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UROLOGICAL SURVEY

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STONE DISEASE

Climate-related increase in the prevalence of urolithiasis in the United States

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An unanticipated result of global warming is the likely northward expansion of the present-day southeastern U.S. kidney stone "belt." The fraction of the U.S. population living in high-risk zones for nephrolithiasis will grow from 40% in 2000 to 56% by 2050, and to 70% by 2095. Predictions based on a climate model of intermediate severity warming (SRESa1b) indicate a climate-related increase of 1.6-2.2 million lifetime cases of nephrolithiasis by 2050, representing up to a 30% increase in some climate divisions. Nationwide, the cost increase associated with this rise in nephrolithiasis would be $0.9-1.3 billion annually (year-2000 dollars), representing a 25% increase over current expenditures. The impact of these changes will be geographically concentrated, depending on the precise relationship between temperature and stone risk. Stone risk may abruptly increase at a threshold temperature (nonlinear model) or increase steadily with temperature change (linear model) or some combination thereof. The linear model predicts increases by 2050 that are concentrated in California, Texas, Florida, and the Eastern Seaboard; the nonlinear model predicts concentration in a geographic band stretching from Kansas to Kentucky and Northern California, immediately south of the threshold isotherm.

Editorial Comment

This novel study raises important concerns and provokes many unique avenues for future investigation. It is ironic that as the polar ice melts, and water levels rise, we may need this water to prevent kidney stone disease!

In developed countries, we live in climate-control; ambient temperature set at 65 or 70 degrees F, irrespective of time of season. The health risk posed by rises in mean annual temperature (MAT) and heat index will be felt heaviest by those with occupations that demand a significant time outdoors (agriculture, construction etc.) The risks of global warming on stone formation will be more acutely felt by those living in areas not fortunate to have air-conditioning.

The authors note that heat stress and heat index may have a closer link to the distribution of the stone belt than MAT. As scientists debate the "positive water vapor feedback" that links humidity with global warming, it will be important to consider this for stone risk projections. In addition, the interplay between vitamin-D metabolism, stone risk and atmospheric changes deserves further study.

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Accuracy of urinary dipstick testing for pH manipulation therapy

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J Endourol. 2008; 22: 1367-70

Purpose: To determine the accuracy of urinary dipstick testing for pH manipulation therapy.
Materials and Methods: Three commercial brands of dipstick paper were used to measure the pH of 100 fresh urine specimens from patients with urologic diseases. These were all read by an experienced medical technician. The pH of these specimens was also measured with an electrochemical pH meter ("gold standard") performed by another experienced technician. Both were blinded to each other's results. The influence of urinary microscopic findings was also assessed. Student t test and analysis of variance were used to analyze the data.
Results: The accuracies of the dipsticks for determining pH were as follows: 54.8% to 92.8% for less than 6, 45% to 97.5% for 6 to 7, 72.2% to 83.3% for greater than 7. One of the dipsticks assessed had the lowest accuracy for all three ranges. There was a statistically significant difference between the performances of the other two as compared with the least accurate one. There were no statistically significant differences between the two more accurate dipsticks. Urinary microscopic findings and other dipstick results did not influence results.
Conclusion: The targeted pH range for urinary pH manipulation therapy is 6 to 7. These results indicate that dipstick testing may be applicable to monitor patients on pH manipulation therapy and modify treatment when necessary. The accuracy of the device used for this purpose, however, must be determined before use.

Editorial Comment

The authors conducted a well-designed and elegant evaluation of an important question that impacts clinical practice. This study evaluated trained medical technicians - it would be critical to evaluate the ability of the patient to correctly read the urine pH using a dipstick, as this strategy is best suited for home-monitoring. Monitoring pH levels over 7 is of particular importance to avoid increasing the risk of calcium phosphate crystallization, and as such, the litmus paper proved superior in this regard. Similarly, the litmus paper was most accurate at providing "positive feedback" in the face of a therapeutic pH of 6-7. The authors plan to evaluate a handheld pH meter accurate to within 0.1 pH units for home therapy that costs less than $100. The authors recommend checking the urinary pH three times a day during initial titration of therapy.

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ENDOUROLOGY & LAPAROSCOPY

Risk score and metastasectomy independently impact prognosis of patients with recurrent renal cell carcinoma

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Purpose: We evaluated the prognostic roles of metastasectomy and an established risk stratification system in patients with disease recurrence following nephrectomy for nonmetastatic renal cell carcinoma.
Materials and Methods: A retrospective analysis was performed in 129 patients with localized renal cell carcinoma treated with partial or radical nephrectomy and subsequently diagnosed with disease recurrence. At

recurrence a previously validated risk score based on Karnofsky performance status, interval from nephrectomy, and serum hemoglobin, calcium and lactate dehydrogenase was used to categorize patients as being at favorable, intermediate or poor risk. Survival from time of recurrence was assessed based on risk categorization and metastasectomy.
Results: Median time from nephrectomy to recurrence was 16 months. The risk score was strongly associated with median survival and the 2-year survival rate, including 73 months and 81% for favorable risk, 28 months and 54% for intermediate risk, and 6 months and 11% for poor risk, respectively (log rank < 0.001). Metastasectomy performed in 44 patients (34%) was found to be of clinical benefit across the various risk categories (interaction analysis $p = 0.8$). On multivariate analysis a better risk category and metastasectomy were each independently associated with more favorable survival (each $p < 0.001$). When combined, they provided 6 risk categories with an estimated 2-year survival of 0% to 93%.
Conclusions: The clinical course in patients with recurrent renal cell carcinoma following nephrectomy can be variable. It is independently impacted by an objectively determined risk score and whether the patient undergoes metastasectomy.

Editorial Comment

This retrospective study demonstrated prognostic roles of metastasectomy and an established risk stratification system in patients with disease recurrence following nephrectomy for nonmetastatic renal cell carcinoma.

Although the metastectomy may improve survival in the favorable group, the limitations of this retrospective study still do not answer all the questions for the less favorable group of patients.

With the advent of new targeted therapy drugs and better stratification of these patients it is possible that we will improve the lives of these patients.

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Conversion during laparoscopic surgery: frequency, indications and risk factors

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Purpose: There are limited data on the indications for open conversion during laparoscopic surgery. The frequency of conversion for various procedures is poorly quantified and the degree to which this changes with time is not well understood. Risk factors for conversion are not defined. We addressed these issues in a large series of laparoscopic operations.
Materials and Methods: We reviewed our database of 2,128 laparoscopic operations performed between 1993 and 2005, including radical nephrectomy in 549 patients, simple nephrectomy in 186, partial nephrectomy in 347, donor nephrectomy in 553, pyeloplasty in 301, nephroureterectomy in 106 and retroperitoneal lymph node dissection in 86. Open conversions were identified and the frequency of conversion for the total cohort and specific procedures was determined. Trends in conversion with time were assessed and indications analyzed.

