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UROLOGICAL SURVEY

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STONE DISEASE ____

Effect of potassium citrate therapy on stone recurrence and residual fragments after shockwave lithotripsy in lower caliceal calcium oxalate urolithiasis: a randomized controlled trial Soygur T, Akbay A, Kupeli S

Department of Urology, Faculty of Medicine, University of Ankara, Turkey J Endourol. 2002; 16:149-52

Background and Purpose: To evaluate the efficacy of potassium citrate treatment in preventing stone recurrences and residual fragments after shockwave lithotripsy (SWL) for lower pole calcium oxalate urolithiasis.

Patients and Methods: One hundred ten patients who underwent SWL because of lower caliceal stones and who were stone free or who had residual stone 4 weeks later were enrolled in the study. The average patient age was 41.7 years. All patients had documented simple calcium oxalate lithiasis without urinary tract infection and with normal renal morphology and function. Four weeks after SWL, patients who were stone free (N = 56) and patients who had residual stones (N = 34) were independently randomized into two subgroups that were matched for sex, age, and urinary values of citrate, calcium, and uric acid. One group was given oral potassium citrate 60 mEq per day, and the other group served as controls.

Results: In patients who were stone free after SWL and receiving medical treatment, the stone recurrence rate at 12 months was 0 whereas untreated patients showed a 28.5% stone recurrence rate (P < 0.05). Similarly, in the residual fragment group, the medically treated patients had a significantly greater remission rate than the untreated patients (44.5 v 12.5%; P < 0.05).

Conclusion: Potassium citrate therapy significantly alleviated calcium oxalate stone activity after SWL for lower pole stones in patients who were stone free. An important observation was the beneficial effect of medical treatment on stone activity after SWL among patients with residual calculi.

Editorial Comment

A previous retrospective study by Fine and colleagues (1) demonstrated the benefit of medical therapy in reducing the rate of stone recurrence in both groups of patients, those rendered stone-free and those with residual stone fragments after shock wave lithotripsy (SWL). The authors of the current study evaluated specifically, in a prospective randomized trial, the efficacy of potassium citrate therapy in reducing stone recurrence or regrowth in patients undergoing SWL for lower calyceal stones. A total of 90 patients, including 56 stone-free patients and 34 patients with residual fragments, were randomized to receive either 60 mEq of potassium citrate daily or no treatment, 4 weeks after undergoing SWL for lower pole stones. After 12 months, all patients were evaluated with plain abdominal radiographs and ultrasound. Among the stone-free patients, no stone recurrences occurred in those treated with potassium citrate, while 28.5% of control patients experienced recurrence. Among the patients with residual fragments, 45.5% demonstrated clearance of the fragments during follow-up, and the remaining 54.5% of patients showed no stone growth or recurrence. In the control group, however, only 12.5% of patients cleared their residual fragments, 25% of patients showed no change in the size of the stones, and 62% demonstrated stone growth.

This important study validates in a prospective trial the retrospective findings of Fine and associates by demonstrating that medical therapy, specifically potassium citrate, reduces the rate of stone recurrence or stone growth in both group of patients rendered stone-free or left with residual fragments after SWL. Of additional interest, potassium citrate also apparently facilitated the discharge of residual lower pole fragments in patients with residual stones. Consequently, adjuvant medical therapy after SWL may actually improve stone free rates by encouraging fragment clearance. If this is indeed the case, the administration of potassium citrate immediately

after, or even before, SWL may prove to be efficacious. Interestingly, potassium citrate appeared to be effective in a variety of metabolic backgrounds, although stratification of outcomes by urinary biochemical abnormality was not performed. With further study, short- or long-term potassium citrate treatment of patients undergoing SWL may prove beneficial.

Reference

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Dr. Margaret S. Pearle

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Effect of low-carbohydrate high-protein diets on acid-base balance, stone-forming propensity, and calcium metabolism

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Department of Internal Medicine, Section of General Internal Medicine, The University of Chicago, IL, USA Am J Kidney Dis. 2002; 40:265-74

Background: Low-carbohydrate high-protein (LCHP) diets are used commonly for weight reduction. This study explores the relationship between such diets and acid-base balance, kidney-stone risk, and calcium and bone metabolism.

Methods: Ten healthy subjects participated in a metabolic study. Subjects initially consumed their usual non-weight-reducing diet, then a severely carbohydrate-restricted induction diet for 2 weeks, followed by a moderately carbohydrate-restricted maintenance diet for 4 weeks.

Results: Urine pH decreased from 6.09 (Usual) to 5.56 (Induction; P < 0.01) to 5.67 (Maintenance; P < 0.05). Net acid excretion increased by 56 mEq/d (Induction; P < 0.001) and 51 mEq/d (Maintenance; P < 0.001) from a baseline of 61 mEq/d. Urinary citrate levels decreased from 763 mg/d (3.98 mmol/d) to 449 mg/d (2.34 mmol/d; P < 0.01) to 581 mg/d (3.03 mmol/d; P < 0.05). Urinary saturation of undissociated uric acid increased more than twofold. Urinary calcium levels increased from 160 mg/d (3.99 mmol/d) to 258 mg/d (6.44 mmol/d; P < 0.001) to 248 mg/d (6.19 mmol/d; P < 0.01). This increase in urinary calcium levels was not compensated by a commensurate increase in fractional intestinal calcium absorption. Therefore, estimated calcium balance decreased by 130 mg/d (3.24 mmol/d; P < 0.001) and 90 mg/d (2.25 mmol/d; P < 0.05). Urinary deoxypyridinoline and N-telopeptide levels trended upward, whereas serum osteocalcin concentrations decreased significantly (P < 0.01).

Conclusion: Consumption of an LCHP diet for 6 weeks delivers a marked acid load to the kidney, increases the risk for stone formation, decreases estimated calcium balance, and may increase the risk for bone loss.

Editorial Comment

The popularity of low carbohydrate-high protein diets prompted the authors to explore the potential effect of these diets on stone-forming risk and calcium balance. They enrolled 10 healthy volunteers to participate in a 3-phase trial mimicking the 2 phases of the Atkins' diet, including induction (2 weeks) and maintenance (4 weeks), preceded by a baseline usual diet phase (2 weeks). During the last week of each phase of study, the

subjects consumed constant metabolic diets corresponding to the appropriate phase of the Atkins'diet, at home for 3 days and as in inpatient in the General Clinical Research Unit for the last 4 days. On the last 2 days of each phase, two 24-hour urine samples were collected for stone risk factors, and blood was collected for serum electrolytes, markers of bone turnover, PTH and vitamin D. Additionally, fractional intestinal calcium absorption was measured. Urine pH decreased significantly during the diet, from 6.09 to 5.56 to 5.67, and net acid excretion increased by 56 mEq/d and 51 mEq/d from baseline during the 2 study phases, respectively. Accordingly, urinary citrate decreased from 763 mg/d to 248 mg/d, respectively, despite no change in fractional intestinal calcium absorption. Consequently, estimated calcium balance decreased by 130 mg/d and 90 mg/d from baseline during the 2 study phases, respectively.

