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# UROLOGICAL SURVEY

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

## EDITORIAL COMMITTEE

## STONE DISEASE

### Tamsulosin treatment increases clinical success rate of single extracorporeal shock wave lithotripsy of renal stones

Gravina GL, Costa AM, Ronchi P, Galatioto GP, Angelucci A, Castellani D, Narcisi F, Vicentini C
Department of Surgery, University of L'Aquila, L'Aquila, Italy
*Urology. 2005; 66: 24-8*

Objectives: To design a randomized, no-treatment, controlled, prospective study to determine whether the administration of tamsulosin, as adjunctive medical therapy, increases the efficacy of one extracorporeal shock wave lithotripsy (ESWL) session to treat renal stones and decreases the use of analgesic drugs after the procedure.

Methods: A total of 130 patients underwent a single ESWL session to treat solitary radiopaque renal stones 4 to 20 mm in diameter. After treatment, all patients were randomly assigned to receive our standard medical therapy alone (controls) or in association with 0.4 mg tamsulosin daily for a maximum of 12 weeks. All 130 patients were followed up for 3 months or until an alternative treatment was given.

Results: Of the 130 patients, 78.5% of those receiving tamsulosin and 60% of controls had achieved clinical success at 3 months ($P = 0.037$). When we stratified patients according to stone size, for those with a stone size larger than 10 mm, the success rate was significantly greater in the tamsulosin group ($P = 0.028$). Renoureteral colic occurred in 76.9% of patients treated with standard therapy but in only 26.1% of those receiving tamsulosin ($P < 0.001$). The mean cumulative diclofenac dose was 375 mg per patient in the tamsulosin group and 675 mg per patient in the control group ($P < 0.001$).

Conclusions: The results of our study have demonstrated that tamsulosin therapy, as an adjunctive medical therapy after ESWL, is more effective than lithotripsy alone for the treatment of patients with large renal stones and is equally safe. In addition, our results also indicated that adjunctive treatment with tamsulosin could decrease the use of analgesic drugs after ESWL.

**Editorial Comment**

The benefit of pharmacotherapy in promoting spontaneous passage of ureteral calculi has been demonstrated in a number of randomized clinical trials. Medical regimens consisting of calcium channel blockers in conjunction with corticosteroids, and alpha-adrenergic antagonists with or without corticosteroids, have proven efficacy in facilitating ureteral stone passage, and are being increasing administered to patients presenting with an acute stone event. In a prospective, randomized trial, Gravina and colleagues evaluated the efficacy of the alpha-1-adrenergic receptor antagonist tamsulosin compared with no treatment in patients undergoing shock wave lithotripsy (SWL) for isolated, non-lower pole, renal calculi between 4 and 20 mm in size, in whom corticosteroids were additionally administered to all patients. Stone free rates at 3 months by KUB/renal ultrasound or IVP were superior in the tamsulosin group compared with the control group (78.5% versus 60%, respectively). When stratified by stone size, however, the difference between groups was statistically significant only in patients with larger stones (between 11 and 20 mm). Furthermore, the occurrence of renal colic and the need for analgesics was reduced in the tamsulosin group compared with the control group.

This intriguing study and others have explored the use of adjuvant pharmacotherapy, including potassium citrate (1) and nifedipine and corticosteroids (2), which are aimed at increasing the efficacy of SWL by improving stone clearance. In the kidney, potassium citrate likely acts to reduce aggregation of stone fragments, thereby facilitating discharge of fragments after SWL. In the ureter, nifedipine and deflazacort (2) and tamsulosin (3) are presumed to inhibit uncontrolled contraction of ureteral smooth muscle thereby facilitating spontaneous

stone passage. The mechanism of action of tamsulosin and corticosteroids in promoting passage of fragments after SWL of renal calculi is less readily apparent. Although this drug regimen may facilitate passage of fragments that might otherwise hang up in the ureter, the mechanism by which it enhances clearance of fragments from the collecting system is not clear. Alpha-adrenergic receptors have been identified in the ureter but their presence in the collecting system has not been reported. Further investigation into the action of tamsulosin on the renal collecting system and is warranted, as are further trials looking at the role of tamsulosin alone as adjuvant therapy after SWL.

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

**Effect of ureteral access sheath on stone-free rates in patients undergoing ureteroscopic management of renal calculi**

L'esperance JO, Ekeruo WO, Scales CD Jr, Marguet CG, Springhart WP, Maloney ME, Albala DM, Preminger GM
Comprehensive Kidney Stone Center, Division of Urology, Department of Surgery, Duke University Medical Center, Durham, North Carolina, USA
*Urology. 2005; 66: 252-5*

Objectives: To evaluate the effect of ureteral access sheaths (UASs) on stone-free rates (SFRs) during ureteroscopic treatment of renal calculi. Several advantages of UASs during flexible ureteroscopy have been documented. However, no study has evaluated their impact on SFRs.

Methods: We retrospectively reviewed all ureteroscopic cases for the management of renal stones performed at our Stone Center. Data were stratified according to the use or lack of use of the UAS. The groups were stratified by stone location within the kidney. Stone-free status was determined at 2 months postoperatively by either intravenous urography with tomograms or noncontrast renal computed tomography in patients with contrast allergies.

Results: A total of 256 ureteroscopic procedures for the removal of renal calculi were performed between 1997 and 2003 (173 with UAS and 83 without). The groups were similar in age, sex, and stone burden. Stents were placed in nearly 80% of patients. The lower renal pole represented the most common presenting location. Stone displacement with a ureteroscopic basket for efficient fragmentation was necessary in 34%. The overall SFR in the UAS group and non-UAS group was 79% and 67%, respectively (P = 0.042). The SFRs were improved for calculi in all portions of the kidney.

Conclusions: In addition to facilitating ureteroscopic access, reducing costs, and lowering intrarenal pressures, the results of the current study suggest that UASs improve SFRs during the management of renal calculi. It is now our current practice to use the UAS routinely during ureteroscopic treatment of renal and upper ureteral calculi.

**Editorial Comment**

Although the concept of the ureteral access sheath is not new, a recent redesign has resulted in a safer, more user-friendly and versatile product. A number of advantages have been demonstrated with use of the ureteral access sheath, including the ability to repeatedly access the upper tract and a reduction in intrarenal pressures. These benefits alone support the use of a ureteral access sheath in select cases. However, an advantage with regard to stone free rates has not been clinically demonstrated, despite the obvious benefit that stone fragments can be manually removed.

In this retrospective study, L'Esperance and colleagues compared 256 cases of ureteroscopic management of renal calculi with or without a ureteral access sheath and determined that overall stone free rates were higher with (79%) than without (67%) the access sheath. When stratified by location in the collecting system, stone free rates were higher in all locations with the access sheath, although the differences did not reach statistical significance. Interestingly, despite higher stone free rates with use of the access sheath, no attempt was made to manually remove fragments after intracorporeal lithotripsy. Thus flow dynamics associated with the access sheath must encourage passage of fragments from the kidney. An obvious study of interest would be one in which every attempt is made to manually retrieve fragments from the kidney via the access sheath.