Clinicopathological features between patients requiring conversion and those who did not were compared.
Results: We identified 68 patients (3.3%) who underwent conversion to open surgery (group 1) and 2,011 (96.7%) who did not (group 2). The frequency of conversion was greatest during nephroureterectomy (8.49%), followed by simple nephrectomy (5.91%), retroperitoneal lymph node dissection (4.65%), partial nephrectomy (4.32%), radical nephrectomy (2.91%), donor nephrectomy (2.53%) and pyeloplasty (0.33%). The absolute number of conversions and conversions/cases performed per year decreased significantly with time, reaching a nadir of less than 1% per year. Conversion was inversely related to case volume and cumulative experience. Indications included vascular injury in 38.5% of cases, concern with margins in 13.5%, bowel injury in 13.5%, failure to progress in 11.5%, adhesions in 9.6%, diaphragmatic injury in 1.9% and other in 11.5%. The distribution of indications remained similar with time. There were no differences in patient age, gender, surgical history, American Society of Anesthesiologists score or tumor stage between groups 1 and 2. In groups 1 and 2 mean operative time was 304 vs. 219 minutes and estimated blood loss was 904 vs. 255 cc (each $p < 0.0001$).
Conclusions: The rate of conversion during laparoscopic surgery is not uniform across procedures and it is important for patient counseling. The most common indication for conversion is vascular injury. Importantly the frequency of conversion is dynamic and likely related to case volume and cumulative experience.

Editorial Comment

Conversion of laparoscopic to open surgery is not a complication in my view.

The escalation of surgical technique during a difficult case may provide the safe outcome desired for the patient. This large series of laparoscopic cases demonstrate that the vascular injuries are responsible for the majority of the conversions. The longer the clinical experience the rate of conversion tends to decrease even in complex cases. The authors ought to be congratulated to demonstrate that conversion is beneficial for the well being of the patient encouraging novice surgeons to perform it when suited.

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IMAGING

Development of renal scars on CT after abdominal trauma: does grade of injury matter?

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Objective: The objective of our study was to determine whether there is an association between the grade of a traumatic renal injury and the subsequent development of renal parenchymal scars on CT.
Materials and Methods: We performed a retrospective study encompassing all acute trauma patients admitted to our institution over a 42-month period found to have renal parenchyma injuries on initial MDCT and also to have undergone a follow-up CT performed at least 1 month after trauma. We identified 54 patients who sustained blunt (n = 44) or penetrating (n = 10) abdominal trauma. The renal injuries were graded by two

radiologists according to the Organ Injury Scaling Committee of the American Association for the Surgery of Trauma (AAST), grades I through V. Follow-up CT was reviewed for the presence of parenchymal distortion, scarring, or perfusion defects.
Results: Of the 54 patients, 12 had grade I injury, eight had grade II injury, 22 had grade III injury, 10 had grade IV injury, and two had grade V injury. Grades I and II traumatic renal injuries were undetectable on follow-up CT. Grade III injuries resulted in the development of renal scars in 14 of 22 (64%) patients. Scarring resulted in all patients with grades IV and V injuries.
Conclusion: Grades I and II renal injuries heal completely, whereas higher grades of renal trauma result in permanent parenchymal scarring. Hence, incidentally discovered renal scars in patients with a history of minor renal trauma should be attributed tentatively to other causes that may or may not require additional investigation.

Editorial Comment

Since the preservation of long-term renal function is often better when renal injuries are treated nonoperatively, in stable patients, conservative management may be preferable even in high-grade injuries. Surgery or interventional radiographic procedures will be used mainly in patients presenting extensive devitalized renal tissue, active hemorrhage, or a large injury to the collecting system with progressive renal compression on follow-up or with ureteral disruption, Overall, with modern management techniques, renal salvage rates approach 85-90%. This report focuses on the follow-up of traumatic blunt or penetrating renal parenchymal damage. The authors used initial and a follow-up CT, which was performed at least 1 month after trauma. The authors concluded that Grades I and II renal injuries heal completely but most of Grade III an all Grades IV and V were associated with variable degree of parenchymal distortion, scarring or perfusion defects. The healing and scar formation were directly correlated with the severity of injury. This is an important observation since areas of parenchymal renal scarring is not an infrequent finding on abdominal CT performed for many other clinical reasons. Radiologist should consider sequelae of high grade renal lesion among the causes of renal scarring such as pyelonephritis, renal emboli and systemic vasculites. We have also to remember that other late complications after renal trauma are hydronephrosis and calculus formation (both secondary to scarring in the region of renal pelvis), arteriovenous fistula (usually after stab wound) and delayed hypertension.

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Prostate cancer: is inapparent tumor at endorectal MR and MR spectroscopic imaging a favorable prognostic finding in patients who select active surveillance?

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Purpose: To retrospectively determine whether inapparent tumor at endorectal magnetic resonance (MR) imaging and MR spectroscopic imaging is a favorable prognostic finding in prostate cancer patients who select active surveillance for management.
Materials and Methods: Committee on Human Research approval was obtained and compliance with HIPAA regulations was observed, with waiver of requirement for written consent. Ninety-two men (mean age, 64 years; range, 43-85 years) were retrospectively identified who had biopsy-proved prostate cancer, who had undergone

baseline endorectal MR imaging and MR spectroscopic imaging, and who had selected active surveillance for management. Their mean baseline serum prostate-specific antigen (PSA) level was 5.5 ng/mL, and the median Gleason score was 6. Two readers with 10 and 3 years of experience independently reviewed all MR images and determined whether tumor was apparent on the basis of evaluation of established morphologic and metabolic findings. Another investigator compiled data about baseline clinical stage, biopsy findings, and serum PSA measurements. Multiple logistic regression analysis was used to investigate the relationship between the clinical parameters and tumor apparency at MR imaging and the biochemical outcome.
Results: At baseline MR imaging, readers 1 and 2 considered 54 and 26 patients, respectively, to have inapparent tumor (fair interobserver agreement; kappa = 0.30). During a mean follow-up of 4.8 years, 52 patients had a stable PSA level and 40 had an increasing PSA level. In multivariate analysis, no significant association was found between the baseline clinical stage, Gleason score, serum PSA level, or the presence of apparent tumor at endorectal MR imaging and MR spectroscopic imaging for either reader and the biochemical outcome ($P > .05$ for all).
Conclusion: Endorectal MR imaging and MR spectroscopic imaging findings of tumor apparency or inapparency in prostate cancer patients who select active surveillance for management do not appear to be of prognostic value. (c) RSNA, 2008.

