceived difficulty in performing these procedures in overweight and obese patients, it was not more costly.

Editorial Comment

The authors present a compelling argument that BMI should not impact the decision to consider percutaneous nephrolithotomy as safety, efficacy and cost are not affected. The authors note that these conclusions are based on the experience of a single expert-endourologist at a high-volume tertiary referral center.
The authors noted a higher median length of stay (3 vs. 2 days) and higher cost for room and board for the normal weight patients. This could be a reflection of patient expectations. Patients who are experienced (ex. recurrent stone formers, history of stone disease) would have realistic expectations for post-operative recovery that might help drive them down a clinical treatment pathway to earlier discharge - the normal weight patients in this study were less experienced.

Selection bias may impact the results of retrospective studies. There was a strong trend (p=0.06) to the morbidly obese patients being younger (45 years) than the rest of the study cohort (55 years). It is possibly that older morbidly obese patients are directed to ureteroscopy or other modalities. Similarly, the authors note that the ASA class severity was similar across BMI, suggesting that the normal weight patients may have had higher than expected comorbid conditions that may have lead to referral to their tertiary center. This would inflate the costs and length of stay in the otherwise “healthy control” weight category.

One primary challenge in the morbidly obese is the initial percutaneous access. It would be interesting to evaluate the fluoroscopy time, radiation dose, and time to access for this cohort.

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Stone attenuation and skin-to-stone distance on computed tomography predicts for stone fragmentation by shock wave lithotripsy

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Urology. 2008; 72: 765–769

Objectives: To determine whether stone attenuation and the skin-to-stone distance (SSD) can predict for stone fragmentation by SWL independently. Identifying the factors predictive of shock wave lithotripsy (SWL) outcome would help streamline the care of patients with stones.
Methods: A retrospective review was performed of 111 patients undergoing initial SWL for a solitary, 5-20 mm, renal calculus. Stone size, location, attenuation value, and SSD were determined on pretreatment noncontrast computed tomography. The outcome was categorized as stone free, complete fragmentation <5 mm, and incomplete fragmentation >/=5 mm or unchanged at 2 weeks on kidney/ureter/bladder radiography.
Results: After SWL, 44 (40%) were stone free, 27 (24%) had complete fragmentation, and 40 (36%) of 111 patients had incomplete fragmentation. The stone attenuation of the successfully treated patients (stone free and complete fragmentation groups) was 837 +/- 277 Hounsfield units (HU) vs 1092 +/- 254 HU for those with treatment failure (incomplete fragmentation; P < .01). The mean SSD also differed: 9.6 cm +/- 2.0 vs 11.1 cm +/- 2.5 for the successful treatment group vs the treatment failure group, respectively (P = .01). On multivariate analysis, the factors that independently predicted the outcome were stone attenuation, SSD, and stone composition. When patients were stratified into 4 risk groups (stone <900 HU and SSD <9.0 cm, stone <900 HU and SSD >/=9.0 cm, stone >/=900 HU and SSD <9.0 cm, and stone >/=900 HU and SSD >/=9.0 cm), the SWL success rate was 91%, 79%, 58%, and 41%, respectively (odds ratio 7.1, 95% confidence interval 1.6-32 for <900 HU and SSD <9.0 cm group vs other 3 risk groups; P = .01).
Conclusions: The results of our study have shown that a stone attenuation of <900 HU, SSD of <9 cm, and stone composition predict for SWL success, independent of stone size, location, and body mass index. These factors will be considered important in the prospective design of a SWL treatment nomogram at our center.

Editorial Comment

This study helps establish parameters to guide the counseling of patients undergoing SWL. It is important to consider that the predictive stone attenuation and skin-to-stone distance will be dependent on the peak pressures at F2 and focal area of the lithotripter respectively. As such, this may require the establishment of criteria for each individual lithotripter.

Outcomes were defined by KUB at two weeks - one would expect that the sensitivity of KUB (at best 70%) would be higher for stones with higher stone attenuation and for thinner patients (smaller skin-to-stone distances). As such, the primary conclusions of the study may be skewed by the outcome measure selected - CT scan imaging would have provided a more critical evaluation for this study.

The authors note that collimation widths > 3 mm can impact stone attenuation measurements, smaller stones will have lower stone attenuation levels due to volume averaging with surrounding soft tissue, and indeed in this study stone size correlated with stone attenuation. However, concerns regarding radiation exposure warrant the continued use of 5-mm collimation widths.

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ENDOUROLOGY & LAPAROSCOPY

Laparoscopic management of intraperitoneal bladder rupture secondary to blunt abdominal trauma using intracorporeal single layer suturing technique

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J Trauma. 2008; 65: 234-6.

Background: Since Parra reported the first case of laparoscopic repair of bladder rupture caused by nonlaparoscopic injury to the bladder in 1994, several case reports have demonstrated the feasibility of this reconstructive surgical technique. We report the series of six patients that underwent laparoscopic repair of intraperitoneal bladder rupture (LRIB) because of blunt trauma using a single layer suturing technique. To our knowledge, this is the first series of LRIB reported secondary to blunt abdominal trauma.
Methods: From January of 2002 through June of 2006, a total of 139 patients were identified in our trauma registry with bladder ruptures secondary to abdominal blunt trauma. Among them 111 (79.8%) patients had associated pelvic injury. Seventy-one patients underwent surgical exploration and open bladder repair. Six cases were managed with laparoscopic technique. Patients were positioned in supine position and a three port-technique (5 mm, 10 mm, and 12 mm) was performed using the intracorporeal single layer suturing with a 3.0 Vycril (UR-6 needle). A close system Jackson-Pratt drain was placed in the retropubic space to monitor possible urine extravasation.
Results: The mean age of the patients was 47.3 years old (18-74 years). There were three female and three male patients. The average operation time was 43 minutes (31-75 minutes), mean length of bladder tear was 6.37 cm (5.3-7.7 cm), mean estimated blood loss was 16.6 cc (10-35 cc) and mean follow-up was 25.5 months (20-28 months). Two patients underwent combined orthopedic procedures. Computerized Tomography (CT) cystogram was performed between 5 days and 7 days after surgery with no signs of leakage in all patients.
Conclusion: LRIB perforation because of blunt abdominal trauma using single layer intracorporeal suturing technique is a minimally invasive alternative to open surgery in well selected patients with no other intrabdominal injuries or intracranial pressure issues, offering faster recovery and better cosmetic results.