This study suffers from the usual limitations of a retrospective series, in that selection bias with regard to patient selection may come into play and the fastidiousness with which the stone is treated could be affected by use of the access sheath. However, the results of this study are encouraging; now, a prospective randomized trial should be performed to confirm these findings. For now, use of a ureteral access sheath may be advantageous not only for lengthy and complex ureteroscopic cases, but perhaps for routine cases as well.

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

## IMAGING

### Prostatic biopsy directed with endorectal MR spectroscopic imaging findings in patients with elevated prostate specific antigen levels and prior negative biopsy findings: early experience

Prando A, Kurhanewicz J, Borges AP, Oliveira EM Jr, Figueiredo E
Department of Radiology, Vera Cruz Hospital, Campinas, SP, Brazil
*Radiology. 2005; 236: 903-10*

Purpose: To prospectively evaluate the accuracy of transrectal ultrasonography (US)-guided biopsy directed with magnetic resonance (MR) spectroscopic imaging in patients with an elevated prostate specific antigen (PSA) level and negative findings at prior biopsy by using subsequent biopsy results as the reference standard.

Materials and Methods: The committee on human research approved this study, and written informed consent was obtained. MR imaging and MR spectroscopic imaging were performed in 42 men (age range, 45-75 years; average age, 63.3 years; median age, 65 years) with negative findings at two or more prostatic biopsies and at digital rectal examination. MR spectroscopic data were rated on a scale of 1 (benign) to 5 (malignant) on the basis of standardized metabolic criteria. Abnormal voxels were overlaid on the corresponding transverse transrectal US images and used to perform voxel-guided biopsy of the prostate. All patients subsequently received an extended-pattern biopsy scheme.

Results: Thirty-one of 42 patients demonstrated metabolic abnormalities that were suspicious for cancer (voxels with scores > or = 4). Eleven patients with negative MR spectroscopic imaging results also had negative biopsy findings. Cancer was detected in 17 (55%) of 31 men with positive MR spectroscopic imaging findings (voxels with scores > or = 4) with a sensitivity of 100%, specificity of 44%, positive predictive value of 55%, negative predictive value of 100%, and accuracy of 67%. In men with at least one spectroscopic voxel with a score of 5 (12 of 17 men), the sensitivity, specificity, positive and negative predictive values, and accuracy were 71%, 84%, 75%, 81%, and 79%, respectively.

Conclusion: Metabolic data from MR spectroscopic imaging can be transferred to transrectal US images and used to sample regions of cancer in men with rising PSA levels and negative findings at prior biopsy with good accuracy.

**Editorial Comment**

Despite new biopsy strategies with increased number of cores, many men find themselves in the clinical dilemma of having an elevated or rising PSA level and at least one prostatic biopsy with negative findings. MR spectroscopy is a new technology useful in the evaluation of prostate cancer (localization of cancer to a sextant of the prostate, the estimation of extracapsular extension and the assessment of its aggressiveness). Specifically, MR spectra from regions of prostate cancer show a significant reduction or absence of citrate and polyamines, while the choline level is elevated relative to the creatine level, thus resulting in significant changes in the choline-plus-creatine-to-citrate ratio in regions of cancer (grade IV, above 0.61 and grade V, above 0.86). We performed MR imaging and MR spectroscopic imaging in 42 men with negative findings at 2 or more prostatic biopsies and at digital rectal examination. The authors developed a method of overlaying the abnormal voxels (grade IV and V), detected on MR spectroscopic imaging, on the corresponding transverse transrectal US images and used to perform voxel-guided biopsy of the prostate. In this method, internal and external anatomic landmarks were used. All patients subsequently received an extended-pattern biopsy scheme. Cancer was detected in 17 (55%) of 31 men with positive MR spectroscopic imaging findings. Combination of the extended-pattern biopsy and MR spectroscopic imaging-guided biopsy results yielded a sensitivity of 85%, specificity of 89%, positive predictive value of 58%, negative predictive value of 97%, and accuracy of 89% ($p < 0.5$). These initial results show that radiologists who perform MR imaging, MR spectroscopic imaging examinations, and transrectal US-guided biopsy can transfer metabolic data from MR spectroscopic imaging to transrectal US images and effective use this data to sample regions suspicious of cancer in men with rising PSA levels and prior negative findings at biopsy. The authors found several important additional findings in this study: a) the average prostate volume in patients with cancer was higher than that in patients without cancer (87g vs. 58g, respectively). Five of 13 patients with positive biopsy findings had very large prostates (> 75g); b) in the 17 patients in whom cancer was detected with MR spectroscopic imaging and confirmed at biopsy, 10 (59%) had at least one site of cancer located toward the midline of the peripheral zone (area usually not sampled in most transrectal ultrasound biopsy scheme). This study has however several limitations. First, the accuracy with MR spectroscopic imaging reflects only a prediction of biopsy results, second, the authors did not evaluate the transition zone and third the transfer of spectral abnormalities onto the transrectal US images used for prostate biopsies is currently a manual process that is susceptible to localization errors. We think that MR

spectroscopic imaging of the prostate is useful in patients with elevated PSA and with 2 sets of negative biopsies (one of which include the transition zone). To validate this hypothesis, however, a larger number of patients must be studied with standardized MR spectroscopic techniques.

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

**Comparison of CT findings in symptomatic and incidentally discovered pheochromocytomas**

Motta-Ramirez GA, Remer EM, Herts BR, Gill IS, Hamrahian AH
Department of Radiology, Cleveland Clinic Foundation, Cleveland, OH, USA
*AJR Am J Roentgenol. 2005; 185: 684-8*

Objective: The objective of our study was to determine the prevalence of incidental pheochromocytomas, whether their imaging characteristics differ from those of pheochromocytomas in symptomatic patients, and whether they differ from adenomas using CT densitometry.

Materials and Methods: The records from 335 adrenalectomies performed at our institution from 1995 to 2002 were reviewed, and 71 pheochromocytomas were identified. Thirty-three patients had CT examinations performed at our institution that were available for retrospective review. From electronic and hard-copy medical records, patient age and sex, the indications for imaging, and biochemistry activity were recorded. Pheochromocytomas were classified as symptomatic or incidental on the basis of clinical presentation. These groups were compared for differences in patient age, adrenal mass volume and maximal diameter based on CT dimensions, attenuation on unenhanced CT, attenuation on enhanced CT during the portal phase, the presence of calcifications, low attenuation or cystic changes, biochemical activity, and hypertension. Statistical significance was assessed with the Student's t test or chi-square test, as appropriate.

Results: Nineteen incidental (57.6%) and 14 symptomatic (42.4%) adrenal pheochromocytomas were in the study. There was a significant difference between the two groups as to whether hypertension was present (incidental, 10/19 [52.6%]; symptomatic, 14/14 [100%]; p = 0.0025). We found a trend toward calcification present in more symptomatic patients (incidental, 0/19 [0%]; symptomatic, 4/14 [28.6%]; p = 0.0670). No statistically significant difference was noted in the mean patient age (incidental, 51.7 years; symptomatic, 45.9 years), mean volume of the mass (incidental, 74.0 cm(3); symptomatic, 78.2 cm(3)), mean maximal diameter of the mass (incidental, 5.26 cm; symptomatic, 5.33 cm), mean attenuation on unenhanced CT (incidental, 36.6 H; symptomatic, 34.2 H), mean attenuation on enhanced CT (incidental, 93.7 H; symptomatic, 104.3 H), necrosis score or biochemical activity (incidental, 17/18 [94.4%]; symptomatic, 12/14 [85.7%]). No attenuation value of any pheochromocytoma was less than 10 H on unenhanced CT (median, 35 H; range, 17-59 H).