Low carbohydrate-high protein diets have enjoyed increasing popularity in recent years, because of the effectiveness of the diet in weight reduction. However, the stone-forming propensity of a high protein diet has been well established in the literature based on the increased acid load, which results in an increase in urinary calcium and uric acid and a decrease in urinary citrate and pH. Likewise high protein consumption has been associated with a negative calcium balance and bone loss. This carefully executed study clearly demonstrates that a low carbohydrate high protein diet confers a marked acid load that increases stone risk and decreases calcium balance, potentially threatening bone health. Clearly, further study with a long-term trial is necessary; however, stone formers, and those with compromised bone mineral density, should be cautioned before embarking on low-carbohydrate, high-protein weight reduction plans. The authors additionally plan to investigate whether alkali therapy can counter the negative effects of the acid load, potentially reducing the risk of the diet.

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ENDOUROLOGY & LAPAROSCOPY ____

Is lower pole caliceal anatomy predictive of extracorporeal shock wave lithotripsy success for primary lower pole kidney stones?

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From the Departments of Surgery (Urology) and Medicine (Renal Diseases), University of Colorado Health Sciences Center, Denver, Colorado J Urol. 2002; 168:2377-82

Purpose: The management of lower pole kidney stones is controversial. We examined whether lower pole caliceal anatomy could predict the success of extracorporeal shock wave lithotripsy of primary lower pole kidney stones 20 mm. or less.

Materials and Methods: From December 1997 to June 2001, 246 adults with a single, 20 mm. or less radiopaque lower pole renal stone were treated with the Doli 50 lithotriptor (Dornier Medical Systems, Marietta, Georgia) while under general anesthesia. Of the 246 patients 190 (77%) had excretory urography available for review. Lower pole infundibular length and width, lower pole infundibulopelvic angle and caliceal-pelvic height were measurable on 161 (85%), 129 (68%), 128 (67%) and 163 (86%) excretory urograms, respectively. Extracorporeal shock wave lithotripsy was considered a failure if residual stone fragments remained after 1 month, or an auxiliary procedure or re-treatment was required.

Results: The overall stone-free rate was 78% (32 of 41) for stones 5 mm. or less, 73% (98 of 135) for stones 6 to 10 mm., 43% (22 of 51) for stones 11 to 15 mm. and 30% (7 of 19) for stones 16 to 20 mm. in maximum linear dimension. The stone-free rates grouped according to stone surface area were 76% (48 of 63 stones) for stone surface area 25 mm.² or less, 69% (97 of 141) for 26 to 100 mm.² and 33% (14 of 42) for 101 to 400 mm.². Caliceal anatomy was not predictive of success even with stones grouped as 10 or less or 11 to 20 mm. Grouping patients with favorable (lower pole infundibular length 30 mm. or less and lower pole infundibular width greater than 5 mm.) versus unfavorable (70 degrees or less, greater than 30 mm. and 5 mm. or less, respectively) anatomy was also not predictive of success.

Conclusions: On the Doli 50 machine stone size rather than caliceal anatomy is predictive of treatment outcome. Initial treatment failures with this machine should be managed by alternative endoscopic procedures if necessary rather than by repeat shock wave lithotripsy.

Editorial Comment

The concept of lower pole anatomy impacting the results of shock wave lithotripsy for lower pole renal calculi is hotly debated. Initially proposed only on theoretical anatomical basis by Dr. Sampaio in 1992 (J Urol. 1992; 147:322-324), several initial clinical series suggested that indeed a tighter infundibulopelvic angle of the lower pole (i.e., more dependent lower pole) is associated with poorer results. Subsequently, however, there have been several articles (including this one) that have challenged this association. It is notable that in the refuting articles the percentage of patients with a lower pole infundibulopelvic angle greater than 70–100 degrees, which is the range of upper limit of "favorable" angles proposed by various authors, has usually been far less than in the articles that did report an association of infundibulopelvic angle and shock wave lithotripsy success. This distinction, which may be due to differences in patient population, or of the measurement techniques, likely accounts for much of the discrepancy. That lower pole anatomy impacts the results of shock wave lithotripsy makes intuitive sense, but there is no agreement on how to measure the angle and whether or not other factors, such as infundibular length, infundibular width, or calyceal-pelvic height, are important. Until there is a clearer consensus in the literature, the exact impact of lower pole anatomy will not be defined. While we are waiting for this, I for one will continue to use a gross visual assessment of the caliceal anatomy, without specific measurements, when advising patients about treatment options for lower pole renal calculi.

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Randomized prospective blinded study validating acquisition of ureteroscopy skills using computer based virtual reality endourological simulator Watterson JD, Beiko DT, Kuan JK, Denstedt JD J Urol. 2002; 168:1928-32

Purpose: Surgical simulation has emerged in the last decade as a potential tool for aiding acquisition of technical skills, including anesthesia protocols, trauma management, cardiac catheterization and laparoscopy. We evaluate and validate the use of a computer based ureteroscopy simulator (URO Mentor, Simbionix Ltd., Lod, Israel) in the acquisition of basic ureteroscopic skills.

Materials and Methods: We assessed 20 novice trainees for the ability to perform basic ureteroscopic tasks on a computer based ureteroscopy simulator. Participants were randomized to receive individualized mentored instruction or no additional training, and subsequently underwent post-testing. Pre-training and post-training improvement in performance was assessed by objective simulator based measurements. Subjective overall performance was rated using a validated endourological global rating scale by an observer blinded to subject training status.

Results: Demographics and pre-test scores were similar between groups. Post-testing revealed a significant effect of training on objective and subjective measurements. Spearman rank correlation demonstrated a significant association between objective simulator based measurements and the endourological global rating scale.

Conclusions: Use of a computer based ureteroscopy simulator resulted in rapid acquisition of ureteroscopic skills in trainees with no prior surgical training. Results of this study demonstrate the use of a virtual reality ureteroscopy simulator in endourological training. Correlation of simulator based measurements with a previously validated endourological global rating scale provides initial validation of the ureteroscopy simulator for the assessment of ureteroscopic skills.

Editorial Comment

It has been fascinating to follow the development of surgical simulators over the past few years. Initially very crude, these devices have steadily improved. Technology that has any potential for consumer product development tends to be introduced and refined in the consumer market before resources are directed to the health care market. In this regard, the first surgical simulators (in the 90s) looked like 70s computer arcade games, whereas the current crop of simulators have closed the gap – such that they might be compared to 3D graphics games for personal computers from just a few years ago. Along with improvements in graphics, the utility of the simulators in terms of situational elements have improved. This study by Watterson and associates illustrates at the very least that motor skills on the device can be improved with only a short training period, and that such improvement can be measured with validated instruments. This is an excellent first step, but there are many more important questions to be addressed: Do skills on the simulator translate into skills in the operating room? How long do benefits of the training last? How long will it take for untrained students to catch up to the trained ones with subsequent clinical experience? What are the trade-offs of time, expense, and surgical risk that are made if surgical simulators are used to replace or augment some portions of "apprenticeship" surgical training? It seems very likely that surgical simulators will play some role in training in the future, but many more issues need to be worked out.

