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STONE DISEASE

A prospective randomized comparison of type of nephrostomy drainage following percutaneous nephrostolithotomy: large bore versus small bore versus tubeless

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Purpose: We compared postoperative outcomes among tubeless, conventional large bore nephrostomy drainage and small bore nephrostomy drainage following percutaneous nephrostolithotomy (PCNL) in a prospective randomized fashion.

Materials and Methods: Between January and June 2001, 30 patients undergoing PCNL were randomized to receive conventional large bore (20Fr) nephrostomy drainage (group 1, 10 patients), small bore (9Fr) nephrostomy drainage (group 2, 10 patients) or no nephrostomy drainage (group 3, 10 patients). Inclusion criteria included a single subcostal tract, uncomplicated procedure, normal preoperative renal function and complete stone clearance. Factors compared among the 3 groups were postoperative analgesia requirement, urinary extravasation, duration of hematuria, duration of urinary leak, decrease in hematocrit and hospital stay.

Results: The postoperative analgesic requirement was significantly higher in group 1 (217 mg) compared to groups 2 (140 mg, $p < 0.05$) and 3 (87.5 mg, $p < 0.0001$). Patients in group 3 had a significantly shorter duration (4.8 hours) of urinary leak through the percutaneous renal tract compared to patients in groups 1 (21.4 hours, $p < 0.05$) and 2 (13.2 hours, $p < 0.05$). Hospital stay was significantly shorter in group 3 (3.4 days) compared to groups 1 (4.4 days, $p < 0.05$) and 2 (4.3 days, $p < 0.05$). All 3 groups were similar in terms of operative time, duration of hematuria and decrease in hematocrit. Postoperative ultrasound did not reveal significant urinary extravasation in any case.

Conclusions: Tubeless PCNL is associated with the least postoperative pain, urinary leakage and hospital stay. Small bore nephrostomy drainage may be a reasonable option in patients in whom the incidence of stent dysuria is likely to be higher.

Editorial Comment

In an effort to reduce the morbidity of percutaneous nephrostolithotomy (PCNL), making it more competitive with ureteroscopy and SWL for the management of renal calculi, some practitioners have reduced the size of the post-PCNL nephrostomy tube or eliminated the tube altogether. Although tubeless PCNL has clear demonstrable advantages over traditional large bore, nephrostomy tubes with regard to hospital stay and pain medication requirements, the advantages of a small caliber nephrostomy tube have been less clear-cut in published trials. However, the use of a small caliber tube has the advantage of allowing reentry into the collecting system if needed, but potentially incurs less discomfort postoperatively.

Desai and colleagues performed a prospective, randomized trial comparing the three approaches to post-PCNL tube management in 30 patients undergoing uncomplicated PCNL requiring a single, subcostal percutaneous access. Although the three groups were comparable with regard to postoperative complications, the tubeless group required significantly less pain medication post-PCNL, the nephrostomy tract sealed quickest and hospital stay was shortest. However, the small caliber tube group had less pain and shorter duration of urine leakage compared with the than the large caliber group.

Although the study groups were small and the study perhaps underpowered to detect small differences between the groups, there clearly appeared to be an advantage to no nephrostomy tube or a small nephrostomy tube. The authors offered an algorithm for tube selection that provides a reasonable approach for tube selection

post-operatively. In cases in which a stone free status is fairly certain (for example, simple “pluck-and-run” procedures) after a relatively simple, bloodless procedure, the tubeless approach is a good option. For cases in which the stone is complex, the stone burden large or the procedure complicated or bloody, a large bore nephrostomy tube is advisable. For other procedures that are uncomplicated and not associated with a large blood loss (the majority of procedures), a small caliber nephrostomy tube is likely to reduce patient discomfort but does not preclude second look flexible nephroscopy in the event residual stones are detected.

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The effect of treatment strategy on stone comminution efficiency in shock wave lithotripsy

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J Urol. 2004; 172: 349-54

Purpose: The comminution of kidney stones in shock wave lithotripsy (SWL) is a dose dependent process caused primarily by the combination of 2 fundamental mechanisms, namely stress waves and cavitation. The effect of treatment strategy with emphasis on enhancing the effect of stress waves or cavitation on stone comminution in SWL was investigated. Because vascular injury in SWL is also dose dependent, optimization of the treatment strategy may produce improved stone comminution with decreased tissue injury in SWL.