Editorial Comment

Endorectal MR imaging (MRI) and magnetic resonance spectroscopic imaging (MRSI) is emerging as a useful technique for detection and local evaluation of prostate cancer extent and aggressiveness. Combined MRI/MRSI has shown excellent sensitivity and specificity for detecting cancer in the peripheral zone. These techniques are also capable of detecting tumor in the transition zone and may reduce the rate of false-negative biopsies and hence decrease the need for more extensive biopsy protocols and multiple repeat biopsy procedures. The authors of this retrospective study show that tumor apparency or inapparency on MRI/MRSI has no predictive value in the active-surveillance population. In other words, in patients with-low risk prostate cancer, tumor apparency or inapparency on baseline imaging studies are not helpful in predicting disease progression. Patients with negative MRI+MRSI examinations were just as likely to develop an increasing PSA level (progression of disease) as those with radiologically apparent tumors. We agree with the authors' statement that the results of this study do not undermine the role of MRI/MRSI in the evaluation of prostate cancer. In a previous study using extended prostate biopsy (12 cores) as a reference, MRI/MRSI showed a negative predictive value of 100% for the detection of prostate cancer (1). In our small sample, all patients with tumor inapparency on MRI/MRSI had negative extended biopsy. Since published data from the Prostate Cancer Prevention Trial demonstrated that there is no PSA level below which the risk of having prostate cancer is zero, probably the same is happening with currently available armamentarium used to predict its progression. As shown in this study PSA levels and Gleason scores, similar to MRI/MRSI, are of limited value in predicting disease progression. For this purpose, probably we will need a new and more specific biologic marker.

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UROGENITAL TRAUMA

Penetrating external genital trauma: a 30-year single institution experience

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Purpose: We examine the characteristics, outcomes and incidence of penetrating external genital trauma at our level I trauma center.
Materials and Methods: Patient records entered into our urological trauma registry were reviewed from 1977 to August 2006.
Results: A total of 110 patients sustained penetrating external genital trauma. Injuries were divided into gunshot wounds (49%), stab wounds/lacerations (44%) and bites (7%). Half of the stab wounds/lacerations were self-emasculation injuries. Operative exploration was performed in 78%, 63% and 75% of gunshot wounds, stab wounds/lacerations and bite injuries, respectively. Of 6 patients with complete penile amputations 5 underwent replantation with an 80% success rate. Testicular injury occurred in 39% and 27% of patients with gunshot wounds and stab wounds/lacerations, respectively. Of the 24 testicles injured via gunshot wounds 18 were reconstructed (75%). Testicular salvage rates were 24% (4 of 17) for self-emasculation stab wounds and 20% (1 of 5) for all other stab wounds/lacerations injuries. Of patients with penetrating external genital trauma 11% also had associated urethral injuries. The incidence of penetrating external genital trauma has remained stable during the last 30 years ($r(2) = 0.98$). Of patients treated with operative exploration 8% and of those treated nonoperatively 4% reported complications.
Conclusions: Conservative débridement of penetrating injuries to the external genitalia should be stressed to maximize tissue preservation. Testicular salvage rates are significantly higher in gunshot wound injuries (75%) compared to stab wounds/lacerations injuries (23%) ($p < 0.001$). A select group of patients with penile and scrotal injuries (ie those with injuries superficial to Buck's or dartos fascia) may undergo nonsurgical treatment of the penetrating external genital injury with minimal morbidity.

Evaluation and management of gunshot wounds of the penis: 20-year experience at an urban trauma center

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J Trauma. 2008; 64: 1038-42

Background: Although gunshot injuries to the penis occur relatively infrequently in patients with penetrating trauma, they often present dilemmas of subsequent evaluation and management. We review our extensive experience with gunshot wounds to the penis at a high volume urban trauma center.
Methods: The urologic trauma database was retrospectively reviewed to extract and compile information from the records of 63 patients treated for gunshot wounds to the penis. Data were accumulated for a 20-year period from 1985 to 2004 with regard to findings on physical examination, diagnostic evaluation, associated injuries, management, and outcome. We detail our technique of penile exploration and artificial erection in the management of these injuries.

Results: Penile gunshot wounds were associated with additional injuries in 53 of 63 (84%) patients. A total of 48 (76%) patients were taken to the operating room and 44 (70%) penile explorations were performed. Evaluation included retrograde urethrogram in 50 of 63 (79%) patients and was diagnostic for urethral injury in 11 of 12 (92%) cases. Primary urethral repair was performed in 8 of 12 (67%) patients with urethral injury versus 4 of 12 (33%) who underwent urinary diversion by means of suprapubic cystotomy.
Conclusions: Evaluation and management of gunshot wounds to the penis may potentially be complex. Retrograde urethrogram should be performed in all cases except the most insignificant and superficial wounds. We describe our technique of penile exploration and artificial erection, noting excellent results in patients for whom follow-up is available. Additional studies are needed to prospectively evaluate techniques for management of gunshot urethral injuries.

Editorial Comment

The above two articles are from major trauma centers in the US, from San Francisco and Philadelphia. The San Francisco paper is unique in that the 30 year experience is the cumulative experience of one surgeon (an authority in the field) over the course of his career. This continuity and consistency of care, strengthens the conclusions of this paper.

Overall, both papers illustrate that penetrating genital injuries occur uncommonly – even in major trauma centers, only 3 or so cases per year. Such rare events, further values the conclusions and cumulative experience of papers over such long study period. Aside from evaluating the injury to the genitals, all patients need to be evaluated according to AAST trauma protocols, including routine radiographs of the chest and abdomen, with entrance and exit wounds marked with radio-opaque markers. General surgical principles for managing penetrating injuries apply well to external genitalia trauma, except for wounds of the corpora cavernosum and spongiosum, which should be treated like vasculature, with limited debridement and good hemostatic closure, except repaired with absorbable suture material. General management consists of meticulous hemostasis, vigorous saline lavage, removal of foreign bodies, hematoma evacuation, conservative debridement of devitalized tissue, repair of associated injuries, and primary wound closure. Infection is rare in properly debrided wounds.

Penetrating injuries to the penis (deep to Buck's fascia) demand evaluation for associated urethral injury by either retrograde urethrography or cystoscopy. Surgical exploration should be performed in all cases except with the most insignificant and superficial wound. Blood at the meatus or gross hematuria highly suggests a urethral injury and warrant evaluation. Corporal injuries should be repaired primarily with absorbable sutures. Low velocity penetrating urethral injuries should be repaired primarily – typically by an anastomotic urethroplasty. Primary realignment for such urethral injuries often results in high urethral strictures rates. Staged urethral injury repair is often reserved for extensive injuries – as is often seen in high velocity gunshot wound tissue injuries Patients with injuries to the scrotum deep to Dartos fascia or with scrotal swelling also warrant exploration. Penetrating wounds to the scrotum damage a testis or cord roughly half the time. Once the testis is struck, the chance to salvage the testis after a low velocity GSW is 25 -50%. This contrasts sharply for high velocity injuries of the battlefield, where salvage is rare. Scrotal stab wounds seem to more commonly involve the vascular cord, and thus explaining the reported poor salvage rate.