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PATHOLOGY

Adenocarcinoma of the prostate in young men: clinical and pathologic features Chan TY, Sanderson HL, Epstein JI The Johns Hopkins Hospital, Baltimore, MD *Mod Pathol. 2002; 15:157A*

Objectives: To study 57 men \leq 40 years of age with cancer on prostate needle biopsy and when present in their radical prostatectomy (RP) specimens.

Methods: "Significant" tumors were defined as: RP tumor volume >0.5cc, or Gleason score (GS) \geq 7, or non organ-confined disease. We defined a favorable pre-operative prognostic group as: GS \leq 6 in 1 core with 10% of the core involved and a PSA \leq 10 ng/mL; those with GS \leq 6 in \leq 3 cores with \leq 50% of the core involved and a PSA \leq 2 ng/mL.

Results: The mean age was 38 (20-40 years). 32.7% of patients had a family history of prostate cancer, 32.7% presented with urinary symptoms and 34.6% had cancer found on a routine physical exam. PSA averaged at 6.7 ng/mL (range 0.6-66 ng/mL). Digital rectal examinations were abnormal in 37.3%. The prostate needle biopsies showed 93.0% with GS <6, 3.5% with GS =7, and 3.5% with GS \ge 8. 52.2% of biopsies had $\leq 10\%$ of 1 core with cancer. 44.2% of men were in the better prognostic group. Follow-up was available in 46 men, with 1 having radiation therapy. RP in 45 men show 77.8% had GS <6, 13.4% had GS = 3+4, 4.4% had GS = 4+3, 4.4% had GS = 8-9. 6.7% of men had positive margins, 17.7% extraprostatic extension, and 4.4% seminal vesicle invasion and/or lymph node metastasis. 9.3% of tumors showed mucinous features, 4.6% foamy gland features, 23.3% atrophic and 11.6% pseudohyperplastic features. High grade PIN (88.4%), inflammation (48.8%) and benign atrophy (60.5%) were seen in association with tumor. Tumor volumes averaged 1.1cc (range 0.003 to 11.5cc) and 46.5% of tumors were >0.5cc. 48.9% were "significant" tumors. There was no significant difference in specific tumor type, association with PIN, inflammation or atrophy, and location of tumor between patients with "significant" tumors and those with "potentially insignificant" tumors. Although there was a trend for family history of prostate cancer to be associated with "significant" tumor, this was not statistically significant. All 13 men predicted to have "insignificant" tumors were accurately predicted. Of the 21 men predicted to have "significant" tumors, 18 (85.7%) had "significant" tumors. Only 2 patients progressed in a mean follow-up time of 42.1 months (range 1-180 months).

Conclusions: Unusual tumor patterns seen in young men are not different from those reported in older men. In these young men, many with early cancer, the vast majority of tumors were associated with high grade PIN. Although about half the men had "significant" tumors on RP, the other half may have been candidates for watchful waiting. Favorable biopsy and PSA findings are predictive of "potentially insignificant" tumors. Conservative management of these young men with the potential of long-term tumor growth must be balanced by the greater impact of potential morbidity from RP at a young age.

Editorial Comment

This is a rare series of men \leq 40 years of age with cancer on prostate needle biopsy. It corresponds to a period of 15 years of a reference center (Johns Hopkins University). Analyzing the favorable pre-operative prognostic group, we find the criteria much more restrictive than previously described by Epstein, who is one of the authors of this paper. Gleason score \leq 6 in 1 core, with \leq 10% of the core involved, and a PSA \leq 10ng/mL; or Gleason score \leq 6 in \leq 3 cores with \leq 50% of the core involved and a PSA \leq 2ng/mL, are different criteria than Gleason score \leq 6 in \leq 3 cores with \leq 50% of the core involved and a free/total PSA of 0.15 or greater, published in 1998 by Epstein (Epstein JI et al.: Nonpalpable stage T1c prostate cancer: prediction of insignificant disease using free/total prostate specific antigen levels and needle biopsy findings, J Urol. 1998; 160:2407-11). With these very restrictive criteria, all 13 men predicted to have "insignificant" tumors were accurately predicted, and may have been candidates for watchful waiting, considering the greater impact of potential morbidity from radical prostatectomy at a young age. This study emphasizes the need for an appropriate pathology report, in order to adequately analyze favorable pre-operative prognostic groups. The pathology report must be done on each of the cores, describing the presence of cancer, the Gleason grading, and the percentage of cancer present on each involved core. An example is as follows: Slide 1 (apical, left side) - normal parenchyma; Slide 2 (apical, right side) - adenocarcinoma Gleason 3+4=7 involving 60% of the core, etc.

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Why linear extent, not percent, of cancer should be used to measure cancer in needle biopsies

True LD, Wallner K University of Washington, Seattle, WA Mod Pathol. 2002; 15:184A

Objectives: The extent of cancer (CA) in needle biopsies is a predictor of extent of CA in a prostatectomy specimen. Clinical decisions are based on minimal cancer in needle biopsies, i.e., tumors <3mm are considered latent. Many practices report extent of CA as percent, not as linear extent. We hypothesized that linear extent provides a more accurate and reproducible measurement than percent.

Methods: The linear extent of cancer in 100 biopsies (with a wide range of amount of CA) that had been originally characterized by estimated percent involvement by CA was determined. Correlation coefficients (CC) and standard deviations of estimated percent (SD percent) and of measured extent (SD - ME), based upon repeat blinded measurements, were calculated.

Results: The correlation between percentage and measured involvement decreased with decreasing amount of cancer. Conversely, the SD increased. The correlation coefficients between estimated percent CA and actual CA is < 0.8 for small cancers.

Extent of CA	1mm	2mm	3mm	5mm	All biopsies
CC	0.23	0.70	0.64	0.88	0.88
SD percent	9	11	18	15	18
SD (ME)	0.5	0.4	0.5	0.6	1.2

Conclusions: Due to poor correlation between estimated percentage of minimal cancer in biopsies and measured extent of CA, and due to a high variance in estimated percent compared with measured extent, we recommend that actual length of cancer be reported instead of percent of cancer.

Editorial Comment

The characterization of "insignificant" tumors in needle biopsies is a timely topic. There is an increasing frequency of diagnosed cancers in stage T1c. In a recent survey in our Institution we found 11.11%, 17.39%, 15.38%, 24.24%, 29.41%, and 52% of stage T1c cancers diagnosed in the years of 1997, 1998, 1999, 2000, 2001 and 2002, respectively. It is noteworthy the frequency of 52% in 2002. Patients with "insignificant" cancer diagnosed in a needle biopsy may be candidates for watchful waiting. It must be emphasized, however, that "insignificant" does not mean "latent" cancer. So far, there is no marker to predict clinical behavior for a particular tumor. "Insignificant" means that there is a high probability for a tumor to have <0,5cc in a possible radical prostatectomy, being therefore incipient. This paper reflects the controversy among pathologists related to how we should estimate the extension of a tumor in a needle biopsy. Epstein JI et al. (J Urol. 1998; 160:240711) estimate according to the percent of each core involved by cancer. Noguchi et al. (J Urol. 2001; 166:104-9), from Stanford University, found that the combination of 1 positive core with cancer length less than 3mm with no Gleason grade 4/5 involvement is probably the best predictor of less than 0.5cc prostate cancer on radical prostatectomy. For these authors the use of PSA, or PSA density, in combination with needle biopsy findings did not enhance prediction of tumor significance. Noguchi's paper aroused an extensive editorial comment by Epstein with an also comprehensive reply by the authors (J Urol. 2001; 166:109-10).