Editorial Comment

This retrospective study demonstrated the development of minimally invasive laparoscopic surgery in trauma, especially for the bladder. This manuscript brings new concepts and changes in old "dogmas" such as, bladder repair in 2 layers, use of supra-pubic urine diversion, and use of minimally invasive approach to trauma. At Denver Health Medical Center, a level 1 trauma center, pioneering studies such as gastro-intestinal anastomosis performed in 1 layer demonstrated efficacious repair and gave birth to the similar concept of repair for the bladder. As stated in this study, the large number of trauma patients allowed the development of new minimally invasive techniques, i.e.; among the 111 patients with pelvic injuries during a period of less than 5 years, only 6 patients were able to benefit from this minimally invasive approach to repair the bladder. The authors emphasize the specific indications and selection of patients and contra-indications, such as, associated head trauma that may not allow the insufflation pressures or the "light" Trendelenburg position.

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Hand assisted retroperitoneoscopic nephroureterectomy with the patient spread-eagled: an approach through a completely supine position

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Purpose: We evaluated the feasibility of hand assisted retroperitoneoscopic nephroureterectomy for transitional cell carcinoma of the upper urinary tract with the patient completely supine (spread-eagled).
Materials and Methods: From October 2006 to January 2008 hand assisted retroperitoneoscopic nephroureterectomy with open bladder cuff excision was performed in 32 patients with upper tract transitional cell carcinoma. The patient was placed supine with the legs extended and abducted at 45 to 60 degrees, and the arms stretched out to the sides in the spread-eagle position. The patient was secured to the operation table with 3-inch tapes to permit lateral table tilt. The operation was completed via a 7 or 8 cm Gibson incision plus 2 laparoscopic ports.
Results: All procedures were successful. The mean time needed for hand assisted retroperitoneoscopic Nephroureterectomy and bladder cuff resection was 137.6 minutes. Mean estimated blood loss was 200 ml. Simultaneous transurethral endoscopic procedures were performed in 8 patients. Time to oral intake was 2.1 days and time to ambulation was 2.0 days. No specific complication was related to the position. All patients recovered to normal daily activity uneventfully.
Conclusions: Hand assisted retroperitoneoscopic nephroureterectomy with the patient completely supine is feasible and safe. The completely supine position has several advantages, including ease of patient positioning and the ability to perform simultaneous endoscopic procedures. It not only decreases the time and cost of changing position, but also avoids potential risks associated with the lateral decubitus position. Bowel interference with the visual field and mechanical bowel injury are not a concern using this approach.

Editorial Comment

The laparoscopic radical nephroureterectomy (LRNU) still remains a controversial subject, from the position of the patient to the optimal techniques to manage the distal ureter and the bladder cuff. The authors of this study propose an interesting patient positioning and surgical technique to perform the LRNU. It is extremely curious that a hand port is used in an already "tight" retroperitoneal space, creating difficult surgical maneuvers due to the lack of surgical field/space. Another interesting point is the preference of the authors for the 0-degrees laparoscope that can be easy to operate but may not offer the full range of visualization that a 30-degree or a flexible laparoscope may extend the view. The authors focused on the positioning of the patient and the lack of neurological or muscular complications that may occur during these laparoscopic procedures, fortunately very rare currently, since the "big" international learning curve has improved and better laparoscopic instrumentation, as well as, the knowledge of "laparoscopic anatomy" has been familiarized to the rest of the world through meetings, publications, etc. The oncological results appear similar to the other centers with high volume but the focus of the study seemed skewed towards the possible complications and advantage of not changing the patients positioning during this complex procedure. The authors should be congratulated for the attempt of optimizing the surgical technique of a known intricate procedure.

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IMAGING

Pelvic floor dysfunction: assessment with combined analysis of static and dynamic MR imaging findings

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Purpose: To prospectively analyze static and dynamic magnetic resonance (MR) images simultaneously to determine whether stress urinary incontinence (SUI), pelvic organ prolapse (POP), and anal incontinence are associated with specific pelvic floor abnormalities.
Materials and Methods: This study had institutional review board approval, and informed consent was obtained from all participants. There were 59 women: 15 nulliparous study control women (mean age, 25.6 years) and 44 patients (mean age, 43.4 years), who were divided into four groups according to chief symptom. Static T2-weighted turbo spin-echo images were used in evaluating structural derangements; functional dynamic (cine) balanced fast-field echo images were used in detecting functional abnormalities and recording five measurements of supporting structures. Findings on both types of MR images were analyzed together to determine the predominant defect. Analysis of variance and the Bonferroni t test were used to compare groups.
Results: In the four patient groups, POP was associated with levator muscle weakness in 16 (47%) of 34 patients, with level I and II fascial defects in seven (21%) of 34 patients, and with both defects in 11 (32%) of 34 patients. SUI was associated with defects of the urethral supporting structures in 25 (86%) of 29 patients but was not associated with bladder neck descent. Levator muscle weakness may lead to anal incontinence in the absence of anal sphincter defects. Measurements of supporting structures were significant ($P < 0.05$) in the identification of pelvic floor laxity.
Conclusion: Combined analysis of static and dynamic MR images of patients with pelvic floor dysfunction allowed identification of certain structural abnormalities with specific dysfunctions.

Editorial Comment

Multifactorial dysfunction contributes to the etiology of pelvic organ prolapse: a) weakness, thinning and /or tearing of levator ani musculature; b) laxity and/or tearing of the endopelvic fascia and c) laxity and /or tearing of apical supporting ligaments of the vagina. Both static and dynamic magnetic resonance imaging studies have been shown to be useful for the evaluation of female pelvic floor dysfunction an entity that usually encompasses stress urinary incontinence, pelvic organ prolapse and anal incontinence. Although these techniques have been used more frequently in recent years, determination of precise anatomic causes of these clinical abnormalities are still not clear. The authors present the results of a prospective study performed in 59 women (15 volunteer nulliparous women-control group and in 44 women with a parity range of 0 to 7, and pelvic floor dysfunction). Combined analysis of static and dynamic MR images of the pelvic floor reveals that it is possible to differentiate whether prolapse is due to defects in the endopelvic fascia, to levator muscle weakness, or to abnormalities in both fascia and muscles. Another important conclusion: a) stress urinary incontinence is associated with structural defects in the urethral supporting structures rather than with bladder neck descent and b) in the absence of an anal sphincter defect, anal incontinence is associated with marked levator muscle weakness.