Conclusion: In our study population, 57.6% of the pheochromocytomas were incidental, more than in most reported series. A history of hypertension was more frequent in the symptomatic group (p = 0.0025), but no radiologic parameters that allow differentiation of incidental and symptomatic pheochromocytomas were found. None of the pheochromocytomas had attenuation values of less than 10 H on unenhanced CT scans.

**Editorial Comment**

The authors present a retrospective review of the clinical and unenhanced CT densities of 33 pathologically proven adrenal pheochromocytoma. It was radiologically impossible to differentiate incidental and symptomatic incidental pheochromocytomas. Although small series with high incidence of incidentally discovered

pheochromocytoma has been described, the authors report a large series with a very high incidence of this lesion (57.6%). The reported frequency of incidental pheocromocytomas is 1.5 - 23 (1). As we know pheochromocytomas appears usually as a large (> 3 cm in diameter), well-defined mass and with a density near that of muscle on unenhanced CT scans. Small lesions however can be homogeneous. On post contrast scans larger lesions often shows marked and heterogeneous enhancement due to its vascularity and presence of tissue necrosis or internal hemorrhage. In this study the median size of pheochromocytomas was 4.25 cm (ranging from 2.6 to 11.2 cm). The authors pointed out that based on size alone a pheochromocytoma could be mistaken for an adenoma by the radiologist. It is not recommended however to use the size as the only criterion to determine if an adrenal incidentaloma is an adenoma or not. Radiologist should also be aware that all adrenal incidentalomas requires further biochemical investigation to determine if the mass (even with radiologic features of an adenoma), is hormonally active or not. An interesting finding of this report is that no attenuation value of any pheochromocytoma in this series was less than 10 H on unenhanced CT scans (median, 35 H; range, 17-59 H). This information is similar to our experience. In a recent revision of the imaging findings of 8 incidental pheocromocytomas of our series, all lesions presented with a density higher than 27 H on unenhanced CT scans. This finding would make almost impossible an incidental pheocromocytomas to be considered as a lipid-rich adenoma (the majority of lipid-rich adrenal adenomas measures equal to or less than 10 H). We should also remember that sporadic cases of adrenal pheocromocytomas containing sufficient intracellular fat to display CT densities similar to lipid–rich adenoma has been described (2). The authors considered that one of the limitation of this study was the lack of the washout studies. Regarding the washout profiles adrenal pheocromocytomas may display a variable washout pattern; similar to metastases in some cases and similar to adenomas in others. We feel however that this technique has some limitations for the evaluation of adrenal pheocromocytomas, particularly the larger ones. Since determination of washout curves requires that at least two thirds of the mass present homogeneous attenuation and these lesions frequently shows areas of necrosis or hemorrhage, an accurate quantification of washout curve would be more difficult to obtain. A prospective study of a larger number of cases would be interesting.

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

## UROGENITAL TRAUMA

**Erectile dysfunction after a long-distance cycling event: associations with bicycle characteristics**

Dettori JR, Koepsell TD, Cummings P, Corman JM
Department of Epidemiology, School of Public Health and Community Medicine, University of Washington and Department of Urology, Virginia Mason Medical Center, Seattle, USA
*J Urol. 2004; 172: 637-41*

Purpose: We conducted a prospective cohort study to examine the relationship between bicycle characteristics and the occurrence of erectile dysfunction.

Materials and Methods: Subjects consisted of 463 cyclists completing a cycling event of at least 320 km who were free of erectile dysfunction before their event.

Results: The cumulative incidence of erectile dysfunction after the ride was 4.2% (95% confidence interval [CI] 2.4%-6.8%) and 1.8% (95% CI 0.7%-3.8%) 1 week and 1 month after the event, respectively. Bicycle characteristics associated with an increased risk of erectile dysfunction included a mountain bicycle compared with a road bicycle (risk ratio [RR] 4.1, 95% CI 1.6-12.5), and the relative height of the handlebars parallel with or higher than the saddle compared with the relative handlebar height lower than the saddle (RR 3.0, 95% CI 1.1-9.3). Perineal numbness during the ride was experienced by 31% of the cyclists and was associated with erectile dysfunction (RR 4.4, 95% CI 1.6-12.7). Saddle cutouts were associated with an increased risk of erectile dysfunction among those who experienced numbness (RR 6.0, 95% CI 1.3-27.1), but the association was reversed among those who did not report numbness (RR 0.3, 95% CI 0.0-2.5).

Conclusions: If the associations described are causal, then cyclists on a long-distance ride may be able to decrease the risk of erectile dysfunction by riding a road bicycle instead of a mountain bicycle, keeping handlebar height lower than saddle height and using a saddle without a cutout if perineal numbness is experienced.

**Editorial Comment**

Although bicycle seats are now commonly sold with labels that purport preserving sexual function and "Urologist approved", the data is inconsistent as if different shaped seats (grooved, cut-out) can prevent urethral stricture or erectile dysfunction. In fact, contrary to other studies, Dettori et al. found no association with saddle tilt, width or padding and impotence. Overall, the above study is nicely designed and executed, yet is weakened by a small cohort size of impotent bicyclists and a high non-responder rate (> 20%). Regardless they found a strong association between transient impotence and perineal numbness, riding with an "upright" posture and impotence. Such complications seem to be logical consequences of pudendal nerve and arterial compression as the course through Alcock's canal and medial to the inferior pubic ramus. Further evidence of arterial compromise is penile transcutaneous oxygen pressure studies in long distance bicyclists, which have shown decreased penis glans perfusion while seated on a saddle.

Although bicycling is an excellent non-impact aerobic exercise, aside from impotence, there are numerous other potential GU complications. In a recent review article, Leibovitch & Mor (1), reviewed the published literature on the common side effects of bicycling as pudendal nerve entrapment syndrome, erectile dysfunction, priapism, hematuria, prostatitis, elevated PSA, perineal folliculitis, and subcutaneous perineal nodules/ induration. Repetitive trauma complications differ from straddle injuries to the bicycle bar, where the bulbar urethra can be damaged by a crush injury against the pubic bone. In such cases, a mid bulbar, short and single stricture typically develops.

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

**The usefulness of transcatheter arterial embolization for patients with blunt polytrauma showing transient response to fluid resuscitation**

Hagiwara A, Murata A, Matsuda T, Matsuda H, Shimazaki S
Department of Traumatology and Critical Care Medicine, School of Medicine, Kyorin University, Tokyo, Japan

*J Trauma. 2004; 57: 271-6; discussion 276-7*

Background: This study aimed to determine whether nonsurgical management using transcatheter arterial embolization (TAE) is safe for patients with blunt multiple trauma who transiently respond to the initial fluid resuscitation.

Methods: Contrast computed tomography was performed for patients with blunt abdominal injuries, excluding those who did not respond to initial fluid resuscitation. Angiography was performed for patients with injuries showing contrast extravasation or solid organ injury classified, according to the American Association for the Surgery of Trauma, as grade 3 or higher on computed tomography. Transcatheter arterial embolization was performed when angiography showed arterial extravasation. The protocol was abandoned for any patients who became profoundly hypotensive (with systolic blood pressure 60 mm Hg or lower) during computed tomography or angiography.