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IMAGING_

Prostate: high-frequency Doppler US imaging for cancer detection

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Purpose: To evaluate cancer detection with targeted biopsy of the prostate performed on the basis of high-frequency Doppler ultrasonographic (US) imaging findings versus cancer detection with a modified sextant biopsy approach with laterally directed cores.

Materials and Methods: Sixty-two patients were prospectively evaluated with gray-scale, color, and power Doppler transrectal US performed with patients in the lithotomy position. Gray-scale and Doppler findings within each sextant were rated on a five-point scale. Up to four targeted biopsy specimens were obtained from each patient on the basis of Doppler findings; this was followed by a modified sextant biopsy. Conditional logistic regression analysis was performed to compare the positive yields for targeted and sextant biopsy specimens. Clustered receiver operating characteristic analysis was performed to compare gray-scale, color, and power Doppler detection of cancer at sextant biopsy sites.

Results: Cancer was detected in 18 (29%) of 62 patients, including 11 patients in whom cancer was detected with both sextant and targeted biopsy, six in whom cancer was detected only with sextant biopsy, and one in whom cancer was detected only with targeted biopsy. The positive biopsy rate for targeted biopsy (24 [13%] of 185 cores) was slightly higher than that for sextant biopsy (36 [9.7%] of 372 cores; P = .1). The odds ratio for cancer detection with targeted versus sextant cores was 1.8 (95% CI: 0.9, 3.7). Receiver operating characteristic analysis demonstrated that overall identification of positive sextant biopsy sites was close to random chance for gray-scale (area under the curve, 0.53), color Doppler (area under the curve, 0.50), and power Doppler (area under the curve, 0.47) imaging.

Conclusion: Targeted biopsy performed on the basis of high-frequency color or power Doppler findings will miss a substantial number of cancers detected with sextant biopsy.

Editorial Comment

Eighty-five percent of prostate cancers appear with variable degree of increased flow when evaluated by color and power Doppler sonography. For this reason, power Doppler has been used routinely as a complimentary tool during transrectal US-guided biopsy of the prostate. Color Doppler ultrasound is able to

demonstrate 10-15% of cancers only by their hypervascularity, since such lesions appear isoechoic in the normal peripheral zone on gray-scale technique (1-3).

This study was performed in order to evaluate the detection of prostate cancer by targeted biopsy guided by the findings of high-frequency color and power Doppler techniques compared to modified sextant biopsy scheme. The authors concluded that targeted biopsy guided only by the findings of color and power Doppler US will miss a substantial number of cancers. Few points, however, should be considered regarding their results and conclusions. First, we should not consider any focal area of increased flow suspicious for cancer. Conversely, an area highly suspicious for cancer is the one presenting a "chaotic" flow. "Chaotic" flow is represented by a cluster of irregular and tortuous vessels. The authors did not attempt to differentiate these patterns of hypervascularity. Secondly, power Doppler, particularly when associated with intravenous injection of echo-contrast, is useful as a complimentary tool for a modified sextant biopsy scheme. After the administration of echo-contrast, the sensitivity of power Doppler in detecting cancer increases from 38% to 85% (3). In our department, we perform a modified sextant biopsy scheme (12 cores from the peripheral zone), plus 2 cores from any abnormal finding in prostate texture, and plus 2 cores of any area with abnormal flow. This protocol has been shown to be of value, particularly in patients with large prostates (above 100 cm³). In conclusion, targeted biopsy performed only on the basis of power Doppler US technique continues to be insufficient to diagnose prostate cancer.

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Renal angiomyolipoma: relationships between tumor size, aneurysm formation, and rupture Yamakado K, Tanaka N, Nakagawa T, Kobayashi S, Yanagawa M, Takeda K Departments of Radiology and Urology, Mie University School of Medicine, Tsu, Mie, Japan *Radiology 2002; 225:78-82*

Purpose: To evaluate the relationships between tumor size, aneurysm formation, and spontaneous rupture in renal angiomyolipomas.

Materials and Methods: Twenty-three patients with renal angiomyolipoma were examined with angiography and computed tomography (CT). The single largest lesion in each kidney was evaluated. Tumor size was measured at CT, and aneurysm size was measured at renal angiography. Tumor and aneurysm sizes were compared between the group with ruptured angiomyolipoma and the group with unruptured angiomyolipoma. Multiple regression analysis was performed to identify factors affecting rupture.

Results: Twenty-nine kidneys with angiomyolipoma were identified. Eight angiomyolipomas were hemorrhagic; the remaining 21 were not hemorrhagic. Tumor size was larger than 4 cm and aneurysm size was 5mm or larger in all hemorrhagic lesions. There were significant differences in mean tumor size (11.4 cm \pm 5.5 [SD] vs. 5.0 cm \pm 3.1, P < .02) and mean aneurysm size (13.3 mm \pm 6.2 vs. 2.4 mm \pm 2.9, P < .02) between the

ruptured and unruptured tumor groups. When tumor size of 4 cm or larger and aneurysm size of 5 mm or larger were used as predictors of rupture, sensitivity and specificity, respectively, were 100% and 38% with the former criterion and 100% and 86% with the latter criterion. Multiple regression analysis indicated that aneurysm size was the most important factor linked to rupture.

Conclusion: Aneurysm formation appears to be related to tumor size, and large aneurysms confer a higher probability of rupture.

Editorial Comment

This study was conducted in a group of 23 patients with renal angiomyolipoma (AML), in order to establish the correlation between tumor size, aneurysm formation, and spontaneous rupture. Renal AML are benign neoplasms composed of mature adipose tissue, thick-walled blood vessels, and smooth muscle, in varying proportions. Spontaneous renal bleeding secondary to an AML usually occurs when the tumor is larger than 4 cm (51%), although in a recent review of our material, 3 (27%) of 11 hemorrhagic tumors measured 2.5 to 4.0cm in diameter (1). It is well known that the early phase of selective angiography demonstrates aneurysms in the interlobar or interlobular arteries in about 70 % of AMLs (2). These pseudoaneurysms appear to be very difficult to detect when a non-hemorrhagic renal angiomyolipoma is evaluated only by US, CT, or MRI. In a hemorrhagic renal AML, color-flow Doppler sonography may demonstrate large pseudoaneurysm (= or >2cm in diameter) within the lesion, and consequently is able to predict if the hemorrhagic tumor is at risk of early recurrent bleeding (3). As we know, the presence of a large aneurysm in renal AML has shown to be cause of life threatening hemorrhage in few patients in the literature (4). In this situation, heminephrectomy or therapeutic embolization has been performed as therapeutic modalities .This fact emphasizes the authors' conclusion that aneurysm formation is probably related to the size of the tumor, and that large pseudoaneurysms are related to a higher probability of rupture.