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Frequency of serum creatinine changes in the absence of iodinated contrast material: implications for studies of contrast nephrotoxicity

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Objective: Most studies of contrast-induced nephropathy lack controls to distinguish it from nephropathy from other causes. We assessed the frequency and magnitude of serum creatinine changes in patients not receiving iodinated contrast material to compare with creatinine changes in publications regarding contrast nephropathy.
Materials and Methods: From the electronic medical records of an academic medical center, adults with creatinine determinations on five consecutive days who had not received contrast material during the previous 10 days were identified. The first creatinine level was compared with those on subsequent days. We calculated the frequency with which these levels exceeded thresholds used to identify contrast nephropathy in previous publications.
Results: Among 32,161 patients, more than half showed a change of at least 25% and more than two fifths, a change of at least 0.4 mg/dL. Among patients with baseline creatinine levels of 0.6-1.2 mg/dL, increases of at least 25%, 33%, and 50% occurred in 27%, 19%, and 11% of patients, respectively. Increases of 0.4, 0.6, and 1.0 mg/dL occurred in 13%, 7%, and 3% of patients. Among patients with baseline creatinine levels greater than 2.0 mg/dL, increases of at least 25%, 33%, and 50% occurred in 16%, 12%, and 7%. Increases of 0.4, 0.6, and 1.0 mg/dL occurred in 33%, 26%, and 18%. These increases were not different from the incidences of contrast nephropathy previously published.
Conclusion: The creatinine level increases in patients who are not receiving contrast material as often as it does in published series of patients who are receiving contrast material. The role of contrast material in nephropathy may have been overestimated.

Editorial Comment

Contrast agent-induced nephropathy (CIN) is the occurrence of renal failure, characterized by an increase in serum creatinine level or a fall in creatinine clearance, after the administration of an iodinated contrast agent. This entity occurs only in patients who have abnormal renal function before contrast agent injection. Unfortunately, the parameters used clinically (creatinine levels) for the estimative of the risk of CIN are imprecise. For this reason, one should calculate the creatinine clearance. Although contrast agents have been considered as one of the most frequent causes of in-hospital renal failure, many other concomitant risk factors exists such as dehydration, diabetes, previous extensive surgery and the use of nephrotoxic medications (e.g., gentamycin, nonsteroidal anti-inflammatory drugs, and certain chemotherapeutic drugs). Adequate hydration and the use N-acetyl cysteine or both can prevent CIN.

This report raises several questions, and the most important are: what if there is no such entity as CIN?, b) what if there is no real increase in serum creatinine level in the general population that can be attributed to the intravascular administration of contrast media? (1). It is obvious that until more rigorous studies including an appropriate control group address the issue of CIN, our understanding of the actual risk of CIN when administering IV contrast media is limited. We should also considerer that most studies have been shown that N-acetyl cysteine is useful for intra-arterial / intracardiac contrast but we do not know if the patient that receives intravenous contrast injection has the same risk of these patients. For this reason, we should not avoid doing a necessary iodinated contrast-enhanced radiological examination in a patient at risk of CIN. Obviously, the risk-benefit should be always balanced but in such situation, hyper-hydration should be immediately initiated and N-acetyl cysteine and non-ionic contrast material should be used.

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UROGENITAL TRAUMA

Long-term functional and morphological effects of transcatheter arterial embolization of traumatic renal vascular injury

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Objective: To assess the long-term morphological and functional outcome of superselective transarterial embolization (TAE) for treating traumatic renal vascular injury.
Patients and Methods: The surgical records of 124 patients with traumatic renal vascular injury managed by TAE between 1990 and 2004 were reviewed, of whom 81 completed a long- term follow-up and were included in the final analysis. Patients were followed using serum creatinine levels, grey-scale ultrasonography, intravenous urography (IVU) and radioisotopic renography using (99m)Tc-mercapto-acetyl triglycine (MAG3) and (99m)Tc-dimercaptosuccinic acid (DMSA).
Results: Embolization resulted in the cessation of haematuria in all patients but two (97.5%). At 3 months, serum creatinine levels increased in four of nine patients with a solitary kidney, but only one of them required haemodialysis. After a mean follow-up of 4.6 years, IVU showed a normal calyceal configuration in 70% of renal units, pyelonephritic changes in 26% and no dye excretion in 4%. DMSA scans showed no evidence of photopenic areas in 17 renal units (21%). The mean (sd) percentage of DMSA uptake by the corresponding kidney improved from 24 (9)% at the 3-month scans to 32 (10)% at the last follow-up scan ($P < 0.001$). Using MAG3, the mean (sd) glomerular filtration rate improved significantly from 26 (11) mL/min at the 3-month scan to 32 (9) mL/min at the last follow-up ($P < 0.05$).
Conclusions: Superselective TAE is safe and effective for traumatic renal vascular injury. The short-term deleterious effects were more pronounced in patients with a solitary kidney. The long-term follow-up showed functional and morphological improvements in the embolized renal units.

Minimally invasive endovascular techniques to treat acute renal hemorrhage

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Purpose: We evaluated the effectiveness of endovascular therapy for severe renal hemorrhage.
Materials and Methods: We retrospectively reviewed cases compiled from the trauma database, billing records and interventional radiology logs at our institution from 1990 to 2007. Technical success was defined as the cessation of bleeding after angiographic embolization. Clinical success was defined as the absence of recurrent hematuria without the need for additional embolization.
Results: A total of 26 patients underwent angiography and endovascular treatment for renal hemorrhage. Mean patient age was 42 years (median 37, range 7 to 70). There were 20 males and 6 females. Mean clinical followup was 11.7 months. The mechanisms of injury were iatrogenic in 6 cases (renal biopsy in 5 and post-percutaneous nephrostomy placement in 1), trauma in 16 (blunt in 10 and penetrating in 6) and spontaneous rupture of a renal mass in 4. At presentation 16 patients (62%) were hemodynamically stable, while 10 (38%) were in shock. A total of 11 patients (42%) presented with gross hematuria, 7 (27%) had microscopic hematuria and 8 (31%) had no evidence of hematuria. A total of 16 patients (62%) had kidney injuries alone, while 10 (38%) also had significant concurrent injuries. Treatment failed in all 5 grade 5 acute renal injuries (100%) caused by external trauma. Technical and clinical success was achieved in 22 (85%) and 17 patients (65%), respectively.
Conclusions: Superselective embolization therapy for renal trauma provides an effective and minimally invasive means to stop bleeding. Overall our complication rate was minimal. Most renal traumas, including most grade 4 injuries, were effectively managed by conservative therapy. Embolization proved effective for grade 4 renal trauma for which conservative therapy failed. In our series embolization failed when applied to grade 5 injuries.