Materials and Methods: Using an in vitro experiment system that mimics stone fragmentation in the renal pelvis spherical BegoStone (Bego USA, Smithfield, Rhode Island) phantoms (diameter 10 mm) were exposed to 1,500 shocks at a pulse repetition rate of 1 Hz in an unmodified HM-3 lithotripter (Dornier Medical Systems, Kennesaw, Georgia). The 3 treatment strategies used were increasing output voltage from 18 to 20 and then to 22 kV every 500 shocks with emphasis on enhancing the effect of cavitation on medium fragments (2 to 4 mm) at the final treatment stage, decreasing output voltage from 22 to 20 and then to 18 kV every 500 shocks with emphasis on enhancing the effect of stress waves on large fragments (greater than 4 mm) at the initial treatment stage and maintaining a constant output voltage at 20 kV, as typically used in SWL procedures. Following shock wave exposure the size distribution of fragments was determined by the sequential sieving method. In addition, pressure waveforms at lithotripter focus (F2) produced at different output settings were measured using a fiber optic probe hydrophone.

Results: The rate of stone comminution in SWL varied significantly in a dose dependent manner depending on the treatment strategies used. Specifically the comminution efficiencies produced by the 3 strategies after the initial 500 shocks were 30.7%, 59% and 41.9%, respectively. After 1,000 shocks the corresponding comminution efficiencies became similar (60.2%, 68.1% and 66.4%, respectively) with no statistically significant differences ($p = 0.08$). After 1,500 shocks, the final comminution efficiency produced by the first strategy was 88.7%, which was better than the corresponding values of 81.2% and 83.5%, respectively, for the other 2 strategies. The difference between the final comminution efficiency of the first and second strategies was statistically significant ($p = 0.005$).

Conclusions: Progressive increase in lithotripter output voltage can produce the best overall stone comminution in vitro.

Editorial Comment

Surprisingly little progress has occurred in lithotripter technology over the last 2 decades, and even less has translated into improved clinical success. However, recent efforts have been underway to not only improve technological aspects of lithotripters but to optimize treatment parameters to improve the efficiency and success of stone fragmentation.

Zhou and colleagues compared the efficiency of in vitro fragmentation of stone phantoms with a Dornier HM3 lithotripter using 3 different strategies for administering output voltage: stepwise increase in voltage, stepwise decrease in voltage and constant voltage, with all strategies delivering approximately the same overall acoustic dose. Although initially, fragmentation efficiency correlated with shock wave dosage, ultimately comminution efficiency was greatest when output voltage was increased in a stepwise fashion compared with a strategy of decreasing or constant voltage. These findings are consistent with 2 synergistic processes of stone fragmentation, one based on stress waves that are thought to be pivotal in initial stone fragmentation, and one based on cavitation that is responsible for completion of fragmentation to small, passable pieces.

These findings have yet to be validated in an animal model or in the clinical realm; however, they suggest that a strategy of a stepwise incremental increase in shock wave voltage output may provide for more effective stone fragmentation while potentially reducing tissue injury. This is encouraging news; perhaps by slowing the rate of delivery of shock waves as suggested by a recent randomized trial and incrementally increasing the output voltage during SWL, stone free rates may be improved without further risking tissue injury and without the need for new lithotripter technology.

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ENDOUROLOGY & LAPAROSCOPY

Clinical utility of dual active deflection flexible ureteroscope during upper tract ureteropyeloscopy

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Urology. 2004; 64: 430-4

Objectives: To evaluate the clinical utility of a dual active deflection ACMI DUR-8 Elite ureteroscope in a referral endourology practice.

Methods: Retrospective chart review was performed on 54 consecutive patients who underwent flexible ureteroscopy by a single surgeon (S.Y.N.) from February to July 2003. Cases in which standard flexible ureteroscopes alone could complete the procedure, cases in which standard flexible ureteroscopy could not complete the procedure and the DUR-8 Elite ureteroscope did, and cases in which both ureteroscopes failed to complete the procedure were analyzed.

Results: A total of 54 procedures were performed on 37 patients. Three cases were not analyzed because they were distal ureter procedures. Of the remaining 51 procedures, 6 were removed from analysis because they were second-look procedures. When classified by diagnosis, 27 patients had stones (79.4%), 5 had cancer

(14.7%), and 1 had hematuria (2.9%). The global success rate was 91.1%. The average use rate of the DUR-8 was 28.9%, and the success rate using the DUR-8 Elite was 69.2% in those cases in which it was necessary. Of the 13 cases in which the DUR-8 was used, 61.5% were for lower pole pathologic findings. The DUR Elite use and success rate in the lower pole was 57.1% and 75%, respectively. A statistically significant association was found between the diagnosis and procedure location ($P = 0.00128$).

Conclusions: Our preliminary data indicate that the dual deflecting DUR-8 Elite ureteroscope may be helpful in cases in which the single deflection flexible instruments fail to access and treat upper urinary tract pathologic findings.