Results: Between January 2000 and December 2002, 269 patients with blunt abdominal injuries underwent TAE immediately after admission. Of these patients, 41 had injuries in at least two regions and underwent TAE for these regions. Among them, 22 patients were hemodynamically stable or showed rapid response to fluid resuscitation. The nonsurgical treatment was successful in all these cases. The remaining 19 patients (Injury Severity Score, 37.3 +/- 8.2), who showed a transient response, were the subjects of this study. Of these patients, 15 underwent TAE for injuries in two regions (13 pelvic fractures, 7 splenic injuries, 6 hepatic injuries, 3 facial bleeding, and 1 renal injury), and 4 patients underwent TAE for injuries in three regions (4 had splenic injuries, 3 hepatic injuries, 2 renal injuries, 2 pelvic fractures, and 1 facial bleeding). For all these patients, TAE was successfully performed. Before TAE, the systolic blood pressure was 79.9 +/- 8.4 mm Hg, and the shock index was 1.45 +/- 0.25 mm Hg. After TAE, the corresponding values were 120.6 +/- 19.3 mm Hg and 0.87 +/- 0.16 mm Hg, respectively ($p < 0.001$). The rate of fluid administration required after TAE (214.2 +/- 139.3 mL/hour) was significantly less than that required before TAE (1244.2 +/- 347.1 mL/hour; range, 632-1,728 mL/hour) ($p < 0.001$). The deaths of two patients were classified as nonpreventable on the basis of the Trauma and Injury Severity Score (TRISS), and their respective probabilities of survival were determined to be 0.13 and 0.03.

Conclusion: Nonsurgical management using TAE can be performed safely even for patients with blunt multiple trauma who are in hemorrhagic hypotension if their hemodynamics are improved by resuscitation with 2 L of fluid.

**Editorial Comment**

This article nicely reviews contemporary treatment methods for unstable pelvic fractures, and presents a easy to follow protocol. In general, pelvic bleeding can be from a venous or arterial source. Methods to control venous bleeding are pelvis stabilization and closure of the pelvic ring. By doing so, the volume of the pelvis is markedly reduced; and thus allows venous bleeding to tamponade and promote hemostatic pathways in a confined space. Furthermore, re-approximated open bony surfaces will control cancellous bleeding. The typical methods employed are non invasive methods, external stabilization or internal stabilization. Placement of an anterior pelvic external fixator is typical; and if the patient is too unstable to go to the operating room, then temporary stabilization is achieved with military anti-shock trousers, pelvic “binder”, or a pelvic “C” clamp in the emergency room.

When pelvic arterial bleeding exists, arteriography and trans-catheter embolization of the bleeding arteries are often required. Pelvic arterial injuries from pelvic fracture are in decreasing frequency, to the internal pudendals, superior gluteal, obturator and lateral sacral arteries. Arteriography is indicated in the presence of ongoing blood loss after intra-abdominal sources have been eliminated and the pelvis, at least temporarily, is stabilized. In stable patients, contrast blush on CT imaging indicates a high likelihood of arterial injury and angiography and embolization should be pursued.

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

## PATHOLOGY

**Propionibacterium acnes associated with inflammation in radical prostatectomy specimens: a possible link to cancer evolution?**

Cohen RJ, Shannon BA, McNeal JE, Shannon T, Garrett KL
Uropath Pty Ltd, Perth, Western Australia
*J Urol. 2005; 173: 1969-74*

Purpose: Inflammation is commonly observed in the prostate gland and has been implicated in the development of prostate cancer. The etiology of prostatic inflammation is unknown. However, the involvement of a carcinogenic infectious agent has been suggested.

Materials and Methods: Prostatic tissue from 34 consecutive patients with prostate cancer was cultured to detect the presence of bacterial agents. Prostatic inflammation was assessed by histological examination of wholemount tissue sections.

Results: The predominant microorganism detected was Propionibacterium acnes, found in 35% of prostate samples. A significantly higher degree of prostatic inflammation was observed in cases culture positive for P. acnes ($p = 0.007$). P. acnes was separated into 3 groups based on cell surface properties, phenotype and genetic grouping. All skin control isolates were classified as group 1 whereas most prostatic isolates were classified as groups 2 and 3.

Conclusions: P. acnes has been isolated from prostatic tissues in men who underwent radical prostatectomy for localized cancer and has been shown to be positively associated with prostatic inflammation. This inflammation may then be linked to the evolution of carcinoma. Furthermore, organisms infecting these patients with prostate cancer differ genetically and phenotypically from the commonly identified cutaneous P. acnes isolates, suggesting that specific subtypes may be involved in development of prostatic inflammation.

**Editorial Comment**

This is a very exciting article considering that recently the authors that implicated Helicobacter pylori to the pathogenesis of both peptic ulcer and gastric carcinoma were awarded the Nobel Prize.

Chronic inflammation of longstanding duration has been linked to the development of carcinoma in several organ systems (1-3). In the prostate, chronic inflammation is associated with both postatrophic hyper-

plasia and focal simple atrophy (4). De Marzo et al. (5) propose combining these lesions into a category called proliferative inflammatory atrophy (PIA). The authors suggest that PIA may be a precursor to prostatic adenocarcinoma. They also suggest that there are morphological transitions within the same acinar/duct unit, between high-grade prostatic intraepithelial neoplasia (HGPIN) and PIA that occur frequently (5). This finding supports a model whereby the proliferative epithelium in PIA may progress to HGPIN.

This hypothesis is challenged by others. Anton et al. (6) studying radical prostatectomies concluded that postatrophic hyperplasia is a relatively common lesion present in about one-third of prostates, either with or without prostate carcinoma. The authors found no association between the presence of prostatrophic hyperplasia and the likelihood of cancer and no topographic association between postatrophic hyperplasia and prostate carcinoma foci. This held for both clinical cancer in a radical prostatectomy specimen and incidental cancer in a cystoprostatectomy specimen (6). Bakshi et al. (7) studied 79 consecutive prostate biopsies. 54% of initial biopsies were benign, 42% of the cases showed cancer, and 4% HGPIN or atypia. Postatrophic hyperplasia was seen in 17% of benign initial biopsies with available follow-up. Of these, 75% had associated inflammation. There was no significant difference in the subsequent diagnosis of prostate cancer for groups with postatrophic hyperplasia, partial atrophy, atrophy, or no specific abnormality. The authors conclude that the subcategories of atrophy do not appear to be associated with a significant increase in the risk of diagnosis of prostate cancer subsequently. Billis & Magna (8) studied 100 consecutive autopsies of men older than 40 years. Prostatic atrophy without (group A) and with inflammation (group B) was correlated with age, race, histologic (incidental) carcinoma, HGPIN, and extent of both these lesions. No statistically significant difference was found between the groups. Furthermore, neither a topographical relation nor a morphologic transition was seen between prostatic atrophy and histologic carcinoma or HGPIN. In a recent paper, Postma et al. (9) evaluated whether the incidence of atrophy on sextant biopsies is associated with subsequent prostate cancer detection and did not find a greater prostate cancer or HGPIN incidence during subsequent screening rounds.