Editorial Comment

There has been a growing body of literature lately in support of managing the injured kidney with early angiography and embolization. Embolization therapy for the blunt splenic injury has been highly effective and successful. Once the decision has been made to manage the kidney injury nonoperatively, it appears that relative inclusion criteria for the use of selective embolization is symptomatic gross hematuria after penetrating renal trauma, contrast blush on CT scan (intravascular contrast extravasation), need for > 3 u RBC transfusion in a 24 hour period, or a symptomatic delayed renal bleed. Delayed renal bleeding typically occurs in 1-2 weeks after injury, when the clot lysis and there is hematoma liquefaction. In general, significant delayed bleed with observed AAST G3 or G4 renal injuries is very rare with blunt trauma 1%, but can occur in up to 24% with isolated penetrating injuries. As to effectiveness, kidney embolization is about 85% technically successful (the vessel can be embolized and subsequent show no flow on angiography) and about 65% clinically successful (35% will re bleed despite a technically and well performed embolization). Complications of post segmental infarction are rare, with pyrexia and fevers in about 10%, and persistent hypertension in less than 1%.

Renal bleeding from the kidney is usually due to a pseudoaneurysm or AV fistula. Embolizations of such vascular injuries are typically performed with permanent coils made from platinum. In our institution, we prefer the Tornado coils by Cook Urological. The Tornado coils come in 0.018", 0.035" and 0.038" wire size and once deployed are conical in shape 2 – 3 mm diameter. Platinum coils are highly radio-opaque and are of a softer metal so that they can achieve a tighter pack and have less vessel wall injury. To promote thrombogenicity attached to the coil walls are multiple Dacron side fibers.

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PATHOLOGY

False positive labeling of prostate cancer with high molecular weight cytokeratin: p63 a more specific immunomarker for basal cells

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Occasional nonspecific staining of prostate cancer cells with high molecular weight cytokeratin (HMWCK) can lead to false-negative diagnoses. We compared p63 and HMWCK immunostaining to check their specificity for basal cell identification. Out of 6887 prostate cancer cases sent in consultation to one of the authors over 1.5 years, we identified 22 (0.3%) cases with HMWCK labeling of cancer cells, including 20 needle biopsies and 2 transurethral resections of prostate (TURP). Cases were sent in consultation because of the confusing immunostaining pattern, where prostate cancer cells labeled with HMWCK at the outside institutions. In 6 cases, p63 immunostains were also received from the outside institution, whereas in the remaining 16 cases p63 immunohistochemistry was performed at our institution. In 14 cases, we used either an extra destained hematoxylin and eosin slide or a negative control slide for immunohistochemistry with antibodies to p63, and in the 2 remaining cases submitted unstained slides were used. The Gleason scores were 3+3=6 in 20 cases and 4+4=8 in 2 cases. The size of the tumor on needle biopsy ranged from 0.5 to 6.0 mm (mean 1 mm) and on the 2 TURP cases consisted of 44 and 68 cancer glands, respectively. The number of tumor cells positive for HMWCK in each of the needle biopsy cases ranged from 3 to 48 (mean 13 cells), whereas on the 2 TURP cases 26 and 10 cells were labeled with HMWCK. Corresponding stains for p63 on the same cases were negative in 18 cases. In 3 of 4 cases, p63 labeled 1, 1, and 2 tumor cells, respectively. The fourth case had 5 positive cells on p63 staining with 4 positive for HMWCK. To assess whether overstaining was a factor, we evaluated the intensity of HMWCK staining in the basal cells of the benign glands, which was moderate in 6 and strong in 16 cases. The cytoplasm of benign secretory cells showed focal weak (n = 3), diffuse weak (n = 1), and focal moderate (n = 2) staining for HMWCK. HMWCK labeling of prostate cancer cells is uncommon and does not seem to be solely attributable to overstaining. p63 is a more specific marker for basal cells than HMWCK, with less labeling of tumor cells. Recognition of this phenomenon and performing stains for p63 when it occurs can help prevent underdiagnosing prostatic carcinoma.

Editorial Comment

On a previous published study from the same Institution, it was shown that prostate adenocarcinoma cells may show aberrant expression for p63 immunostaining (1). In this study they describe another rare occurrence of aberrant expression: positivity for high-molecular weight cytokeratin (HMWCK). Both p63 and HMWCK are markers for basal cells which are absent in neoplastic acini.

Both are important reports of a pitfall for the pathologist while diagnosing prostate cancer. It is important for the urologist to know that immunohistochemistry is used only in some selected cases with difficult differential diagnosis and not routinely in all cases showing adenocarcinoma. More importantly, the urologist must know that even using immunohistochemistry the diagnosis may not be definitive, that is, it may be yet "suspicious but not diagnostic of adenocarcinoma".

Why this happens? There are several benign conditions mimicking adenocarcinoma that show absence of basal cells in some of the acini: partial atrophy (2), adenosis, small branches of normal acini, and atypical PIN (PINATYP) (3). In small lesions using immunohistochemistry, these conditions may show absent basal cells in all of the acini, and in absence of other criteria for the diagnosis of cancer the pathology report is still "suspicious but not diagnostic of adenocarcinoma".

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Grading of invasive cribriform carcinoma on prostate needle biopsy: an interobserver study among experts in genitourinary pathology

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The distinction between cribriform Gleason pattern 3 and 4 prostate cancer is controversial. Out of 3590 prostate cancers sent to one of the authors over 7 months, 30 needle biopsy cases were selected that possibly represented cribriform Gleason pattern 3 cancer. Thirty-six digital images were taken and sent to 10 experts in prostate pathology. Consensus was defined when at least 7/10 experts agreed on the grade. Sixty-seven percent (n = 24) of images reached consensus (23 pattern 4; 1 pattern 3). Of the 12 nonconsensus images, 7 were favor pattern 4 (6/10 experts agreed), 1 was favor pattern 3 (6/10 experts agreed), and 4 were equivocal (< 6 experts agreed). The most common criteria used to call pattern 4 in the 23 consensus pattern 4 images were in frequency: irregular contour, irregular distribution of lumens, slit-like lumens, large glands, number of glands, and small lumens. In the only consensus pattern 3 image, criteria used were regular contour, small glands, regular distribution of lumens, and uniform round lumens. Discrepancy between experts was qualified as primarily objective (different criteria present) in 38%, subjective (different interpretation of the same criteria) in 12%, and mixed (both objective and subjective) in 50%. The most frequent situation with different interpretations of the same criteria were regular versus irregular contour and small versus large glands, with the former more common. Even in this highly selected set of images thought to be the best candidates for cribriform pattern 3 from a busy consult service, most experts interpreted the cribriform patterns as pattern 4. Moreover, most of the cribriform foci investigated (73%) were associated with more definitive pattern 4 elsewhere on the needle biopsy specimen. In conclusion, most of the small cribriform cancer foci seen on needle biopsy should be interpreted as Gleason pattern 4 and not pattern 3.