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PATHOLOGY

Diffuse adenosis of the peripheral zone in prostate needle biopsy and prostatectomy specimens

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We have observed a group of typically younger patients with multiple foci of small, nonlobular, crowded, but relatively bland acini on needle biopsy and in prostatectomy specimens. It is unclear whether this architectural pattern, which we have termed diffuse adenosis of the peripheral zone (DAPZ), is simply a crowded glandular variant of normal prostate morphology or whether it represents a risk factor for the development of prostatic carcinoma. We studied 60 cases of DAPZ on needle biopsy in our consult practice from 2001 to 2007. Cases, on average, showed 72% of cores involved by DAPZ. Average patient age was 49 years (range: 34 to 73) and the average prostate specific antigen (PSA) level at the time of biopsy was 5.2 ng/mL (n = 42). Forty-three (72%) men had available clinical follow-up with 35 (81%) patients undergoing rebiopsy and 8 (19%) followed with serial PSA measurements. Patients who were rebiopsied after DAPZ diagnosis had higher PSA levels than those who were followed by PSA levels alone (6.2 vs. 3.1 ng/mL, P = 0.04). Of the rebiopsied cases, 20 (57%) were subsequently diagnosed with carcinoma, with an average of 15 months elapsed between initial biopsy and carcinoma diagnosis. Although the majority of tissue sampled in a typical DAPZ case had no cytologic atypia, in 65% of cases there were admixed rare foci of atypical glands with prominent nucleoli comprising < 1% of submitted tissue. Patients with a subsequent diagnosis of carcinoma were more likely to have had DAPZ with focal atypia, although this did not reach statistical significance (70% vs. 36%, P = 0.08). We histologically confirmed the carcinoma diagnosis in 18/20 cases. In 12/14 radical prostatectomies, we were able to review the slides. Eleven had Gleason score 3+3=6 adenocarcinoma in addition to background DAPZ; 9 showed peripheral zone organ-confined cancer, and 2 had focal extraprostatic extension. In one case of DAPZ misdiagnosed as cancer on biopsy, no carcinoma was found at prostatectomy. DAPZ is a newly described and diagnostically challenging mimicker of prostate cancer seen in prostate needle biopsies from typically younger patients. Our findings suggest that DAPZ should be considered a risk factor for prostate cancer and that patients with this finding should be followed closely and rebiopsied.

Editorial Comment

Adenosis is a focal lesion that may be confused with carcinoma in transurethral resection specimens (1) or in needle biopsy specimens (2). Another commonly used term for adenosis is atypical adenomatous hyperplasia (3). Epstein prefers the term adenosis, as prefacing adenomatous hyperplasia with the term atypical has adverse consequences in terms of practical patient management considering that there are little data in support of a relation between adenosis and carcinoma. By designating these lesions as atypical, many patients will be subjected to unnecessary repeat biopsies.

In general this lesion is not reported by the pathologist being only a problem in the differential diagnosis with adenocarcinoma. Immunohistochemistry is useful for the correct diagnosis. Lotan and Epstein report a variant of adenosis that is diffuse and seen in younger patients in prostate needle biopsies. Forty-three (72%) men had available clinical follow-up with 35 (81%) patients undergoing rebiopsy. Of the rebiopsied patients, 20 (57%) were subsequently diagnosed with carcinoma, with an average of 15 months elapsed between initial biopsy and carcinoma diagnosis.

The authors consider this newly described variant of adenosis diagnostically challenging mimicker of prostate cancer seen in prostate needle biopsies from typically younger patients (average patient age 49 years). The findings suggest that diffuse adenosis of the peripheral zone should be considered a risk factor for pros-

tate cancer and that patients with this finding should be followed closely and rebiopsied. Therefore this lesion should be reported by the pathologists.

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Positive surgical margins in areas of capsular incision in otherwise organ-confined disease at radical prostatectomy: histologic features and pitfalls

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Capsular incision (CI) refers to the urologist transecting either benign or malignant prostatic tissue, where the edge of the prostate in this region is left within the patient. Histologic assessment of CI is difficult and its diagnosis varies among pathologists. Between 1993 and 2004, we reviewed 186 radical prostatectomies that were signed out as either: (1) CI into tumor in otherwise organ-confined disease [elsewhere no extra-prostatic extension (EPE), seminal vesicle invasion, or lymph node spread] (n = 143); (2) positive surgical margin in an area difficult to distinguish EPE from CI into tumor in otherwise organ-confined disease (n = 36); or (3) equivocal positive surgical margin in an area difficult to distinguish organ-confined disease with tumor close to resection margins (OC M-) from CI into tumor in otherwise organ-confined disease (n = 7). On review, CI with a positive margin was confirmed in 83.2% of cases. Of cases signed out with margins positive where it was difficult to distinguish CI from EPE, CI was confirmed in 52.8% of cases. Cases with equivocal positive margins with either CI or OC M- were considered CI with positive margins in 57.1% of cases on review. Cases in all 3 groups not considered positive margins with CI were on review equally divided between diagnoses of organ-confined margin negative and EPE with positive margins. The locations of the 39 cases originally misdiagnosed as definitive or questionable CI with positive margins were posterolateral (N = 19, 48.7%), distal (N = 12, 30.8%), posterior (N = 6, 15.4%), and anterolateral (N = 2, 5.1%). Familiarity with different patterns of EPE in different anatomic locations and applying strict criteria for diagnosing CI into tumor can minimize overcalling CI and can provide accurate feedback to urologists to prevent iatrogenic positive margins.

Editorial Comment

Positive surgical margin (vesical, urethral or circumferential) in radical prostatectomy specimens is a well established adverse finding for biochemical (PSA) progression following surgery. The frequency of this

progression varies from 36% to 72% in the literature (1). In our Institution, the progression in 300 patients was 37% after 5 years of follow-up.

It is important for the urologist the definition and the description of the several kinds of positive surgical margins (2):

a) Positive surgical margins are defined as cancer cells touching the inked surface of the prostate;

b) Iatrogenic surgical margin occurs whenever there is a transection of the intraprostatic tumor. If this occurs, one cannot determine whether there is extraprostatic extension in the region of incision into the prostate as the edge of the prostate has been left in the patient. Unless there is extraprostatic extension in other areas of the surgical specimen, the pathologic stage is called pT2+;

c) Non-iatrogenic surgical positive margin occurs whenever there is an inability to widely excise tumor showing extraprostatic extension.

It is worth mentioning the possibility of positive surgical margins in normal prostatic glands. This is not routinely reported by the pathologist; however, it is very important to report in cases of limited carcinoma in the surgical specimen. In these cases, biochemical (PSA) progression following surgery may be due to normal glands left in the patient. In our Institution, no patient with limited carcinoma in the specimen had biochemical progression, except 3 patients. Reviewing the prostatectomy slides, we found that all 3 patients had frequent and extensive positive surgical margins in normal glands.

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INVESTIGATIVE UROLOGY

Protein oxidation as a novel biomarker of bladder decompensation

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BJU Int. 2008; 102: 495-9

Objective: To measure the degree to which partial bladder outlet obstruction (PBOO) results in oxidative bladder damage, which subcellular components of the bladder are affected and whether these changes correlate with bladder function.