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INVESTIGATIVE UROLOGY

Effects of unilateral grade I testicular injury in rat

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Objectives: The effect of unilateral blunt testicular trauma on subsequent testicular function is still debated. None of the experimental studies had the exact grading of testicular injury and evaluation of hormone status and hence this study was designed.

Methods: Twenty male prepubertal (20 days old) Wistar rats were divided into two groups: group 1 (n = 10) underwent sham surgery; group 2 (n = 10) underwent blunt trauma to the right testis by a 5-g sterile weight dropped three times on the testis from a height of 10 cm. T_1 -weighted and T_2 -weighted magnetic resonance images were taken within 6 hours to confirm grade I injury. At 60 days of age, blood samples were obtained from each rat for follicle-stimulating hormone, luteinizing hormone, testosterone, and estradiol levels, and both testes of each rat were harvested separately for DNA flow cytometric analysis.

Results: Group 2 rats had significantly reduced (P <0.001) haploid cell populations in both right and left testis compared with the corresponding testis of the group 1 rats. Within group 2, the right testis was significantly (P <0.001) more affected. Serum levels of testosterone were significantly lower (P <0.05) and follicle-stimulating hormone (P <0.01) and estradiol (P <0.05) levels were significantly higher in group 2 rats than in group 1 rats. However, the luteinizing hormone levels were not significantly different.

Conclusions: Grade I unilateral blunt testicular trauma in prepubertal rats significantly affected germ cell maturation in both ipsilateral and contralateral testis and altered the sex hormone profile.

Editorial Comment

Unilateral testicular lesions have the potential to affect also the contralateral testis function, probably due to immunologic damage following rupture of the blood-testis barrier. Nevertheless, the effect of unilateral blunt testicular trauma on subsequent testicular function is still poorly known. In the present work, the authors evaluated the effects of grade I testicular injury on germ cell status of the ipsilateral and contralateral testis, as well as the sex hormone status, in Wistar rats. All 10 rats in the experimental group had grade I trauma to the right testis that was confirmed by T_1 -weighted and T_2 -weighted magnetic resonance imaging (MRI). To our knowledge, this is the first study comparing the extent of damage in the traumatized and contralateral testis within the same experimental group, by using the sensitive techniques of MRI for confirming grade I trauma, and DNA flow cytometry for detecting germ cell alterations in the testis. The present results indicate significantly worse damage to the traumatized testis compared to the contralateral testis after unilateral blunt testicular function, by elevating FSH and estradiol levels, and lowering testosterone levels when compared to controls. In summary, the authors elegantly concluded that grade I unilateral blunt testicular trauma in prepubertal rats significantly affects germ cell maturation in both ipsilateral and contralateral testis and alters the sex hormonal profile.

Dr. Francisco J.B. Sampaio

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Immunohistochemical localization of the retinoic acid receptors in human prostate

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Retinoic acid receptors (RARs) are nuclear transcription factors that mediate the effects of retinoids. Aberrant expression and regulation of RARs have been linked to various malignancies, including steroid-related breast and cervical cancers. Our previous results also suggest that prostate cancer is associated with altered RAR signaling. To understand the relationship between RAR signaling and prostate cancer, the current study examined the cellular distribution of RAR- α , - β , and - γ in human prostate tissues exhibiting different pathologic conditions. In histologically normal epithelium, both RAR- α and - γ were present throughout the epithelium with minimal nuclear accumulation. RAR- β was present only in basal epithelial nuclei. On the contrary, RAR- α was significantly increased in the nuclei of luminal epithelial cells, and both RAR- β and - γ were increased in basal and luminal epithelial nuclei in glands exhibiting benign prostatic hyperplasia (BPH). RAR-α as also increased in luminal epithelial nuclei in glands exhibiting prostatic intra-epithelial neoplasia (PIN). In these glands, RAR- β was persisting in basal epithelial nuclei that were also RAR- γ positive. In low- and intermediategrade cancerous glands, RAR- α was also significantly increased in luminal epithelial nuclei, and a strong RAR- γ signal was seen in some cells. RAR- β was absent in these glands. Both RAR- α and - γ were also increased in high-grade cancer cells. In conclusion, current results demonstrated changes in cellular distribution of RAR- α and - γ in human prostate tissues exhibiting different pathologies. These results suggest links between altered RAR signaling and deregulated cell growth and/or tumorigenic transformation of prostate epithelial cells.

Editorial Comment

The authors examined the cellular distribution of retinoic acid receptors (RAR) RAR- α , - β , and - γ in normal (patients submitted to cystoprostatectomy for bladder carcinoma) and pathologic (adenocarcinoma, prostatic intraepithelial neoplasia, and benign prostatic hyperplasia) human prostate tissues, with the purpose of comprehending the role of RAR signaling in human prostate cancer biology. The results of the analysis performed demonstrated differences in the cellular distribution of these receptors in prostatic tissue exhibiting different pathophysiology. The findings emphasize the importance of RAR signaling in prostate cell biology, and perhaps in the genesis and progression of prostate cancer. Also, the distinct distribution pattern of these receptors under different pathologic conditions may qualify them as adjuvant markers for specific disease states.

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RECONSTRUCTIVE UROLOGY

Laser welded vesicourethral anastomosis in an in vivo canine model: a pilot study Grummet JP, Costello AJ, Swanson DA, Stephens LC, Cromeens DM Division of Urology, Department of Surgery, University of Melbourne, Melbourne, Australia J Urol. 2002; 168:281-4

Purpose: We evaluated laser welding as an alternative method of forming the vesicourethral anastomosis. Materials and Methods: Eight dogs underwent open total prostatectomy, including 4 in which the vesicourethral anastomosis was formed by 830 nm. diode laser welding using a chromophore doped albumin solder and 3 or 4 support sutures. The remaining 4 anastomoses were conventionally formed using 8 interrupted sutures. Acute leakage was tested intraoperatively. The anastomosis of 1 animal per group was assessed on

postoperative days 3, 5, 7 and 14 by radiography before sacrifice. Each anastomotic specimen was then tested for leak pressure and examined histologically. Results: There were no leaks during intraoperative testing of laser welded or sutured anastomoses. On radiography there were no leaks in the laser welded group. In 1 control there was slight localized leakage. All anastomoses achieved physiological leak pressures of 70 mm. Hg or greater with 3 of the 4 in the laser welded group recording supraphysiological pressures of greater than 200 mm. Hg. While 3 of the 4 laser welded specimens showed evidence of muscle necrosis, there were no other differences in healing in the 2 groups.

Conclusions: These short-term results suggest that diode laser welded vesicourethral anastomosis is feasible. This technique has the potential to simplify anastomotic formation in laparoscopic radical prostatectomy, shortening operative time. Diode laser welding in this small cohort created an immediate and ongoing watertight anastomosis and, therefore, it may also be an alternative in open radical prostatectomy cases. Further study is needed to assess long-term effects on healing.