Editorial Comment

The cribriform pattern (glands in glands) is a very peculiar arrangement frequently seen in adenocarcinoma of the prostate. In metastases of unknown origin, this pattern seen in older men is almost always adenocarcinoma from the prostate. Obviously this pattern is not exclusively seen in prostate cancer. It may also be seen in carcinoma of the breast, gastrointestinal tract and other organs.

In the standard Gleason grading, cribriform pattern could correspond to patterns 2, 3, or 4. In the revised Gleason grading published in 2005 (1), cribriform pattern should never correspond to pattern 2, and very rarely to pattern 3. Most of the times it corresponds to grade 4. Cribriform pattern 3 is only diagnosed for well circumscribed glands of the same size as normal glands.

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INVESTIGATIVE UROLOGY

Localization and expression of inducible nitric oxide synthase in biopsies from patients with interstitial cystitis

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J Urol. 2008; 180: 737-41

Purpose: Interstitial cystitis is a chronic inflammatory disease of the bladder and luminal nitric oxide has been shown to be increased in the bladder in patients with interstitial cystitis. We analyzed endogenous nitric oxide formation and inducible nitric oxide synthase gene expression in the bladder of patients with interstitial cystitis to obtain further knowledge of the localization of inducible nitric oxide synthase in the bladder mucosa.
Materials and Methods: Six patients with interstitial cystitis and 8 controls were studied. In these 2 groups endogenous nitric oxide formation was measured and inducible nitric oxide synthase expression in bladder biopsies was analyzed at the transcriptional and protein levels by real-time polymerase chain reaction and Western blot, respectively. Immunohistochemistry for inducible nitric oxide synthase was also performed.
Results: Patients with interstitial cystitis had higher inducible nitric oxide synthase mRNA expression and nitric oxide formation than controls ($p < 0.01$ and < 0.001, respectively). Inducible nitric oxide synthase protein expression was up-regulated in the interstitial cystitis group. Immunohistochemistry showed that inducible nitric oxide synthase was predominantly localized to the urothelium in patients with interstitial cystitis but inducible nitric oxide synthase-like immunoreactivity was also found in macrophages in the bladder mucosa.
Conclusions: The increased levels of endogenously formed nitric oxide in patients with interstitial cystitis correspond to increased inducible nitric oxide synthase mRNA expression and protein levels in these patients. Furthermore, inducible nitric oxide synthase was found to be localized to the urothelium but it was also found in macrophages in the bladder mucosa. Whether high levels of endogenously formed nitric oxide are a part of the pathogenesis in interstitial cystitis and whether it has a protective or damaging role remain to be elucidated.

Editorial Comment

Analyzing patients with interstitial cystitis (IC) and controls, the authors evaluated whether high levels of endogenous nitric oxide (NO) in the bladder in patients with IC also correspond to increased levels of iNOS at a transcriptional and protein level. Also, the authors studied the location of iNOS in the bladder mucosa.

It was found that the bladder luminal NO concentration was significantly increased in patients with IC when compared to controls. At the transcriptional level iNOS expression was detectable in biopsies from patients with IC as well as in controls. However, iNOS mRNA expression was significantly higher in biopsies from patients with IC when compared to controls. In addition, iNOS protein expression was found in the biopsies of patients with IC but not in the biopsies of controls.

This important study opens new avenue for understanding the pathophysiology of IC and also for additional diagnostic tools of this until now under understanding disease.

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Effect of cyanoacrylic glue on penile fracture: an experimental study

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Purpose: We investigated the effect of Glubran(R)2 cyanoacrylic glue on rat cavernous tissue after forming penile fractures experimentally as well as the histopathological effect. We also investigated its clinical use.
Materials and Methods: Experimental penile fracture was formed by incising from the proximal dorsal side of the penis in 32 Wistar Albino rats. The rats were randomly assigned to 4 main groups of 8 each. In the control group the incision was not repaired and it was left to secondary healing. In the glue group cyanoacrylic glue was only applied to the incision region. In the primary repair group the incision was primarily repaired and in the final group cyanoacrylic glue was applied to the incision region following primary repair. Three weeks later penectomy materials were examined histopathologically.
Results: When the control group was compared with the other groups, the differences in cavernous tissue healing with fibrosis and hyperemia-bleeding were statistically significant ($p = 0.043$ and 0.003, respectively). In the glue group fibrosis was observed in 2 rats. This group was the best according to cavernous healing. Although there was no significant difference between the control group and the other groups according to inflammation ($p = 0.057$), the glue group was better than the primary repair group ($p = 0.026$). No significant inflammation or hyperemia-bleeding was observed in the glue group. When the experimental groups were evaluated for histopathological parameters, it was observed that the best results were obtained in the glue group.
Conclusions: Cyanoacrylic glue can be used in cavernous surgery due to its hemostatic, adhesive and anti-inflammatory properties.

Editorial Comment

The authors investigated the effect of Glubran2 for penile fracture repair. They studied 4 groups of 8 rats each, after creating experimental penile fracture by incising the proximal dorsal side of the penis with

a number 15 lancet. In group C the incision was not repaired but was left to secondary healing. In group G cyanoacrylic glue was only applied on the incision region and the tissue was compressed to become adhered for 2 to 3 minutes. In group P the incision was primarily repaired with 6-zero polydioxanone. In group PG cyanoacrylic glue was applied on the incision region following primary repair.

The authors found that there was no inflammation and hyperemia-bleeding in only group G. In group PG only 1 rat had these histopathological features. Total healing was observed in all rats in the 2 groups. Slight fibrosis developed in the cavernous tissue in groups G and PG, similar to that in rats in group P, and the authors stated that this finding showed that cyanoacrylic glue has no effect on preventing fibrosis. The authors concluded that Glubran2 can be used in cavernous surgery due to its hemostatic, adhesive and anti-inflammatory properties, and that application of this material on the ruptured region of corpus cavernosum without suturing seems to be beneficial according to the primary repair method.

The authors are to be commended for that elegant study and for providing a new option that would be used in the future for cavernous repair. Nevertheless, it is important to point out that "penile fracture" is defined as "a rupture of the corpus cavernosum due to a blunt trauma in an erect penis. Lesions on a flaccid penis or lesions in the suspensor ligament of the penis are not included in this definition". So, the mechanism of injury used in this experimental work is far different from a fracture. It would be better to name it as a "cavernous lesion". A lesion caused by a scalpel in the albuginea is much less traumatic than a lesion caused by a blunt trauma to an erect penis with a thin albuginea submitted to a high intracavernosal pressure. A typical penile fracture is followed by swelling, hematoma and penile deformity, which would cause greater inflammatory reaction.