Materials and Methods: In all, 32 rabbits were divided into four groups. Each group underwent PBOO for 1, 2, 4, and 8 weeks, respectively. Bladder tissue from each group was homogenized and separated into subcellular

fractions via differential centrifugation. The carbonyl content within the subcellular fractions, including the nuclear, mitochondrial, and microsomal pellets, was then quantified by dot blot analysis.
Results: Total bladder oxidation increased with duration of obstruction across all subcellular fractions. The largest increase in total oxidation occurred between 4 and 8 weeks. Protein oxidation density in the nuclear and microsomal fractions both showed increases at 2 weeks obstruction, decreases at 4 weeks, and then large increases at 8 weeks. The increase in protein oxidation density between 4 and 8 weeks obstruction was most pronounced in the microsomal fraction.
Conclusions: Overall bladder protein oxidation increased with the duration of obstruction and increased at a greater rate during the transition to decompensation. Furthermore, the subcellular fraction that exhibited the most oxidation was the microsomal pellet. The amount of protein oxidation correlated with the functional changes in the bladder.

Editorial Comment

In this interesting and welcome experimental study, the authors created surgically partial bladder outlet obstruction (PBOO) in 32 rabbits. They were interested to analyze whether oxidative stress measured after PBOO would correlate with the function of the bladder and whether markers of oxidative stress might serve as a biomarker of the progression to bladder decompensation.

The authors presented clear evidence that protein oxidation occurs to a significant degree in the PBOO rabbit bladder. They concluded that overall bladder protein oxidation increases with the duration of obstruction and increases at a greater rate during the transition to full decompensation. They speculated that in the clinical setting, the urologist could obtain tissue from the bladder of a patient with BPH and analyze it specifically for microsomal protein oxidation and determine the degree to which the patient is moving towards decompensation. Of course, theoretically, it could be done, but probably it will be hard to put in clinical use.

The authors are to be congratulated for this elegant study that opens new avenue for the understanding and management of benign prostatic hyperplasia consequences.

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The potential of hormones and selective oestrogen receptor modulators in preventing voiding dysfunction in rats

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BJU Int. 2008; 102: 242-6

Objective: To investigate whether oestrogen, selective oestrogen receptor modulators (SERMs), and growth hormone (GH) can prevent the development of voiding dysfunction in a postpartum postmenopausal rat model of voiding dysfunction.
Materials and Methods: Immediately after spontaneous delivery, nine primiparous Sprague-Dawley rats served as uninjured controls (sham group) and 54 underwent intravaginal balloon dilation. On day 7, the 54 subject rats underwent bilateral ovariectomy. A week later, six treatment groups of nine rats were randomized to receive: normal saline (injured control group), 17beta-oestradiol (E(2)), raloxifene, levormeloxifene, GH, or

GH + E(2). The treatment groups received daily subcutaneous injections for 3 weeks. The effects of hormone treatment were examined by conscious cystometry at the end of the study. Voiding dysfunction was defined to include overactive bladder and sphincter deficiency.
Results: The sham rats had a mean (sd) voiding frequency of 3 (0.87) times in 10 min and a bladder capacity of 0.43 (0.13) mL with smooth cystometry curves. The number of rats in each treatment group (each group contained nine rats) that had voiding dysfunction was as follows: E(2), three; raloxifene, six; levormeloxifene, four; and controls, four ($P > 0.05$ among the groups). Only one rat in the GH-treated group and no rats in the GH + E(2)-treated group had voiding dysfunction, which was significantly less in the GH + E(2)-treated group than in the controls ($P = 0.041$).
Conclusion: This functional data suggest that the development of voiding dysfunction can be prevented by short-term administration of GH and GH + E(2) in our rat model. SERMs and E(2) alone seem to have no therapeutic effect.

Editorial Comment

This is a wished study by Dr. Lue and collaborators that have been working on this topic for the last years. They analyzed if short-term therapy with ultra-low dose of estrogen, selective estrogen receptor modulators (SERMs), and growth hormone (GH) can prevent the development of voiding dysfunction in a postpartum, postmenopausal voiding dysfunction rat model. By using conscious cistometry, developed in its own laboratory, the authors found that short-term therapy with E2, SERMs and GH suggest that, in the dosage and duration used, GH and GH + E2 seem to prevent the development of voiding dysfunction while E2 alone and SERMs do not have significant effects. With this paper, we are able to better understand the effect of these hormones on voiding, with the consequent clinical implications for treating and preventing post-partum and postmenopausal voiding dysfunction.

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RECONSTRUCTIVE UROLOGY

A collagen matrix derived from bladder can be used to engineer smooth muscle tissue

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We have previously demonstrated that a collagen matrix derived from lamina propria, commonly known as bladder submucosa (BSM matrix), is a suitable biomaterial for several urologic applications, including reconstruction of the bladder and urethra in experimental models and clinical trials. In the present study, we evaluated the physical properties of BSM as well as its biocompatibility, cellular interactions, and ability to support the formation of functional tissue in order to determine whether this biomaterial could serve as a matrix for urinary smooth muscle tissue engineering. BSM matrix resembles the extracellular matrix of bladder submucosa in its native structure, composition, and mechanical properties. BSM matrix supported normal

mitochondrial metabolic and proliferative functions of human urinary smooth muscle cells and did not induce cytotoxic effects in vitro. When implanted in vivo, BSM matrix promoted the regeneration of urinary smooth muscle tissues with contractility, which is a smooth muscle-specific tissue function. These results suggest that BSM matrix would be a useful biomaterial for urinary smooth muscle reconstruction.

Editorial Comment

Using scaffolds to regenerate tissue especially in the urological field has been the aim for the last decade. Which scaffold might be the best still seems to be not clear. The paper of Kim et al. investigated the native structure of Bladder Submucosa Matrix (BSM), seeded with smooth muscle cells as a composition and its mechanical properties. Compared to previous publications the extended investigation was performed in a tissue-engineered seeded fashion, but as Piechota et al. (1) previously demonstrated (and further investigated by Dahms et al. (2), the acellular Bladder Matrix Graft (BMG) fully regenerated and functioned as native bladder tissue.

The use of organ-specific scaffolds was extended to other urological organs such as urethra and ureter (3). However, the use of SIS® by Cook in the context of pre-seeding scaffold did not always demonstrate the expected success (4). Through the investigation of BSM, Kim et al. compared unseeded scaffolds; they found that BSM demonstrated a faster functional regeneration, thus underlining, depending on its thickness, that an organ-specific scaffold might be more favorable (5).