Editorial Comment

Laparoscopy has had more and more influence on urological surgery in recent years. While retroperitoneal surgical procedures are now routinely performed in many centers, laparoscopic surgery for urologic tumors in the pelvis has not gained such a wide acceptance yet. This is particularly true for laparoscopic cystectomy, mostly due to the fact that a subsequent urinary diversion needs a lot of time consuming suturing.

In this paper the authors have again taken up laser welding as a possible technique to create a surgical anastomosis, thereby reducing the amount of necessary sutures. They chose vesicourethral anastomosis after radical prostatectomy in a canine model. Laser welding was performed with a diode laser, a liquid solder containing lyophilized bovine serum albumin mixed with indocyanine green dye as a chromophore. With this technique they were able to create a vesicourethral anastomosis which was watertight at intraluminal pressures exceeding 200 mmHg after 7 days.

If laser welding can be applied for pelvic laparoscopic surgery, it will not only further increase the number of laparoscopic radical prostatectomies, due to the reduction of operating time and necessary training of newcomers in the field of laparoscopy, but it may also make laparoscopic cystectomy and urinary diversion an option for many more centers then just the few which perform this type of surgery still rather infrequently. However, several questions must still be solved. We don't know how a solder consisting of bovine serum albumine or any other non-autologous preparation will react in the human setting. May this create a larger number of strictures? Or may it even create immunologic reactions in some patients? Another problem is still the unpredictable tissue damage created by the laser-induced welding process, as well as individual differences in the absorption characteristics and visual estimation of a completed welding.

Nevertheless, welding seems to be a viable option for approximating human tissues. It should be possible to solve the remaining questions in the upcoming years, and thus make laser welding a possible technique for laparoscopy, which might give minimal invasive surgery a new boost.

Dr. Arnulf Stenzl

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After cystectomy, is it justified to perform a bladder replacement for patients with lymph node positive bladder cancer?

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Purpose: After cystectomy for bladder cancer, when pelvic lymph nodes are positive, bladder replacement remains controversial. The aim of this study was to evaluate the outcome of patients who underwent neobladder replacement despite bladder cancer metastasis to the regional lymph nodes.

Materials and Methods: From 1981 to 1997, a total of 504 consecutive cystectomies for bladder cancer were performed at our institution. For 150 patients, pelvic lymphadenectomy were positive, nevertheless 71 patients underwent a neobladder replacement (50 N1 and 21 N2). The distribution of patients by clinical stage, according to the TNM 97 classification, was 4 T1, 14 T2, 32 T3 and 21 T4. No patient showed signs of metastasis on diagnosis.

Results: Five-year disease specific survival rate of the entire group (71 patients) was 46%. With a mean follow-up of 8.3 years (3.2-20 years), 25 patients (35%) were alive and free of disease (72% with day continence), five patients were alive with recurrence (three bone metastasis, one chest metastasis and one with local recurrence), 41 patients died, (three non-cystectomy related). Of the 46 patients who recurred, a total of eight patients had local recurrence. For five patients, a severe dysfunction of the plasty appeared: two needed definitive bladder drainage until they died, one patient became totally incontinent, one patient needed a conversion of the plasty to Bricker ileal conduit. For the remaining patient the tumor involvement provoked recto-plasty-cutaneous fistula. All these five patients died in the 6 months after the plasty dysfunction appeared.

Conclusions: Although prognosis in bladder cancer metastasis to the regional lymph nodes has been reported to be poor, this study demonstrates that after cystectomy, it is justified to propose a neobladder replacement to well selected patients. Local recurrence only occurred in 11% of patients and there was no damage to enteroplasty function for nearly half of the patients, and considering benefit to the quality of life, orthotopic bladder substitution should be considered as the preferential diversion in this patient population.

Editorial Comment

Orthotopic bladder substitution to the urethra after cystectomy is meanwhile a standard procedure for both male and female patients. It offers the best and most natural solution of any kind of urinary diversion available today, if the surgical margins are negative. Initial concerns with regards to local recurrence, especially the side of the urethrointestinal anastomosis, proved to be insignificant compared to other forms of bladder substitution.

There is, however, an ongoing discussion whether positive lymph nodes should be a contra-indication for orthotopic bladder substitution. As the authors of this paper have shown, a sizeable number of patients survive several years (46% of the patients survived at least 5 years in the hands of these authors). Should they be spared a bladder substitution to the urethra for the remaining years of their life, despite the positive effects on their quality of life?

These authors, as well as others – e.g. Skinner et al from Los Angeles, Hautmann et al or our own group from the previous institution in Innsbruck –, have all shown a local recurrence rate around 10-12%, irrespective of the presence or the absence of microscopic lymph node metastasis. Of all patients that did recur locally, half had an undisturbed function of their continent reservoir for the remaining time of their life. Those developing a voiding dysfunction did so in the last 6 months of their life after they had a mean of 17 months life with a normal functioning bladder substitution.

It seems therefore appropriate to conclude that continent urinary diversion is a possible option, and it should be regarded as a first line method of urinary diversion even in patients with microscopic lymph node metastasis of bladder cancer. One may even further conclude that if there are no macroscopic signs of lymph node involvement, why should you perform any frozen sections of lymph nodes during surgery? We know that

frozen sections yield 20-25% false negative results and on the other hand they might not change decisionmaking at the time of surgery.

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UROLOGICAL ONCOLOGY _

Newly diagnosed bladder cancer: the relationship of initial symptoms, degree of microhematuria and tumor marker status

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J Urol. 2002; 168:1955-9

Purpose: We recorded initial symptoms and evaluated the frequency and intensity of hematuria in patients with newly diagnosed bladder cancer. We also evaluated and compared the sensitivity of bladder wash cytology, NMP22 (Matritech, Newton, Massachusetts), BTA Stat (Bion Diagnostic Sciences, Redmond, Washington) and UBC antigen (IDL Biotech, Sollentona, Sweden) with hematuria dipsticks and flow cytometry for determining the size of erythrocytes in urine.

Materials and Methods: Urine samples were collected from 92 patients with newly diagnosed bladder cancer, 64 with idiopathic microhematuria and 42 with nephritis. Urine was analyzed for NMP22, BTA Stat, UBC and erythrocytes size using flow cytometry. Bladder wash cytology was done at cystoscopy. Urine was analyzed for microhematuria with hematuria dipsticks at home for 7 consecutive days immediately before the operation and in the hospital on the day of surgery.

Results: Sensitivity was 75% for NMP22, 78% for BTA Stat, 64% for UBC and 61% for flow cytometry at 73% specificity. Cytology had 42% sensitivity at 97% specificity. Tumor size, grade and stage had a statistically significant influence on NMP22, BTA Stat, UBC and cytology. Of the patients 75% had microhematuria on the day of the operation and 75% had hematuria at least 1 of 7 days when tested at home the last week before transurethral bladder resection. The 70% of all patients with macroscopic hematuria as the initial symptom did not seem to differ from those without the condition in tumor size, grade, stage or tumor marker levels.