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RECONSTRUCTIVE UROLOGY

Surgical techniques in substitution urethroplasty using buccal mucosa for the treatment of anterior urethral strictures

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Eur Urol. 2008; 53: 1162-71

Objectives: Since the resurgence in the use of buccal mucosa (BM) in substitution urethroplasty in the late 1980s and early 1990s, there has been controversy as to which surgical technique is the most appropriate for its application.
Methods: The authors performed an updated literature review. Several centres have published widely on this topic, and the points considered include the use BM in dorsal onlay grafts, ventral onlay grafts, and tubularised grafts and the role of two-stage procedures.
Results: In experienced hands, the outcomes of both dorsal onlay grafts and ventral onlay grafts in bulbar ure-

throplasty are similar. The dorsal onlay technique is, however, possibly less dependent on surgical expertise and therefore more suitable for surgeons new to the practice of urethroplasty. The complications associated with ventral onlay techniques can be minimised by meticulous surgical technique, but in series with longer follow-up, complications still tend to be more prevalent. In penile urethroplasty, two-stage dorsal onlay of BM (after complete excision of the scarred urethra) still provides the best results, although in certain circumstances a one-stage dorsal onlay procedure is possible. In general, ventral onlay of BM and tube graft procedures in the management of penile strictures are associated with much higher rates of recurrence and should therefore be avoided.

Conclusions: In experienced hands the results of the ventral and dorsal onlay of BM for bulbar urethroplasty are equivalent. Two-stage procedures are preferable in the penile urethra, except under certain circumstances when a one-stage dorsal onlay is feasible.

Editorial Comment

Since the initial reported use of buccal mucosa for urethral reconstruction in 1894, the properties of the tissue itself have not substantially changed despite improvements in suturing materials, instruments and reconstructive surgical techniques (1).

Patterson and Chapple compared the most frequently used published techniques of urethroplasty. They concluded that the technique does not seem to be as critical for the success of the transplant as the high surgical skills required reconstructive surgery (2). This takes into an account the use of 5/0 or even 6/0 sutures under magnification reducing host tissue and buccal mucosa traumatization (3). The substantial knowledge is that buccal mucosa has good elasticity, supports neo-vascularization because of its lamina propria, boosts the local immune status with its increased amount of IgA, provides similarity to cytoceratin and ensures a low risk of inflammation or scar development.

Thus, buccal mucosa with its satisfying long-term outcome is still the golden standard against which we have to validate any new material or approach (4).

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Lichen sclerosus of the male genitalia and urethra: surgical options and results in a multicenter international experience with 215 patients

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Eur Urol. 2008 Jul 30. [Epub ahead of print]

Background: Surgical options in male patients with genital lichen sclerosus (LS) involving the anterior urethra still represent a challenging issue.
Objective: To review the outcome of surgical treatment in patients with genital and urethral LS.
Design, Setting, and Participants: Multicenter, international, retrospective, observational descriptive study performed in two specialized centers. Two hundred fifteen male patients underwent surgery for histologically proven genital LS involving the foreskin and/or the anterior urethra.
Intervention: Circumcision (34 cases), meatotomy (15 cases), circumcision and meatotomy (8 cases), one-stage penile oral mucosal graft urethroplasty (8 cases), two-stage penile oral mucosal graft urethroplasty (15 cases), one-stage bulbar oral mucosal graft urethroplasty (88 cases), and definitive perineal urethrostomy (47 cases). Measurements: Primary outcome was considered a failure when any postoperative instrumentation was needed, including dilation, or when recurrence was diagnosed. Results and Limitations: The average follow-up was 56 mo (range: 12-170 mo). Circumcision showed 100% success rate with no recurrence of the disease; meatotomy, 80% success rate; circumcision and meatotomy, 100% success rate; one-stage penile oral mucosal graft urethroplasty, 100% success rate; two-stage penile oral mucosal graft urethroplasty, 73% success rate; one-stage bulbar oral mucosal graft urethroplasty, 91% success rate; and definitive perineal urethrostomy, 72% success rate. Limitations include short follow-up for recording neoplastic degeneration and no instrument to investigate quality of life.
Conclusions: Patients with LS disease restricted to the foreskin and/or external urinary meatus showed a high surgery success rate. In patients with penile urethral strictures or panurethral strictures, the use of one-stage oral graft urethroplasty showed greater success than the staged procedures.

Editorial Comment

Although the cause of lichen sclerosus (LS) is still unknown, its clinical course has been well described in recent years, and in particular, in a current review of Kulkarni et al. (1). It is still astonishing that histological evaluation is not or incorrectly performed, according to the data by Jasaitiene et al. Thorough histological evaluation revealed that LS occurs almost equal in boy and men (2).

With the systematic retrospective work-up of Kulkarni et al., it became obvious that early diagnosis and correct treatment leads to a long-term satisfying outcome (3). Therefore, it should be requested that any resected tissue of the foreskin, glans or urethra has to be examined by a pathologist with the exclusion of LS.

Even for the most extensive reconstruction, the authors suggest the use of buccal mucosa in a one-stage urethroplasty, which is opposite to Patterson and Chapple who suggest the two stage approach, to have a higher success rate (4). This contribution makes it once again obvious how important it might be to exclude LS both for the course of the disease as well as the result of a possible reconstructive surgery.

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UROLOGICAL ONCOLOGY

Toxicities associated with the administration of sorafenib, sunitinib, and temsirolimus and their management in patients with metastatic renal cell carcinoma

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Objective: To provide a systematic review of the side effects associated with sorafenib, sunitinib, and temsirolimus and to provide an outline of possible preventive or therapeutic measures.
Methods: We performed a PubMed-based systematic review of side effects associated with the three agents and relied on product monographs and prescribing information to provide an outline of treatments aimed at reducing these toxicities.
Results: Side effects range from < 1% to 72%. Grade 3/4 side effects are less common and range from < 1% to 13% for sorafenib, < 1% to 16% for sunitinib, and 1% to 20% for temsirolimus. Overall, sunitinib causes the most grade 3/4 side effects and sorafenib causes the fewest grade 3/4 side effects, although head-to-head trials are required to compare safety profiles of all three kinase inhibitors. Virtually all side effects can be managed effectively.
Conclusion: Prevention, recognition, and prompt management of side effects are of key importance and avoid unnecessary dose reductions, which may undermine treatment efficacy.

Editorial Comment

Three targeted medical therapies against metastatic renal cancer have recently been approved and are more and more widely used. Either as a therapist himself or in counseling his/her patients in further medical therapy the urologist faces a new generation of drugs with unfamiliar side-effects. The article focuses on the side effects of sunitib, sorafenib and temsirolimus as reported in the literature from all phase I, II and III studies. This article is worthwhile reading, profound and detailed and is recommended for every urologist dealing with this tumor entity.