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Laparoscopic ureteroneocystostomy and psoas hitch for post-hysterectomy ureterovaginal fistula

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J Urol. 2008; 180: 615-7

Purpose: We assessed the results of laparoscopic ureteroneocystostomy with a psoas hitch for iatrogenic lower ureteral injuries leading to a ureterovaginal fistula.
Materials and Methods: Between July 2003 and November 2007, 18 patients with iatrogenic lower ureteral injuries during hysterectomy leading to ureterovaginal fistula underwent laparoscopic ureteroneocystostomy with a psoas hitch. Of the patients 17 underwent abdominal or vaginal hysterectomy, while in 1 with a ruptured gravid uterus emergency hysterectomy was done for uncontrolled bleeding. Mean patient age was 35.5 years (range 23 to 45) and mean time to surgery since the injury was 2.2 months (range 1.5 to 3.5). Transperitoneal 3 or 4 port laparoscopic ureteroneocystostomy with a psoas hitch was performed.
Results: Of the procedures 17 were completed successfully. Intraoperative cardiac arrhythmia occurred in 1 patient due to pneumoperitoneum and hypercarbia, requiring open conversion. Mean operative time was 2.5 hours (range 1.9 to 2.8) hours, mean blood loss was 90 ml (range 45 to 150) and total hospital stay was 5.3 days (range 2.9 to 8). The nephrostomy tube was blocked on the table in all patients and it was removed on day 7. At an average followup of 26.4 months (range 3 to 52) postoperative excretory urography did not reveal obstruction in any patient. One patient had vesicoureteral reflux on voiding cystogram.
Conclusions: Laparoscopic ureteroneocystostomy with a psoas hitch for ureterovaginal fistula secondary to hysterectomy is safe and effective, and associated with a low incidence of postoperative reflux and obstruction.

Editorial Comment

Using a minimally invasive approach, a laparoscopic ureter reimplantation in an anti-refluxive fashion, is a logical approach if a fistula occurs after a transvaginal hysterectomy. Mondi et al. presented 18 cases using a laparoscopic ureteroneocystostomy in a psoas hitch technique with a no-refluxing Lich-Gregoir only technique, which seems to be very convincing and is supported with the recent publication of Patill et al. (1,2).

With the increased integration of laparoscopic surgery in our department, similar cases have been treated. From our recent experiences, we propose a modified approach: because of the fistula tissue we try to avoid any foreign material and comparatively use a clip at the distal ureter thermofusion to seal the ureter (3). Further, most commonly the fistula is not associated with an obstruction or even stricture of the ureter. A double-J-stent usually secures drainage of the kidney without the requirement of a nephrostomy tube. Only in those cases with a stricture a nephrostomy tube is required, which will be replaced intraoperatively while performing the ureteroneocystostomy into the bladder dome using a double-J-stent. After four weeks in particular, in women the double-J-stent can be removed without the need of anesthesia. In the context of mini-percutaneous nephrolithomy, we evaluated the patient's preference and concluded that the double-J-stents causes less pain, its removal is less traumatic to the patient than a nephrostomy tube and also needs to stay in place even if it is only for a week (4).

Overall we believe the laparoscopic approach to treat distal uretral fistulas or strictures are feasible. As the authors mentioned, the patient recovers faster. However, the laparoscopic approach with the implantation of the ureter into the ventral bladder wall - with a bigger distance to the former fistula location -, compared to the open procedure where the ureter is placed dorsally, needs to be evaluated over time and compared against the open procedure.

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UROLOGICAL ONCOLOGY

Renal cell carcinoma in adults 40 years old or less: young age is an independent prognostic factor for cancer-specific survival

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Objectives: Renal cell carcinoma (RCC) is uncommon in young adults. Based on the few studies published to date, it is difficult to determine whether this tumour has a particular progression pattern. This retrospective, multicentre study analysed RCC in young patients, defined as </= 40 yr old, compared to RCC in older patients.
Methods: Between 1988 and 2000, 1233 patients, 93 under 40 yr old and 1140 older (mean ages, 34.2 and 61.9 years, respectively) underwent surgery for RCC in four teaching hospitals. Clinical and biologic parameters at diagnosis were compared and subjected to univariate and multivariate analyses to study survival. Mean follow-up was 4.5 yr for young and 4.1 yr for older patients.
Results: When comparing younger to older patients, respectively, they had a lower male-to-female ratio (1.2 vs. 2.5), lower stage (84.9% vs. 67.4% pT1-pT2N0M0; $p = 0.001$), and fewer clear-cell carcinomas (73.1% vs. 82%), but more papillary carcinomas (20.4% vs. 11.4%; $p = 0.01$) and better 5-yr cancer-specific survival rates (90.8% vs. 78.3%; $p = 0.005$). Independent prognostic factors for survival, in the order of decreasing impact, were tumor stage ($p < 0.0001$), Fuhrman nuclear grade ($p < 0.0001$), and age </= 40 yr at diagnosis (risk ratio 0.4, $p < 0.047$). Young patients tended to have a better 5-yr progression-free survival (80.5% vs. 70.7%; $p = 0.05$). Conclusions: RCC in young adults was more often localised at diagnosis and had a better prognosis than the disease in older subjects. Age under 40 yr old was an independent prognostic factor for survival.

Editorial Comment

This report focuses on a large database of roughly 1300 patients with renal cell carcinoma from several hospitals in France. 10% of these patients were less than 40 years old and were analyzed in comparison to the older ones. Interestingly, young patients had a better 5 year progression-free prognosis.

One of the factors that differed between these groups was that younger patients had more symptomatic tumors (60,2% vs. 50,4%), which , however, was not due to a different tumor size (5.8 cm vs. 6 cm). Aggressive growth showed differences, as favourable pT1 and pT2 tumors were more often among younger patients

(84.9% vs. 67.4%). The differences between the age groups is interesting and, to my opinion, might be due to a shift in immunologic control with age. This should be focused in further scientific approaches on renal cell cancer.

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Should we replace the Gleason score with the amount of high-grade prostate cancer?

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Eur Urol. 2007; 51: 931-9

Objectives: The stage and grade shift of currently diagnosed prostate cancer has led to a diminished prognostic power of the Gleason score system. We investigated the predictive value of the amount of high-grade cancer (Gleason growth patterns 4/5) in the biopsy for prostate-specific antigen (PSA) and clinical relapse after radical prostatectomy.
Methods: PSA-tested participants (N = 281) of the European Randomized Study of Screening for Prostate Cancer (ERSPC) who underwent radical prostatectomy were analyzed. Besides clinical features, and serum-PSA, histopathologic features as determined in the diagnostic biopsy and matching radical prostatectomy specimen were related to patient outcome.
Results: At a median follow-up of 7 yr, 39 (13.9%), 24 (8.5%), and 12 (4.3%) patients had PSA >/= 0.1 ng/ml, PSA >/= 1.0 ng/ml, and clinical relapse after radical prostatectomy, respectively. Using Cox proportional hazards, PSA level (p = 0.002), length of tumour (p = 0.040), and length of high-grade cancer (p = 0.006) in the biopsy, but not Gleason score, were independent prognostic factors for biochemical relapse (PSA >/= 0.1 ng/ml) when assessed as continuous variables. In radical prostatectomies, the proportion of high-grade cancer (p < 0.001) was most predictive of relapse (PSA >/= 0.1 ng/ml). For PSA >/= 1.0 ng/ml and clinical relapse, the amount of high-grade cancer, both in the biopsy specimen (p = 0.016 and p = 0.004, respectively) and radical prostatectomy specimen (p = 0.002 and p = 0.005, respectively), but not Gleason score, was an independent predictor.
Conclusions: In biopsy and radical prostatectomy specimens of surgically treated prostate cancer, the amount of high-grade cancer is superior to the Gleason grading system in predicting patient outcome. We propose that, in addition to the Gleason score, the amount of Gleason growth patterns 4/5 in the biopsy (whether absolute length or proportion) should be mentioned in the pathology report.