Conclusions: Flow cytometry was not well enough able to distinguish patients with bladder cancer from controls. The sensitivity of all tested markers, including hematuria dipsticks, was high for large and high grade, high stage tumors. Further studies are needed to evaluate whether a marker could be used to determine priority among patients referred due to microhematuria.

Editorial Comment

Non-invasive diagnosis of superficial bladder cancer is still an important issue in urology. These authors recorded the initial symptoms of patients with newly diagnosed bladder cancer, and compared different noninvasive methods (cytology, NMP 22, BTA Stat, UBC-Antigen, hematuria dipsticks, and flow cytometry) in 92 patients with bladder cancer and others with nonmalignant disease. As with all other recent prospective trials incorporating this diagnostic tool, cytology had a low sensitivity (42%), albeit, at a high specificity

(97%). The overall sensitivity of the other noninvasive tests was unsatisfying 7%. The paper gives the detailed insight into subgroups specificity, relationship of grade and stage to marker sensitivity, and other interesting details. In conclusion, the results of this prospective analysis would not convince the responsible urologist to abandon the golden standard of cystoscopy if bladder cancer is suspected.

Dr. Andreas Böhle Professor and Vice-Director of Urology Medical University of Luebeck Luebeck, Germany

Intravesical bacillus Calmette-Guerin reduces the risk of progression in patients with superficial bladder cancer: a meta-analysis of the published results of randomized clinical trials Sylvester RJ, Van Der Meijden APM, Lamm DL

From the European Organization for Research and Treatment of Cancer Data Center, Brussels, Belgium, Jeroen Bosch Hospital's-Hertogenbosch, The Netherlands, and the Mayo Clinic, Scottsdale, Arizona J Urol. 2002; 168:1964-70

Purpose: We determine if intravesical bacillus Calmette-Guerin (BCG) reduces the risk of progression after transurethral resection to stage T2 disease or higher in patients with superficial (stage Ta, T1 or carcinoma in situ) bladder cancer.

Materials and Methods: A meta-analysis was performed of the published results of randomized clinical trials comparing transurethral resection plus intravesical BCG to either resection alone or resection plus another treatment other than BCG.

Results: We identified 24 trials with progression information on 4,863 patients. Based on a median followup of 2.5 years and a maximum of 15 years, 260 of 2,658 patients on BCG (9.8%) had progression compared to 304 of 2,205 patients in the control groups (13.8%), a reduction of 27% in the odds of progression on BCG (OR 0.73, p = 0.001). The percent of patients with progression was low (6.4% of 2,880 patients with papillary tumors and 13.9% of 403 patients with carcinoma in situ, reflecting the short followup and relatively low risk patients entered in many of the trials. The size of the treatment effect was similar in patients with papillary tumors and in those with carcinoma in situ. However, only patients receiving maintenance BCG benefited. There was no statistically significant difference in treatment effect for either overall survival or death due to bladder cancer.

Conclusions: Intravesical BCG significantly reduces the risk of progression after transurethral resection in patients with superficial bladder cancer who receive maintenance treatment. Thus, it is the agent of choice for patients with intermediate and high risk papillary tumors and those with carcinoma in situ.

Editorial Comment

The efficacy of BCG against recurrences of superficial bladder cancer is without question. However, it was widely disputed if BCG could act against the progression of superficial bladder cancers. Up to now, only one prospective trial could show clear results, whereas all others did not show any significant advantage. The reason was the few cases in each trial progressing to invasive or metastatic disease. This is where the power of a well performed metaanalysis comes into its role. Combined analysis of clinical trials comparing transurethral resection plus intravesical BCG to either resection alone or resection plus another treatment than BCG was performed and identified 25 trials with 4,863 patients. The combined analysis of this metaanalysis shows a clear advantage of BCG over other treatment, or over no treatment, on a high statistical level. Interestingly, this

held true for the overall analysis as well as for the analysis by disease type (papillary, cis), and comparison to different treatment (Mitomycin C, other chemo, other immuno). The effect of BCG-maintenance was substantial. These results are highly important, and for the first time show very clearly and indisputable that BCG favorably alters the biologic course of superficial bladder cancer, even with regard to progression.

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FEMALE UROLOGY

Sexual function after using tension-free vaginal tape for the surgical treatment of genuine stress incontinence

Maaita M, Bhaumik J, Davies, AE BJU Int. 2002; 90:540-3

Objective: To determine whether the use of the tension free vaginal polypropylene tape (TVT) procedure for the treatment of genuine stress incontinence (GSI) affects sexual activity.

Patients and methods: Sixty-seven women treated by insertion of a TVT between September 1998 and March 2001 for GSI were sent questionnaires 6-36 months after surgery to determine any urinary symptoms, sexual activity, patient satisfaction and the use of hormone-replacement therapy.

Results: The questionnaire was returned by 57 patients (87%); 43 (76%) reported being sexually active and 14 (25%) were not. Of the former, 31 (72%) reported no change in sexual function after surgery and only two reported an improvement; six (14%) reported that sexual function was worse and four did not reply to the questions. The patients reporting that sexual function was worse cited loss of libido as the main reason. No patients complained of dyspareunia.

Conclusions: There was no significant change in sexual function or activity after the TVT procedure and patients can thus be reassured that this operation will not affect their sex life.

Editorial Comment

The authors describe the impact on sexual function from the placement of the tension-free vaginal polypropylene tape (TVT) for female urinary stress incontinence. Through questionnaire interview with their patients, the authors determined the change in sexual function after TVT surgery, in addition to the causes of sexual inactivity, and the time required to resume sexual activity.

This paper is very important for it addresses a topic that is only as of late been receiving attention as a complication of uro-gynecological surgery. It is notable that the authors found that the TVT surgery had no pronounced impact on sexual activity. In addition, the authors found that sexual inactivity was most often attributed to the lack of partner and the loss of libido, and not to anatomic alterations; a finding often found in the male population as well. Classically, the authors have pointed out that vaginal surgery may be detrimental to sexual activity because of anatomic changes, such as narrowing or scarring, as well as operative failure. The authors did not find any anatomic alteration post-operatively on either the 6 week or 6 month post-surgical examination. Perhaps this can help explain the lack of discernable impact of the TVT on sexual function.

The potential detrimental effect of gynecological surgery on sexual function has been addressed before with other vaginal operations. These have ranged from vulvectomy for carcinoma and well anti-incontinence

operations to reconstructive operations with the use of Martius flap and vesicovaginal fistula repair (1-4). When compared to these operations, perhaps the limited effect on sexual function can be attributed to the limited dissection associated with the TVT. In past discussions on transvaginal urethrolysis, issues regarding potential nerve damage with a suprameatal technique have been debated (5).

The TVT is often offered to younger patients due to the attractiveness of its limited invasiveness. Urologic surgeons may feel more comfortable offering this operation [now] in view of the limited effect on sexual function that this article reports. Further expansion of research in this area may include an analysis of the partners' view of post-operative sexual function impact, as well the role of biothesiometry in those patients with altered sexual function.

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Does post-voiding residual volume get less as mobility improves in a rehabilitation ward for older adults?