The authors not only describe the side-effects of treatment but also give detailed advice on the management of hematologic, systemic or endocrinologic, cardiac, gastrointestinal, cutaneous and laboratory adverse events. Moreover, dose-modifications are suggested. Finally, a helpful questionnaire to monitor the patents course and standardized prescriptions are given.

Again, strongly advised reading for everyone dealing with medical therapy against renal cancer.

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Prepubic urethrectomy during radical cystoprostatectomy

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Eur Urol. 2007; 51: 915-21

Objectives: In muscle-invasive bladder cancer, the risk of developing a urethral recurrence after cystectomy varies between 4% and 18%, especially when an ileal conduit is performed. For this reason, some authors advocate a urethrectomy in these indications. At our center, we developed the technique of prepubic urethrectomy. We assessed the feasibility and implications of this technique over 20 yr of use.
Patients and Methods: We retrospectively analyzed the medical files of 180 consecutive male patients who underwent a urethrectomy simultaneously with cystectomy for invasive bladder cancer between 1985 and 2005. We describe our technique step-by-step, and present possible technical difficulties and complications of urethrectomy.
Results: The mean increase in operative time with the prepubic urethrectomy over cystoprostatectomy alone was 17 min (range: 15-25). Postoperative complications occurred in 10 (5.5%) patients. A subcutaneous penile haematoma was noted in four (2.2%) patients, two of whom needed a circumcision later on. A scrotal haematoma was seen in five (2.7%) patients; two needed a surgical drainage and three were treated conservatively. A prepubic collection was noted in one patient who was also treated conservatively. No thromboembolic or neurologic complications were encountered. Conclusions: When a urethrectomy is indicated, it can best be performed by using the prepubic approach, because it is easier and less time-consuming than the perineal approach, and has very limited and easily manageable complications.

Editorial Comment

Urologic surgeons familiar with radical cystectomy are confronted with the risk of urethral recurrences. Indications for this procedure vary between different authors, but in cases with multifocal carcinoma in situ or clear infiltration of the prostate simultaneous urethrectomy mostly is recommended.

These authors describe an elegant and time-saving procedure to perform prepubic urethrectomy and report their 20 years of experience.

Remarkably, in 180 cases of en-bloc urethrectomy together with radical cystectomy the authors experienced only 10 patients with complications.

From my own experience in many such cases I can only recommend this operative procedure and would advice anyone with experience in operative urology to thorough reading of this article.

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NEUROUROLOGY & FEMALE UROLOGY

Postoperative urinary incontinence after total abdominal hysterectomy or supracervical hysterectomy: a metaanalysis

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Objective: A metaanalysis of randomized trials was conducted to evaluate if the type of hysterectomy, total abdominal hysterectomy or supracervical hysterectomy, has an impact on the development of urinary incontinence.
Study Design: We searched MEDLINE, EMBASE, CINAHL, Biological Abstract, and the Cochrane Library up to February 2007; abstracts at major meetings and bibliographies of retrieved articles were scanned. A fixed effect model was used to calculate summary relative risk estimates and 95% confidence intervals (CIs).
Results: Analysis showed no statistical difference in the risk of developing stress or urge urinary incontinence in women who underwent supracervical hysterectomy compared with women who underwent total abdominal hysterectomy (relative risk, 1.3; 95% CI, 0.94-1.78; P = 0.16 and relative risk, 1.37; 95% CI, 0.77-2.46; P = 0.25).
Conclusion: There is no statistical evidence of a different risk for developing either stress or urge urinary incontinence after a supracervical hysterectomy or a total hysterectomy.

Editorial Comment

The authors noted a current trend towards supracervical hysterectomy as opposed to a total hysterectomy in an effort to diminish surgical impact on underlying patient anatomic structures that involve continence. The authors performed a meta-analysis to gather their data: this spanned relevant articles between 1996 and 2007, ongoing clinical trials, and abstracts performed on the topic. They specifically reviewed comparison of total abdominal hysterectomy and supracervical hysterectomy with regards the development of stress or urinary urge incontinence.

The authors noted that there was no difference between supracervical hysterectomy and total hysterectomy with regards to voiding dysfunction (stress urinary incontinence, urinary urge incontinence or symptoms of overactive bladder). In fact, they noted that there was a non-significant trend towards increased risk for voiding dysfunction with a supracervical hysterectomy as opposed to total abdominal hysterectomy.

This study highlights the difference between anecdotal and observational notations versus scientific analysis. Their findings of a non-statistical increase in supracervical approach associated voiding dysfunction as opposed to total abdominal hysterectomy may temper the enthusiasm for the completion of this operation sheerly based on the perception of preventing future voiding dysfunction. As pointed out by the authors, the difficulty in comparing the efficacy of observational studies versus scientific studies is that the former may be performed as an accumulation of experience over a career while the latter may involve a follow-up of significantly less time.

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Outcomes following sling surgery: importance of definition of success

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Purpose: The assessment of incontinence therapies is complicated by the diverse outcomes instruments and definitions of success used by investigators. We defined this effect by using varied definitions of success to perform outcomes analysis following sling placement.
Materials and Methods: A retrospective review of patients undergoing SPARC (314) and autologous rectus pubovaginal sling (127) placement was performed, with 204 patients with the SPARC and 67 with pubovaginal sling completing questionnaire surveillance with the minimum 12-month follow-up. Outcomes were assessed using a questionnaire comprising validated incontinence questionnaires (Urogenital Distress Inventory and Incontinence Impact Questionnaire) and additional items addressing satisfaction. Success rates were compared using alternate definitions of success across all outcomes measures (eg dry rate, pad rate, percent improvement, degree of satisfaction).
Results: Wide variations in outcomes were seen depending on the definition used for success (SPARC success range 33% to 87%, pubovaginal sling 40% to 79%). Total absence of leakage was the strictest definition of success while continued use of 1 to 3 liners was associated with the highest success rates. In addition, 74% of patients with SPARC placement and 66% with the pubovaginal sling reported willingness to undergo sling surgery again despite the treatment failing to meet the criteria for success under multiple definitions. Finally, the individual sling type (SPARC vs. pubovaginal) associated with the superior success rate varied with the definition of success. However, these differences failed to achieve statistical significance.
Conclusions: Our data suggest that success rates following sling placement are significantly affected by the definition of success. Investigation to define standardized outcomes measures following incontinence surgery is of great importance to the urological community.