The authors of the article surveyed found a positive association between P. acnes and prostatic inflammation, which may be implicated in the development of prostate cancer. However, they comment that it is possible that prostatic inflammation will also be caused by other microorganisms which could not be identified by the study, for example obligate anaerobes or species which are difficult to culture under laboratory conditions. They also comment on a second important limitation of the study related to the lack of appropriate negative controls such as prostate tissue from patients without inflammation, atrophy and cancer.

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

**Serum PSA level correlates with the needle biopsy extent of atrophy and chronic inflammation, but not with high grade PIN and prostate cancer**

Magi-Galluzzi C, Schoenfield L, Klein E, Jones S, Zhou M
Cleveland Clinic Foundation, Cleveland, OH, USA
*Mod Pathol. 2005; 18 (suppl. 1): 154A*

Background: Serum prostate specific antigen (PSA) is the most common marker used to follow men with and without prostate cancer (PCa) and is used as a guide to initiate prostate biopsies. Recently, the value of serum PSA level in predicting the presence or absence of PCa has been questioned.

Design: One hundred consecutive first time saturation prostate biopsies (PBx) performed by a single urologist between February 2003 and May 2004 and reviewed by two pathologists were included in the study. Biopsy criteria were defined as serum total PSA of 2.5 ng/mL or greater and/or abnormal findings on digital rectal examination. All patients underwent a 24-core biopsy protocol. Patient age, PSA, extent (% of tissue involved) of high grade prostatic intraepithelial neoplasia (PIN), % cancer, % atrophy, % chronic inflammation, and presence of acute inflammation were recorded.

Results: The patients were divided in 3 groups: group A (n = 34 with atrophy only), group B (n = 29 with PIN and/or atypical glands), group C (n = 37 with PCa). Atrophy was detected in all cases, ranging from 1.4 to 62.2% of the tissue (mean 22.5%). Chronic inflammation (CI) was present in 98% of the cases, ranging from 0.2 to 44.6% of the tissue (mean 4.5%). Acute inflammation was present in 61% of the cases. The mean PSA and age of the patients for each group were: 7.4 ng/mL and 60.8 years (A); 5.2 ng/mL and 61.7 years (B); 6.0 ng/mL and 65.4 years (C). The difference in mean age between group A (atrophy) and C (PCa) was statistically significant ($p = 0.045$). No correlation was found between PSA and presence or extent of PIN and/or PCa either in the general population (A + B + C) or in the PCa and PIN group (B + C). The presence of PIN was associated with concurrent prostate cancer ($p = 0.003$). Serum PSA level in the general population correlated with the extent of atrophy ($p = 0.022$) and CI ($p = 0.009$).

Conclusions: In this group of patients, preoperative serum PSA level does not correlate with the presence or absence, and extent of PCa and PIN. Atrophy and chronic inflammation are strong contenders for the PSA released into the serum at an increased level. PSA is a marker useful to follow up men with cancer, although its value as screening and staging tool is questionable.

**Editorial Comment**

The hypothesis that atrophy is a strong contender for the PSA release into the serum is challenging. We have just finished a paper dealing with this subject.

There is evidence that age associated prostatic atrophy may be a manifestation of chronic ischemia due to local arteriosclerosis (1-4). In autopsies, there is a positive and statistically significant association between intense local arteriosclerosis and presence and extent of atrophy (1). The aim of our study was to find any

association between extent of atrophy in prostate needle biopsies and serum prostate-specific antigen (PSA) levels (total, free or free/total ratio).

The study was based on 136 needle prostatic biopsies corresponding to 123 patients. The only diagnosis in all biopsies was focal prostatic atrophy without presence of cancer, high-grade prostatic intraepithelial neoplasia (HGPIN), suspicious for cancer, or prostatitis. The data were analyzed subdividing the patients into 2 groups: with free/total serum PSA ≥ 0.15 (Group 1, 61 biopsies), and with free/total PSA < 0.15 (Group 2, 75 biopsies). The extent of atrophy was evaluated considering either the absolute number or the percentage of cores showing the lesion. Polynomial regression or simple correlation were applied using in each analysis the most suitable function that best fitted to the distribution of the data.

Group 1: there was a positive and statistically significant correlation between extent of atrophy and either free ($p = 0.0076$ and $p = 0.0210$, respectively, for parabolic and linear functions) or free/total PSA ($p = 0.0068$ and $p = 0.0085$, respectively, for 4th degree and parabolic functions); no correlation was found for total PSA. Group 2: no significant correlation was found between extent of atrophy and free, total or free/total PSA.

Considering that age associated prostatic atrophy may be a manifestation of chronic ischemia due to local arteriosclerosis, the results suggest that chronic ischemia may be involved in free PSA serum level elevation in patients with several needle biopsies showing only prostatic atrophy and free/total PSA ≥ 0.15.

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

## INVESTIGATIVE UROLOGY

**A dose-dependent dual effect of oestrogen on voiding in the male mouse?**

Streng TK, Talo A, Andersson KE, Santti R
Department of Anatomy, Institute of Biomedicine, University of Turku, Turku, Finland

*BJU Int. 2005; 96: 1126-30*

Objectives: To explore the effect of different degrees of oestrogenization on male voiding, by treating adult castrated and 5alpha-dihydrotestosterone (DHT)-maintained male mice with different doses of oestrogens, as exposure of male mice to excessive amounts of oestrogens can cause bladder outlet obstruction (BOO); in addition, male mice lacking oestrogen receptor (ER)alpha (ERKO) or ERbeta (BERKO) were studied to assess the importance of ER subtypes.

Materials and Methods: Castrated, DHT-maintained adult mice were treated with 17beta-oestradiol (E(2); 50 and 250 microg/kg) or oestrone (E(1); 5, 50 and 500 microg/kg) daily for 10 days. Control mice were treated only with the vehicle. BERKO and ERKO mice, and their wild-type littermates used as their controls, remained untreated. Under anaesthesia, the bladder and distal urethra were exposed to record simultaneously the bladder pressure and urinary flow rate from the distal urethra.

Results: E(2)-treated mice showed obstructive voiding, seen as increased bladder pressure, decreased average flow rate and prolonged micturition time. This was also evident when a high dose (500 microg/kg) of E(1) was used. After treatment with a dose of 50 microg/kg, the urodynamic variables were similar to those in the control mice. Surprisingly, after treatment with a low dose (5 microg/kg) all urodynamic variables improved. There was a minor increase in the bladder pressure in BERKO mice; ERKO mice had a significantly lower urinary flow rate.

Conclusions: High doses of oestrogens caused BOO in castrated, DHT-maintained male mice. A small dose of E(1) had a positive effect on voiding, suggesting that oestrogens are needed for normal male voiding. Reduced urinary flow rates in ERKO mice suggest that oestrogen effects on voiding are mediated at least partly via ERalpha.

**Editorial Comment**

Previous investigation using neonatal DES treatment demonstrated that vesical smooth muscle contractility was not significantly affected (1). However, our results (2) showed that neonatal DES led to a significant vesical extracellular matrix remodeling, which is in line with reports using infravesical surgical obstruction (3,4). Thus, neonatal DES may be an adequate vesical obstruction model, at least with regard to extracellular matrix changes.