Weatherall M Neurourol Urodyn. 2002; 21:132-5

Impaired bladder emptying is common in frail older adults. This study tests the hypothesis that more complete bladder emptying is associated with better mobility in a rehabilitation ward for older adults. Consecutive admission to a rehabilitation ward for older adults were considered for inclusion in the study in the week after admission to the ward. Exclusion criteria were cognitive impairment such that consent could not be obtained, non-English speaking, or presence of an indwelling urinary catheter. A post-voiding residual (PVR) bladder volume and Rivermead Mobility Index (RMI) were completed for subjects who gave consent, on a weekly basis until discharge. The BladderScan BVI 3000 Diagnostic Ultrasound, instrument was used. Statistical analysis was by a general linear mixed model. In the study period, 114 people were admitted and 57 approached for consent. Twenty-four people gave consent. Fifty percent of participants had a least one PVR greater than 100mL. One person was found to be in urinary retention, with a PVR of greater than 700mL, and was excluded from further analysis. The PVR increased by 1.2mL (95% CI – 4.6 to 7) for each unit improvement in the RMI. This study suggests that PVR does not decline with improvement in mobility in older adults receiving inpatient rehabilitation.

Editorial Comment

The author reviews the effect of mobility on post-void residual bladder volume measurement. This study is completed by assessing serial post-void residual measurements as the same time as the Rivermead Mobility Index (RMI) determination. The patients investigated had a weekly bladder scan – with the first scan being within one week of admission –, and this was performed until the patient was discharged from the rehabilitation ward. All scans were performed within half an hour after voiding, and all scans were performed in the supine position. The RMI was completed by patient interview and observation of the ability to stand unsupported for 10 seconds.

This study is valuable, for it found that there was no substantial relationship between mobility and residual. The report is well written, and the discussion section does an excellent job of self-analysis and critique. An insightful commentary is made about the natural tendency to associate poor mobility with poor bladder emptying and incontinence in frail, older adults. It was surprising to find that there was no correlation between increasing mobility and diminishing post void residual. The study author does point out that due to exclusionary factors in patients agreeing to participate in this study, only 20% of the admissions to the rehabilitation ward were included. In addition, as pointed out by the author, the exclusion criteria of poor mentation and presence of a urethral catheter on admission may have led to a significant selection bias. Of note, the author did point out that a substantial portion of participants had a least one post void residual >100cc.

During this current era, when it appears that the average patient age is increasing, it is an important fact that perhaps increasing mobility does not diminish post void residual and voiding efficiency. This observation may help guide us to perhaps not be as dismissive of an elevated residual in an elderly female as be secondary to immobility, and spur us to look for other addressable problems of this elevated residual, such as detrusor failure or anatomic causation. It is hopeful that the author in the future will look at the association of mobility and catheter dependent urinary retention in the elderly female population residing in the rehabilitation ward.

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PEDIATRIC UROLOGY _____

Ultrasonography is unnecessary in evaluating boys with a nonpalpable testis Elder JS

Division of Pediatric Urology, Rainbow Babies and Children's Hospital, Department of Urology, Case Western Reserve University School of Medicine, Cleveland, Ohio, USA *Pediatrics 2002; 110:748-51*

Objective: An inguinal sonogram often is obtained in boys with a nonpalpable testis to "localize" the testis, i.e., determine whether the testis is present. The results of ultrasonography in boys with a nonpalpable testis were analyzed.

Methods: The records of boys who were referred to a pediatric urology center with a diagnosis of nonpalpable testis and who had undergone inguinal sonography were reviewed. The results of sonography were compared with findings in the office as well as surgical findings.

Results: A total of 62 boys who were referred with a diagnosis of a nonpalpable testis and who had undergone a sonogram were reviewed. The sonogram was ordered by the primary care physician in 51 boys

(82%) and by a general urologist in 11 cases (18%). The testis was identified by sonography in 12 (18%) of 66 cases, and all were localized to the inguinal canal. Physical examination by a pediatric urologist showed that 6 were in the scrotum and 6 were in the inguinal canal or perineum. Of the 54 testes that were not localized by the sonogram, 33 (61%) were palpable and 21 (39%) were nonpalpable. Of the truly nonpalpable testes, laparoscopy and abdominal/inguinal exploration identified the testis as abdominal in 10 cases and atrophic secondary to spermatic cord torsion in 11 cases.

Conclusion: Sonography is unnecessary in boys with a nonpalpable testis, because it rarely if ever localizes a true nonpalpable testis, and it does not alter the surgical approach in these patients.

Editorial Comment

This is a long-awaited confirmation of the information that most pediatric urologists already know. Ultrasound is a non-invasive technology and is often used to find testes that are difficult to palpate. On the other hand, the information it provides is unreliable. Indeed, it is less accurate than a physical examination by an experienced examiner. Furthermore, the physical examination is much better at determining whether a testis is "retractile." In an era were health care costs are rising, ultrasound to determine testicular position is almost never warranted. Interestingly, many insurance companies discourage referrals to specialists using the justification that they are expensive and unnecessary, but this paper shows that for this condition, a referral to a specialist results in not only better care, but also in cost savings.

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A ventral rotational skin flap to improve cosmesis and avoid chordee recurrence in epispadias repair Pippi Salle JL, Jednak R, Capolicchio JP, Franca IM, Labbie A, Gosalbez R Divisions of Paediatric Urology, Montreal Children's Hospital-McGill University Health Center, Montreal, Canada, and Miami Children's Hospital, Miami, USA, and Department of Paediatric Surgery, Hospital Fernando Fonseca, Amadora, Portugal *BJU Int. 2002; 90:918-23*

Objective: To describe a technical modification that facilitates dorsal skin closure, improves cosmesis and eliminates chordee recurrence secondary to contracture of the dorsal penile skin in the repair of epispadias. Patients and Methods: Eleven patients with penopubic epispadias (mean age 1.8 years) had the epispadias repaired using a modified ventral penile skin flap. Four patients had isolated epispadias and seven had had a previous primary closure of bladder exstrophy. Nine patients underwent the Cantwell-Ransley technique, leaving the meatus in a glanular position. Two patients were repaired using the penile disassembly technique of Mitchell and Bagli, because they had a short urethral plate. A ventral island skin flap was fashioned, starting at the base of the penis. Dissection was carried ventrally into the scrotum to allow for adequate dorsal flap transposition. The flap was rotated laterally to shift the suture line from the midline and to cover the dorsal aspect of the penis with untouched penile shaft skin. Redundant ventral foreskin was discarded.

Results: All patients had an uneventful course after surgery. Dorsal penile skin was viable in every case and no patient developed recurrence of chordee or an urethrocutaneous fistula. The cosmetic result was excellent in all patients.

Conclusions: Dorsal skin closure using lateral rotation of ventral penile skin flap improves cosmesis after epispadias repair and eliminates the recurrence of chordee secondary to midline dorsal scarring.

Editorial Comment

This ingenious technical modification can be added to most types of epispadias surgery. Dorsal skin coverage is almost always a problem in these cases, and there is often a separation of the penis and scrotum as well. This modification helps on both accounts. The authors should be congratulated on a nice improvement in the technique of epispadias repair.

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