Editorial Comment

The authors delve into the complicated world of gauging success after sling surgery. Their study pool for analysis was 271 patients of which 204 received the SPARC™ suburethral sling while 67 underwent a pubovaginal sling using autologous fascia. The authors found that if the strictest definition of success was utilized, that is, “dry is dry”, patients had a markedly lower success rate than when light pads was used as the definition of success. In addition, they noted that if the patient was improved by greater than 50% they were more prone to recommending the surgery or repeating the surgery as opposed to those not reaching 50%. These authors also compared the two techniques in a sliding scale of metrics of success noting the potential significant difference in the reported success rate. The two operations did have some disparity in that the SPARC™ operation had a higher pad free rate reported while the pubovaginal sling had more patients stating that they were dry.

One should strongly consider reading this excellent article in its entirety prior to judging the efficacy of reported sling operations. The authors make several excellent points in their discussion section including the call for completely dry to be used only in the strictest sense of the word. Of note is that the paper did not expand into postoperative complications including voiding dysfunction and its affect on sling success and outcomes.

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PEDIATRIC UROLOGY

Nerve sparing robotic extravesical ureteral reimplantation

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J Urol. 2008; 179: 1987-9; discussion 1990

Purpose: Laparoscopic transvesical ureteral reimplantation with or without robot assisted surgical devices is being developed as an alternative to open surgery. We sought to review our experience with an extravesical robotic technique, to determine whether postoperative voiding dysfunction might be avoided with pelvic plexus visualization and to evaluate the overall feasibility of this approach to ureteral surgery.
Materials and Methods: A total of 41 patients underwent robotic extravesical reimplantation for bilateral vesicoureteral reflux. The patients were divided into groups based on bladder capacity as measured by voiding cystourethrogram. The operation was performed via a transperitoneal approach with robotic assistance using the da Vinci Surgical System.
Results: Operative success rates were 97.6%. There were no complications. There were no episodes of urinary retention documented by bladder scanning.
Conclusions: Robotic extravesical reimplantation is in its infancy, and visualization of the pelvic plexus appears to be paramount in avoiding postoperative voiding complications. This approach appears to be a feasible and reasonable option for vesicoureteral reflux correction.

Editorial Comment

Forty-one patients underwent retrospective chart review after robotic extravesical reimplantation for vesicoureteral reflux grades III-V regardless of duplication anomalies. Indication for surgery was breakthrough pyelonephritis despite prophylactic antibiotics. Voiding diaries, uroflow, post-void residual measurements and constipation issues were addressed pre-operatively. All patients underwent cystoscopy with ureteral catheters placed in the aid of the dissection. One camera port and two other robotic ports were used. The authors were careful to do a nerve-sparing technique and felt that the robot with its better visualization allowed the nerves to be easily spared. All patients had an overnight catheter. The average operating time was 2.33 hours with an average length of stay of 26.1 hours. Post-void residual urines were checked by bladder scan and all patients voided after the catheter was removed and there was a mean residual of 13 mL of urine in the bladder. One patient had reflux on a three month VCUG and no patients had hydronephrosis on the ultrasound at 3 and 6 months postoperatively.

The authors should be congratulated on a study well done with good and careful follow up of the pre- and post-op bowel and bladder management. This shows that extravesical nerve-sparing robotic reimplantations can be done safely with excellent results. Always the question for endoscopic procedures in children: "is it an improvement over the open surgical techniques and does it offer patient benefit?" I believe those answers will in time become clear but as yet it remains to be seen.

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Unilateral vesicoureteral reflux: does endoscopic injection based on the cystoscopic appearance of the ureteral orifice decrease the incidence of de-novo contralateral reflux?

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Objective: In patients with unilateral vesicoureteral reflux (VUR), it has been suggested that injection of a non-refluxing but cystoscopically abnormal contralateral ureteral orifice (UO) with dextranomer/hyaluronic acid (Dx/HA) should be performed to prevent the development of de-novo contralateral VUR. We evaluate the effectiveness of this practice.
Patients and Methods: Patients with primary unilateral VUR undergoing injection of Dx/HA from 2002 to 2005 at two institutions were eligible. Patients with unilateral VUR with cystoscopically abnormal contralateral UOs were injected with Dx/HA, while patients with normal appearing UOs received no treatment. Multivariate logistic regression models were used to estimate the impact of prophylactic injection on the development of de-novo contralateral VUR.
Results: In total, 101 patients with unilateral VUR and an abnormal appearing contralateral UO underwent prophylactic injection of Dx/HA while 45 patients with a normal appearing contralateral UO were untreated. In patients receiving prophylactic Dx/HA, 9% (9/101) of the previously non-refluxing ureters developed de-novo VUR. Similarly, 13% (6/45) of patients with a normal appearing UO treated by observation alone developed de-novo VUR (P=0.55). The overall incidence of 10% (15/146) de-novo contralateral VUR matches published results where this protocol was not followed.
Conclusions: Our findings suggest that cystoscopic assessment and prophylactic treatment of an abnormal appearing, non-refluxing contralateral UO with Dx/HA is of little clinical benefit and should be abandoned.

Editorial Comment

This research was done at both the Mayo Clinic and the Division of Urology in Minneapolis, Minnesota. It was noted that 7-20% of patients undergoing unilateral endoscopic injection therapy or ureteroneocystostomy will develop de-novo contralateral vesicoureteral reflux. The authors cystoscopically evaluated 146 patients on the contralateral side during a 3½ year period with unilateral reflux before the refluxing side underwent Deflux® therapy. If the ureteral orifice was deemed abnormal by the pediatric urologists, either from orifice appearance or from hydrodistention appearance, the contralateral ureter was treated with Deflux® also. The average age was approximately six years with 91% of the patients being female. 69% were judged to have an abnormal appearing ureteral orifice and were injected with Deflux®; while 31% of the patients were judged to have a normal orifice and were not injected. Cyclical voiding cystourethrograms or nuclear cystograms were performed at three months and de-novo vesicoureteral reflux developed in 9% when the orifice was prophylactically treated with Deflux® and in 13% when the orifice was judged normal and no Deflux® was treated. This was not statistically significant. The author's conclude that prophylactic treatment of abnormal ureteral orifices should not be performed since it showed no benefit over no treatment at all.

Decades ago, urologists spent significant time cystoscopically judging ureteral orifice and position and eventually studies showed that the results correlated very well with radiographic vesicoureteral reflux grading and the practice was generally abandoned. With new information about hydrodistention of the ureter, this concept has been revisited and this manuscript suggests that there is no benefit in this evaluation or in the prophylactic treatment of these ureters and yet again this practice can be laid aside.

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