The results of the present well done investigation suggest that the effects of estrogens may be dual and dose-dependent. The authors confirmed the obstructive effect of high doses of $E_2$ in adult castrated male mice maintained with DHT. On the other hand, when the mice were treated with the low dose of E1 the variables measured showed no sign of obstructive voiding. The ERKO mice had lower urinary flow rates and the BERKO mice had a higher mean bladder pressure than their wild-type littermates used as controls. As conclusion, the authors proposed that apart of high doses of estrogens determine obstruction; estrogens may be also needed for normal voiding of the male mouse.

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

**Anatomical risks of transobturator suburethral tape in the treatment of female stress urinary incontinence**

Delmas V
Institut d'Anatomie, UFR biomedicale, Universite Paris 5, Service d'Urologie, Hopital Bichat, Paris
*Eur Urol. 2005; 48: 793-8*

Introduction: The objective of this study was to define the anatomical structures crossed by transobturator tape.

Materials: Ten fresh, female anatomical subjects aged 74 to 89 years.

Methods: Transobturator tape was inserted by outside-in way. The position of the tape was verified by perineal and abdominal dissection.

Results: Transobturator tape has a transverse course. It crosses the adductor muscles close to their pubic insertion and passes over the inferior border of the obturator foramen by crossing the obturator membrane, before reaching the middle plane of the perineum after having crossed the obturator internus muscle. The tape passes above the internal pudendal pedicle and then under the levator ani muscle, under the tendinous arch of the pelvic fascia and continues in the middle third of the urethrovaginal septum. It avoids femoral and obturator vessels in the thigh and pudendal vessels in the perineum.

Conclusion: The anatomical course of transobturator tape shows that the anatomical structures crossed by the tape are muscle and fascia and, when the technique is performed correctly, no major neurovascular structures are in contact with the tape.

**Editorial Comment**

All versions of Tension-free Vaginal Tape present a risk of vesical, vascular, or intestinal lesions. Alternatively, a new transobturator approach has been proposed. Doctor Vincent Delmas, well-known anatomist and urologist, after studying 10 female subjects, presented a thorough study on the course of transobturator tape and identified the anatomical problems encountered. The author concluded that from an anatomical standpoint, the transobturator tape is much safer than any retropubic tape techniques. I strongly recommend carefully read of this paper for all surgeons involved with urethropexy for treating stress urinary incontinence.

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

## UROLOGICAL ONCOLOGY

**Interobserver discrepancy using the 1998 World Health Organization/International Society of Urologic Pathology classification of urothelial neoplasms: practical choices for patient care**

Murphy WM, Takezawa K, Maruniak NA
Department of Pathology, University of Florida College of Medicine, Gainesville, Florida, USA
*J Urol. 2002; 168: 968-72*

Purpose: Morphological classifications designed by experts to stratify neoplasms according to biological potential must define categories that are reproducible among practitioners or the schemes actually create the

heterogeneous populations that they seek to avoid. The application of the 1998 World Health Organization/ International Society of Urologic Pathology scheme for urothelial neoplasms was studied in a community practice setting. We documented interpretive discrepancies for each category of neoplasm and determined whether a period of pathologist education may have a positive effect on the frequency of discrepant interpretations. The results suggest that patients may benefit from modifying the classification system.

Materials and Methods: A consecutive series of specimens was divided into learning and study sets that were each independently examined by 3 pathologists. Specimens in the learning set were interpreted without previous structured education, while those in the study set were interpreted immediately after intensive education. Interpretations for each specimen were compared and interpretive discrepancies were analyzed.

Results: Case distribution after education was similar among the pathologists but interpretations for any particular specimen often differed. The level of interpretive discrepancies varied according to the morphological similarity among categories in the classification scheme and was not necessarily decreased by education. When pathologists were required to discriminate between papillary urothelial neoplasm of low malignant potential and low grade carcinoma, the discrepancies were 50% after education compared with 39% before education. In contrast, there were no discrepancies when the discrimination was between papillary urothelial neoplasm of low malignant potential and high grade carcinoma or carcinoma in situ. Eliminating categories with poor reproducibility markedly improved the likelihood of unanimous agreement among practitioners but a probably irreducible level of 10% discrepancies remained.

Conclusions: The 1998 World Health Organization/International Society of Urologic Pathology classification of urothelial neoplasms requires certain discriminations that cannot be reliably made by practitioners. Modifying the scheme to create categories of low grade neoplasm and high grade carcinoma would markedly increase its practical value to patients without significantly altering patient care.

**Editorial Comment**

In 1998, the WHO/International Society of Urological Pathology decided upon a new classification of urothelial neoplasms. Upon reviewing the literature on this subject, I came upon this reference, which gives some insight into the difficulties with classification systems of urothelial neoplasms in general, and with the new classification in special.

After education of pathologists, general agreement on low malignant potential papillary urothelial neoplasms was achieved in 39%, on low grade carcinomas in 23%, whereas agreement was achieved on high grade carcinomas and carcinoma in situ in 80% and 77%, respectively.

For the urologist this means that the information on dangerous carcinomas is quite reliable whereas it is rather unreliable in more benign disease – these however make more than 70% of our cases.

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

**Intermediate term biochemical progression rates after radical prostatectomy and radiotherapy in patients with screen detected prostate cancer**

Krygiel JM, Smith DS, Homan SM, Sumner W 2nd, Nease RF Jr, Brownson RC, Catalona WJ
Waterman Research Solutions, St. Louis, Missouri, USA
*J Urol. 2005; 174: 126-30*

Purpose: We compared biochemical progression rates measured by increasing prostate specific antigen (PSA) levels using a standard definition of biochemical recurrence among patients with screen detected prostate cancer treated with radical prostatectomy (RP) or radiotherapy (RT).

Materials and Methods: A total of 1,939 patients diagnosed with clinically localized prostate cancer in a community based screening study from 1989 to 1998, followed through 2001, were treated with RP or RT and agreed to enroll in a followup study. This prospective cohort study (median followup 62 months, range 0.2 to 141) used adjusted Cox proportional hazards models to examine time to progression. Selection bias was addressed with propensity scores. Biochemical evidence of cancer progression was defined as PSA greater than 0.2 ng/mL in patients who underwent RP and 3 consecutive PSA increases as recommended by the American Society for Therapeutic Radiology and Oncology criteria for radiotherapy.

Results: Of the patients 17% had evidence of cancer progression. The percentage with progression-free survival at 5 and 9 years for RP was 84% and 76%, respectively, and for RT 80% and 70%, respectively. Cox proportional hazards models produced a hazard ratio of 1.63 (95% CI, 1.12, 2.38) for RT compared with RP, adjusting for clinical stage, Gleason grade, preoperative PSA, biopsy age, treatment year and propensity for treatment type.

Conclusions: With intermediate term followup, patients treated with RT were more likely to have cancer progression than with RP adjusting for demographics, clinical factors, selection bias and treatment year.

**Editorial Comment**

This paper is an example on the importance to read critically to cautiously interpret any comparison between two therapeutic options.

Here, the outcomes of a large cohort of patients (1,939 patients) treated with radical prostatectomy (RP) or radiation therapy (RT) was compared retrospectively. No information on radiation technique or doses applied are given. On first view, RP fared better than RT. However, no information on “censored” patients is given, and with 282 patiens in the RT group vs 1657 in the RP group it is tempting to assume that after 60 months no meaningful comparison is possible.