Editorial Comment

Gleason sum score is widely used for tayloring treatment to patients with prostate carcinoma. In this report, the authors compare the usual Gleason sum score to the amount of Gleason 4/5 (aggressive growth pattern) in the biopsy in predicting outcome after radical prostatcetomy. They found that the proportion of aggressive tumor correlates very well with PSA relapse after radical prostatectomy and suggest to indicate this proportion in the pathological report.

Indeed, from these data and other reports this approach can only be emphasized and every pathologist should be asked for this additional service. The only caveat may be the difficulty to define the proportion of

aggressive tumor growth (Gleason 4/5) in biopsies with small amount of tumors. Still, this approach may be very helpful in clinical practice.

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NEUROUROLOGY & FEMALE UROLOGY

Development of de novo urge incontinence in women post sling: The role of preoperative urodynamics in assessing the risk

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Neurourol Urodyn. 2008; 27: 407-11

Aims: The study was undertaken to investigate if there are specific identifiable risk factors on the preoperative history or urodynamics testing associated with an increased risk for the development of symptoms of de novo urge urinary incontinence after a minimally invasive sling procedure.
Methods: Two hundred eighty-one women who had undergone minimally invasive sling surgery for stress urinary incontinence between January 2000 and December 2003 were identified. The records of 92 patients were included in this review.
Results: Twenty-five patients (27%) reported urge urinary incontinence on postoperative questioning. Clinical and urodynamic parameters were correlated with the development of de novo urge urinary incontinence. Preoperative history parameters were not predictive of the increased risk of de novo urge urinary incontinence, with the exception of increased preoperative daytime frequency (OR 3.3 (1.2, 9.1)). Of 16 women whose detrusor pressure during the filling phase of cystometry exceeded 15 cm H2O, de novo urge urinary incontinence developed in 9 (56%) vs. 16 (21%) of 76 women, whose detrusor pressure was </= 15 cm H2O (OR 4.6 (1.4, 15.0)).
Conclusions: Directed patient history is only minimally helpful in the identification of women at increased risk for the development of de novo urge urinary incontinence, with the exception of the complaint of increased daytime frequency. Women with elevated detrusor pressure during the filling phase of cystometry were more likely to develop urge urinary incontinence postoperatively. Therefore, we suggest that preoperative urodynamic evaluation, and specifically detrusor pressure > 15 cm H2O may help identify patients at increased risk of developing de novo urge urinary incontinence following the minimally invasive sling procedure. Neurourol. Urodynam. 27:407-411, 2008. (c) 2007 Wiley-Liss, Inc.

Editorial Comment

The authors reviewed a population of women who had undergone a midurethral sling. Out of this population, 92 women were identified as having had no complaints and/or urodynamic evidence of urge urinary incontinence or detrusor overactivity before their operation. Of those 92 women, 25 (27%) developed de novo postoperative urge urinary incontinence after their surgery. The authors found that of all the preoperative variables examined, only a history of daytime urinary frequency or a bladder filling pressure of > 15 cm of

water predicted an increased risk for the development of de novo urge urinary incontinence. All the patients underwent a midurethral retropubic operation with none receiving a transobturator sling.

This manuscript points out the definite morbidity of new onset urinary urge incontinence after an anti-incontinence operation for stress urinary incontinence. A 27% incidence rate seems high but is very realistic. Great interest would be if the authors would expand their study in the future to look at patients who underwent a transobturator technique to see if the rates of new onset urinary urge incontinence would be the same given the potential for less obstruction with this newer technique. In addition, in view of the large number of patients available for review, it would be very beneficial for the data base to be re-mined to note if the remaining 189 patients who were excluded for history of reported urinary urge incontinence preoperatively or evidence of detrusor overactivity on preoperative evaluation had resolution of their complaint(s) on a historical basis. This is a topic that has been examined for greater than two decades. Readers should revisit the article written by Dr. E. McGuire, almost exactly 20 years ago in the same journal on this very topic (1).

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Urodynamic characteristics of mixed urinary incontinence and idiopathic urge urinary incontinence

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Neurourol Urodyn. 2008; 27: 376-8

Purpose: To evaluate and compare the clinical and urodynamic findings in patients with either mixed urinary incontinence (MUI) or simple urge urinary incontinence (UUI).
Materials and Methods: A series of 100 consecutive female patients with MUI and UUI were identified from a database. Patients with neurogenic bladder, fistula, urethral diverticulum, prior urologic surgery or known urinary tract obstruction were excluded. All patients were classified according to the urodynamic classification of overactive bladder of Flisser et al. and all patients underwent history, physical examination, validated incontinence questionnaire, 24-hour voiding diary, 24-hour pad test, video urodynamic study (VUDS), and cystoscopy.
Results: A significantly higher proportion of patients with UUI exhibited detrusor overactivity at VUDS, (67% of the patients with UUI vs. 24% of the MUI, $P < 0.05$). Patients with UUI had fewer episodes of incontinence (6.7 vs. 4.2, $P < 0.05$) with slightly less objective urine loss (24-hour pad test 94 gm vs. 128 g of loss, $P < 0.05$) and voided at higher pressures (p(det) at Q(max) 21.4 vs. 15.6 cm H2O, $P < 0.05$). Patients in both groups had functional and urodynamic bladder capacities that were not statistically different.
Conclusions: Women with UUI were more likely to exhibit detrusor overactivity but experienced fewer episodes of incontinence and less urinary loss when compared with women who had MUI. The "urge incontinence" component of MUI appears to be different than that of UUI, and suggests that urge incontinence may

be overdiagnosed in patients with SUI who misinterpret their fear of leaking (because of SUI) for urge incontinence. Neurourol. Urodynam. 27:376-378, 2008. (c) 2008 Wiley-Liss, Inc.