What remains is that with either therapeutic possibility, the progression-free outcome is not better than 70% after 10 years.

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

**Bacillus Calmette-Guerin versus chemotherapy for the intravesical treatment of patients with carcinoma in situ of the bladder: a meta-analysis of the published results of randomized clinical trials**

Sylvester RJ, van der Meijden AP, Witjes JA, Kurth K
European Organization for the Research and Treatment of Cancer Data Center, Brussels, Belgium
*J Urol. 2005; 174: 86-91; discussion 91-2*

Purpose: We determined the short-term and long-term efficacy of bacillus Calmette-Guerin (BCG) and chemotherapy in the treatment of patients with carcinoma in situ (CIS).

Materials and Methods: A meta-analysis was performed on published results of randomized clinical trials comparing intravesical BCG to intravesical chemotherapy.

Results: Nine randomized trials including 700 patients with CIS compared BCG to either mitomycin C (MMC), epirubicin, adriamycin, or sequential MMC/adriamycin. Of 298 patients on BCG 203 (68.1%) had a complete response compared with 158 of 307 patients on chemotherapy (51.5%), a reduction of 47% in the odds of nonresponse on BCG (OR 0.53, p = 0.0002). Based on a median followup of 3.6 years, 161 of 345 patients on BCG (46.7%) had no evidence of disease compared with 93 of 355 patients on chemotherapy (26.2%), a reduction of 59% in the odds of treatment failure on BCG (OR 0.41, p < 0.0001). Although the long-term benefit of BCG was smaller in trials with MMC, BCG was superior to MMC in trials with maintenance BCG (OR 0.57, p = 0.04). The reduction of 26% in the risk of progression on BCG (p = 0.20) is consistent with the reduction of 27% (p = 0.001) previously reported in a larger superficial bladder cancer meta-analysis.

Conclusions: Intravesical BCG significantly reduces the risk of short and long-term treatment failure compared with intravesical chemotherapy. Therefore, it is considered to be the intravesical agent of choice in the treatment of CIS.

**Editorial Comment**

Sylvester and coworkers from the EORTC present another extraordinary paper on patients outcomes with superficial bladder cancer. This metaanalytic calculation of all published data on intravesical treatment of CIS reveals that chemotherapy is clearly inferior to immunotherapy with BCG with regard to recurrence, and, more importantly, with regard to progression.

Clearly, these high-risk patients deserve maintenance BCG therapy. If recurrence, or worse, progression occurs while under maintenance therapy, immediate radical cystectomy is justified.

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

## FEMALE UROLOGY

### What is the value of cystoscopy with hydrodistension for interstitial cystitis?

Ottem DP, Teichman JM
Division of Urology, Providence Health Care, University of British Columbia, Vancouver, British Columbia, Canada
*Urology. 2005; 66: 494-9*

Objectives: To determine the utility of cystoscopy with hydrodistension for the diagnosis and therapy of interstitial cystitis. Cystoscopy with hydrodistension is the most commonly performed diagnostic test and procedure in patients with interstitial cystitis.

Methods: Eighty-four consecutive patients with interstitial cystitis (68 women and 16 men) were studied retrospectively. The patients underwent history and physical examination, urinalysis, and urine culture and filled in a voiding diary and pain urgency frequency questionnaire. Cystoscopy with hydrodistension was performed in 47 patients. Patients who had and had not undergone hydrodistension were compared. Patients who underwent hydrodistension were characterized and followed up for response.

Results: The mean patient age was 41 years, mean daily voided volume was 98 mL, mean number of nocturnal episodes was 3, and pain urgency frequency score was 21. Comparing patients undergoing versus not undergoing hydrodistension, pain was reported in 61% versus 25% (P = 0.03), vaginal pain in 62% versus 32%

(P = 0.02), and dyspareunia or ejaculatory pain in 67% versus 29% (P < 0.01), respectively. All other parameters were statistically similar. Of the patients undergoing hydrodistension, 43 had follow-up and 24 (56%) reported improvement (mean duration of 2 months). Of the patients with and without improvement, no difference was found in mean age (40 versus 46 years, P = 0.20), duration of symptoms (7 versus 7 years, P = 0.92), anesthetic capacity (722 versus 721 mL, P = 0.99), or glomerulation grade (P = 0.61), respectively.

Conclusions: Cystoscopy with hydrodistension provided little useful information above and beyond the history and physical examination findings. As therapy, 56% of patients reported improvement, but the duration was short lived.

**Editorial Comment**

The authors describe their contemporary experience with cystoscopy and hydrodistention. They utilize a technique of filling for 2 minutes at 100 cm pressure and then draining and repeating the process. Their bleak long term results, in addition to the companion review in this issue on SNS, highlight the challenge of this disease. Many advocate the use of normal saline as the instillate when hydro distending the bladder to minimize potential complication if there should be a bladder disruption.

***Dr. Steven P. Petrou***
*Associate Professor of Urology*
*Mayo Medical School*
*Jacksonville, Florida, USA*

**Sacral neuromodulation: long-term experience of one center**

Elhilali MM, Khaled SM, Kashiwabara T, Elzayat E, Corcos J
Royal Victoria Hospital, McGill University, Montreal, Quebec, Canada
*Urology. 2005; 65: 1114-7*

Objectives: To perform a retrospective analysis of the long-term results of our experience with neuromodulation. Our center has been involved in the early studies leading to approval of the NeuroStim system of neuromodulation for the treatment of patients presenting with refractory lower urinary symptoms of urgency/frequency with or without incontinence and chronic urinary retention.

Methods: A total of 52 patients have undergone implantation at our center since 1990 using very rigid criteria, including temporary percutaneous nerve evaluation for up to 7 days and a requirement of 50% improvement before consideration for implantation. Patients were followed up closely and a telephone questionnaire was conducted for those patients not seen in the previous 6 months. Of the 52 patients, 11 were not available for evaluation. Of the 41 remaining patients, 22 had urgency/frequency syndrome, 6 had urgency incontinence, 9 had urinary retention, and 4 had interstitial cystitis with intractable pelvic pain.

Results: Of the 41 patients, 5 required explantation. These 5 patients were offered reimplantation but declined. Of the 22 patients in the urgency/frequency group, 10 (45%) had persistent improvement. In the urgency incontinence group, 3 of the 6 patients required explantation, and 1 (17%) reported improvement in the frequency of incontinence episodes. Of the 9 patients in the chronic urinary retention group, 7 (78%) had improvement.

Conclusions: The long-term (up to 13 years) results of neuromodulation in patients presenting with urgency/frequency with and without urge incontinence and urinary retention were reviewed. The long-term results in the first two groups were not maintained over time. The patients with chronic urinary retention, although a small sample, fared better.

**Editorial Comment**

The authors report on the long-term results of patients treated with sacral neuromodulation for lower urinary tract voiding dysfunction. The authors noted that the greatest success of this therapeutic modality was in patients with chronic urinary retention. They had a less degree of efficacy in patients treated with urgency and frequency and minimal success in patients with urinary urge incontinence.

This is an excellent paper reporting on the long-term results on sacral neuromodulation. It makes excellent reading for those physicians interested in the application of this technology in their practice. It highlights the efficacy of this therapy in the voiding dysfunction of urinary retention and the disappointing results when applied for pelvic pain or urinary urge incontinence. The discussion section is excellent especially in its efficient review of the literature available of the long-term results for chronic sacral neuromodulation. It is quite thought provoking that the technology had its highest success rates in a potentially idiopathic disease process.

***Dr. Steven P. Petrou***
*Associate Professor of Urology*
*Mayo Medical School*
*Jacksonville, Florida, USA*

## PEDIATRIC UROLOGY

**Diagnosis of pediatric urolithiasis: role of ultrasound and computerized tomography**

Palmer JS, Donaher ER, O'Riordan MA, Dell KM
Division of Pediatric Urology, Rainbow Babies and Children's Hospital, Cleveland, Ohio 44106, USA

*J Urol. 2005; 174 (4 Pt 1): 1413-6*

Purpose: Pediatric urolithiasis is believed to be uncommon, and may present without the classic symptoms of renal colic. The objectives of this study were to describe the presenting features and radiographic evaluation of pediatric urolithiasis, and to determine the accuracy of ultrasound and unenhanced computerized tomography (CT) in detecting urolithiasis.

Materials and Methods: We retrospectively reviewed the charts of children 0 to 18 years old with urolithiasis. Data collected included age, sex, race, presenting symptoms, radiographic studies performed during initial evaluation, calculus location and family history of urolithiasis.

Results: A total of 75 patients had complete data for analysis. Of these patients 54 (72%) had urolithiasis symptoms (flank pain, gross hematuria or both). Patients with urolithiasis symptoms were older at diagnosis (median age 11.9 years vs 1.0 years, $p < 0.001$) and were more likely to have a family history of urolithiasis (54% vs 14%, $p = 0.002$). The 39 CTs performed were accurate in detecting calculi in children with urolithiasis symptoms (96% to 100%) and in those without symptoms (100%). The 36 ultrasounds performed had more variable accuracy in children with urolithiasis symptoms (33% to 100%) vs those without symptoms (89%). Ultrasound failed to detect urolithiasis in 41% of the patients with urolithiasis symptoms, compared to 5% with CT. CT was also highly accurate regardless of calculus location (89% to 100%), whereas ultrasound was again more variable (kidney 90%, kidney and ureter 75%, ureter alone 38%).

Conclusions: Ultrasound failed to detect calculi in 41% of the children with urolithiasis symptoms, whereas CT was highly accurate in all situations. Unenhanced CT should be performed in all children with persistent urolithiasis symptoms and nondiagnostic ultrasound.

**Editorial Comment**

The authors reviewed their experience with diagnosing urolithiasis in children. In this series, 75 patients were diagnosed with stones over a period of about 18 months. 54 patients had symptoms including 48 with pain and the others, hematuria. The most interesting group for comparing diagnostic modalities was the symptomatic patients. Of the 54 with symptoms, ultrasound made the diagnosis in 10/17 patients (59%) and CT made the diagnosis in 36/37 (97%). Ultrasound was more accurate in patients with renal stones alone (90%) and patients with renal and ureteral stones (75%), but only diagnosed 38% of those with ureteral stones. In contrast, CT was accurate in 89% of kidney stones alone, but in 100% of those cases of ureteral stones (including 6 with both renal and ureteral stones).

Non-contrast CT has largely replaced IVP (and ultrasound) in the evaluation of adults with symptoms consistent with urinary tract calculi. In contrast, most practitioners workup children with symptoms suggestive of calculi using ultrasound. This is primarily because of fears of radiation exposure in children. This series demonstrates that the diagnostic accuracy of ultrasound is unfortunately limited. Of course, in contrast to CT scans, ultrasound is much more operator dependent. It is unclear from this retrospective study where the ultrasounds were performed. Would truly expert pediatric sonographers have done better? If they did not see a ureteral stone, would they have seen enough hydronephrosis to suggest some form of ureteral obstruction that required further evaluation? This is unknown. However, even if so, when a patient is symptomatic in a local emergency department in a community hospital, it is impractical to have an expert pediatric ultrasonographer involved.

Considering that radiation exposure in children is a real issue (and non-contrast CT scans with thin cuts from the top of the kidneys all the way through the pelvis do expose children to a fair amount of radiation), it is still reasonable to obtain an ultrasound initially in a child with a probable calculus by history. However, this study teaches us that, if the ultrasound is negative and the symptoms are suggestive, a non-contrast CT is appropriate.

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

**Balanitis xerotica obliterans in boys**

Gargollo PC, Kozakewich HP, Bauer SB, Borer JG, Peters CA, Retik AB, Diamond DA
Department of Urology, Children's Hospital Boston, Boston, Massachusetts, USA
*J Urol. 2005; 174 (4 Pt 1): 1409-12*

Purpose: Balanitis xerotica obliterans (BXO) is a chronic dermatitis of unknown etiology most often involving the glans and prepuce but sometimes extending into the urethra. We report our 10-year experience with BXO in pediatric patients.

Materials and Methods: Our pathology database was queried for all tissue diagnoses of BXO from 1992 to 2002. Available charts were reviewed and patient presentation, clinical and referral history, operative procedure(s) and postoperative course were recorded.

Results: A total of 41 patients had a tissue confirmed diagnosis of BXO. Median patient age was 10.6 years. Of the patients 85% were 8 to 13 years old and all had referrals available for review. The most common referral diagnoses were phimosis (52%), balanitis (13%) and buried penis (10%). No patient had the diagnosis of BXO at referral. Of the patients 19 (46%) underwent curative circumcision or redo circumcision and had no

recurrence at a mean followup of 12.5 months (range 1 to 57). A total of 11 patients (27%) had BXO involvement of the meatus and underwent circumcision combined with meatotomy or meatoplasty. Nine patients (22%) required extensive plastic operation(s) of the penis, including buccal mucosa grafts in 2.

Conclusions: The incidence of BXO in pediatric patients may be higher than previously reported, with the diagnosis rarely made by pediatricians. Our study demonstrates that older patients, those with BXO involvement of the meatus and those with a history of surgery for BXO tend to have a more severe and morbid clinical course.

**Editorial Comment**

The authors describe a retrospective analysis of their institutional experience with this disease process over 10 years. 41 cases were found and analyzed. The majority was referred for foreskin problems; none were diagnosed with BXO at the time of referral. Of the 41 patients, 23 (56%) had glans involvement and 15 (37%) had meatal involvement. Circumcision was curative (at least in the short-term) for most of the minor cases. However, when BXO involved the meatus, the disease process was much more serious and required more extensive repair.

BXO is largely underdiagnosed. The diagnosis can only be made histologically and many institutions do not require histological examine after routine circumcision. As such, many more cases may be occurring without being recognized. In our experience, BXO was found in many cases of meatal stenosis in patients with previous hypospadias surgery. Again, in most instances, the diagnosis was made only when biopsies of the area were sent for histological analysis. The etiology of the problem in these cases is unclear. Though most were operated on using older techniques, it is uncertain whether we will continue to see the problem in patients with current repairs who are followed for longer periods of time. In any event, when discovered, it appears that the entire involved area must be removed and the tissue replaced, either with uninvolved flaps or grafts. Indeed in the present series several patients required buccal mucosal grafts. Based on the seriousness of the problem and the effect of the diagnosis on prognosis, biopsy is recommended in all questionable cases.

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