Editorial Comment

A straightforward report from leaders in the field comparing the urodynamic characteristics and variables of patients suffering from stress urinary incontinence combined with urinary urge incontinence versus those plagued with urinary urge incontinence alone. The authors started with 100 patients in the study population then parsed the group down to a total of 72 patients: 45 patients with mixed urinary incontinence versus 27 patients with urinary urge incontinence alone (patients were excluded from the original 100 if they had a neurogenic bladder, urinary fistula, urethral diverticulum, prior urologic surgery, or known infravesical outlet obstruction). The patient's overactive bladder was classified by the criteria of Flisser et al. (1). Significant differences were noted upon analysis with regards to the presence of absence of detrusor overactivity, episodes of urinary incontinence for 24 hour period, voiding pressure, functional bladder capacity, as well as severity of urinary incontinence on a 24 hour pad test.

A well written paper with an excellent discussion on urinary urge incontinence in patients with and without stress urinary incontinence. The presentation does raise an excellent point with regards to the presence of urinary urge incontinence in patients classified with mixed urinary incontinence: are these patients really suffering from urge episode or do they just void often to minimize bladder volume and potential leakage episodes? This paper is an appropriate companion to the other reviewed article in this month's journal to engender thought on urinary urge incontinence and its role in anti-incontinence surgery success rates.

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PEDIATRIC UROLOGY

A long-term prospective analysis of pediatric unilateral inguinal hernias: should laparoscopy or anything else influence the management of the contralateral side?

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J Pediatr Urol. 2008; 4: 141-5

Purpose: To prospectively determine if children who present with a unilateral inguinal hernia can be identified as at risk for developing a metachronous inguinal hernia (MIH) based on risk factors and laparoscopic findings of the contralateral internal ring. Materials and Methods: Between April 2000 and October 2004, 299 patients with a unilateral inguinal hernia were followed prospectively. Laparoscopy was attempted in each child. Bilateral repair was only performed in those with contralateral swelling or crepitus during laparoscopic evalua-

tion. All other children were followed regardless of laparoscopic findings. Risk factors to include premature delivery, family history and increased abdominal pressure were recorded. Clinical follow up and annual phone interviews were performed to determine the development of a MIH.
Results: Thirteen patients underwent initial bilateral inguinal hernia repair. Of the remaining 286 patients (272 boys, 14 girls; ages 54 +/- 50.8 months), laparoscopy revealed 127 closed, 48 cleft and 67 open (contralateral patent processus vaginalis) contralateral internal rings, and in 44 laparoscopy was not possible due to a small hernia. Of 222 patients followed for 53.2 months (30.1-82.5 months), 15 (6.8%) developed a MIH. When comparing age, gender, laterality, laparoscopic findings, family history, premature birth and intra-abdominal pressure, only family history exhibited a significant risk for MIH (33% vs. 7.7%). However, 16/21 children with a family history never developed a MIH, and 47/53 children with a contralateral patent processus vaginalis have yet to develop one.
Conclusions: Risk factors and laparoscopic findings failed to predict the few children who would develop a MIH. The contralateral side should not be routinely explored by any methodology.

Editorial Comment

This manuscript studied the questions of whether laparoscopy or any other diagnostic treatment modality should be used to evaluate the contralateral inguinal canal for hernia development. These authors studied 299 patients prospectively over about 4 years and inguinal herniorrhaphies on the contralateral side were only performed if the child demonstrated an inguinal swelling or during laparoscopy palpable crepitans. The laparoscopic exam of the contralateral internal ring was divided into three categories: closed, cleft or open.

Thirteen of their initial patients underwent surgery at the same time on the contralateral groin because of inguinal swelling or crepitance at the time of laparoscopy. 23% of the patients had a contralateral patent processus vaginalis. 44% were closed and 17% had a cleft and 15% did not undergo laparoscopic evaluation because of technical issues. After 19 months, 9 patients (3.6%) had developed a contralateral inguinal hernia, and after a minimum of 30 months, 6 more children had developed an inguinal hernia on the opposite side for a 6.8% rate. There were no predictive factors in the history or physical exam that were helpful, except a positive family history.

In this study a contralateral patent processus vaginalis only predicted 11% of patients that went on to develop an inguinal hernia. The manuscript did not show any age factors as predictive indicators and this group of patients did not show a laterality difference. The authors conclude that the contralateral side should not routinely be explored by any method.

For years, what to do with the opposite inguinal canal when a clinical hernia is present has been studied and debated. This manuscript and references cited within it seem to suggest that there is no reason to explore an asymptomatic inguinal canal, nor is there a reason to look at it laparoscopically. With only a 7% metachronous hernia rate, many unnecessary procedures can be avoided.

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Ileal enterocystoplasty and B12 deficiency in pediatric patients

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Purpose: Vitamin B12 deficiency is a feared complication of enterocystoplasty but it has never been demonstrated in pediatric patients who have undergone ileal enterocystoplasty. We reviewed our series of more than 500 bladder augmentations in an attempt to define the timing and risk of vitamin B12 deficiency in pediatric patients after bladder augmentation.
Materials and Methods: From October 2004 to present we obtained serum B12 values in patients who had undergone bladder augmentation at our institution. We looked at patients who had undergone ileal enterocystoplasty and who were 18 years or younger at the time of augmentation. Any B12 value that was obtained while on any form of B12 supplementation was excluded. These criteria resulted in 79 patients with 105 B12 values. B12 values of 200 pg/mL or less were considered "low", and values between 201 and 300 pg/mL were considered "low-normal".
Results: There was a statistically significant correlation between follow-up time and serum B12 ($p = 0.0001$). The probability of low B12 increased as follow-up time increased ($p = 0.007$), as did the probability of low-normal B12 ($p = 0.005$). Starting at 7 years postoperatively 6 of 29 patients (21%) had low B12 values, while 12 of 29 (41%) had low-normal values.
Conclusions: Pediatric patients who have undergone ileal enterocystoplasty are at risk for development of vitamin B12 deficiency. These patients are at the highest risk beginning at 7 years postoperatively, and the risk increases with time. We recommend an annual serum B12 value in children beginning at 5 years following bladder augmentation.

Editorial Comment

This research project involved the measurement of B12 levels starting in October 2004 on all bladder augmentation patients that had terminal ileum utilized for the bladder augmentation. Eighty-six patients with B12 levels were available for evaluation and 10 of those patients were being treated for B12 deficiency and were excluded. Seventy-nine percent were studied with B12 levels. Seven of 79 patients (9%) had low B12 levels and 29% had low normal levels. The patients with the longest follow up had the lower B12 levels in general. Sixty-two percent of patients who had been followed for longer than 7 years (29 patients), had lower or normal B12 values. The authors suggest that B12 levels be obtained in patients who have had an ileocystoplasty beginning at 5 years postoperatively.

It is not surprising that if terminal ileum has been "resected" and used as a bladder augmentation that B12 metabolism may be affected. There were only 7 patients who were truly below the lowest limits of normal B12 values in their institution and the authors include a number of patients that have values in the normal range and consider them low normal. There was no megaloblastic anemia in their study and no neurologic deficits, although there study raises the concern that long-term follow up will be necessary and treatment before the megaloblastic anemia or neurologic symptoms occur, would obviously be in the patient's best interest.

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