Editorial Comment

The second actively flexible portion of the ureteroscope used by the authors provides an additional 170 degrees of flexion in one direction. The authors clearly demonstrate the utility of this device in their hands. In almost 1/3 of cases, the authors had sub-optimal access with the standard (single actively flexible joint) ureteroscope, and the dual active deflection ACMI DUR-8 Elite ureteroscope was used. About half of the uses of the DUR-8 were for inability to access a calyx (usually lower pole), and about half were because even the 200 micron laser fiber restricted flexion of the standard ureteroscope and the extra flexion of the DUR-8 was needed. Overall, the DUR-8 was successful 2/3 of the time it was used. We have trialed the DUR-8 and other dual active deflection ureteroscopes at our institution but have not yet made a purchase. We have found that failure to access a calyx is uncommon with a good-condition single active deflection ureteroscope and patience. When access is not possible, stones can generally be moved with a nitinol tiplless basket (which can get to a stone even when it can barely be seen through the ureteroscope). Moreover, with use of this stone displacement technique, stones in a location that push the limits of flexibility with the 200-micron laser fiber can be moved and addressed more effectively elsewhere. As such, we have less of a use for a dual active deflection ureteroscope than these authors do. That being said, in cases of tumor or large stones, where the lesions cannot be moved, these scopes would undoubtedly be of use. They probably do merit a place in the armamentarium of a busy endourologist.

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Laparoscopic versus open partial nephrectomy

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Urology. 2004; 64: 458-61

Objectives: To compare, retrospectively, the results of laparoscopic partial nephrectomy (LPN) to open partial nephrectomy (OPN) using a tumor size-matched cohort of patients. Limited data are available comparing LPN to OPN in the treatment of small renal tumors.

Methods: Between September 2000 and September 2003, 27 LPNs and 22 OPNs were performed to treat renal masses less than 4 cm. Patient demographics and tumor location and size (2.4 ± 1.0 cm versus 2.9 ± 0.9 cm, respectively; $P =$ not statistically significant) were similar between the LPN and OPN groups.

Results: Although the mean operative time was longer in the LPN than in the OPN group (210 ± 76 minutes versus 144 ± 24 minutes; $P < 0.001$), the blood loss was comparable between the two groups (250 ± 250 mL versus 334 ± 343 mL; $P =$ not statistically significant). No blood transfusions were performed in either group. The hospital stay was significantly reduced after LPN compared with after OPN (2.9 ± 1.5 days versus 6.4 ± 1.8 days; $P < 0.0002$), and the postoperative parenteral narcotic requirements were lower in the LPN group (mean morphine equivalent 43 ± 62 mg versus 187 ± 71 mg; $P < 0.02$). Three complications occurred in each group. With LPN, no patient had positive margins or tumor recurrence. Also, direct financial analysis demonstrated lower total hospital costs after LPN ($\$4839 \pm \1551 versus $\$6297 \pm \2972 ; $P < 0.05$).

Conclusions: LPN confers several benefits over OPN concerning patient convalescence and costs, despite prolonged resection times at our current phase of the learning curve. Long-term results on cancer control in patients treated with LPN continue to be assessed.

Editorial Comment

Laparoscopic nephron sparing surgery is here to stay! Although other comparative studies have been published, this study is notable for the remarkable similarity between the open and laparoscopic groups. The data suggest that the safety and efficacy of the laparoscopic procedure is equivalent to that of open surgery, with improved convalescence and reduced cost. In addition, the authors are not part of the original group that started performing this procedure in the mid-to-late 1990's. They are part of the second wave of skilled laparoscopic surgeons who have better training, have learned from the efforts of the pioneers, and have successfully incorporate laparoscopy into routine oncologic practice. At large centers with advanced laparoscopy, laparoscopic partial nephrectomy is now the standard approach to all but the most central of small renal masses. The enthusiasm for the procedure must not overcome good surgical practice, however. The difficulty of laparoscopic partial nephrectomy increases dramatically as tumors are deeper and more central. Each surgeon must establish individual "comfort zones" with the lesion that he or she can tackle laparoscopically. In the early experience at our own institution, we overestimated our technique after a series of challenging but successful cases - only to have some major hemorrhagic complications (the complication that typically rewards the overconfident surgeon in this procedure). We backed off, altered our technique, slowly advanced again, and are now routinely performing laparoscopic partial nephrectomies that would have failed with our technique of only a year ago. Renal hilar clamping and laparoscopic suturing are, despite great efforts to simplify the technique, still required for deep resections with the current technology. There is great hope that future advances will reduce the technical requirements, and risk, of laparoscopic partial nephrectomy.

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IMAGING

Comparison of 3 different methods of anesthesia before transrectal prostate biopsy: a prospective randomized trial

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J Urol. 2004; 172: 502-5

Purpose: Periprostatic nerve block (PNB) is the most common anesthesia technique used before prostate biopsy. However, needle punctures for anesthetic infiltration may be painful and cause higher infectious complications. We assessed whether addition of rectal lidocaine gel would improve its efficacy. We also investigated the efficacy and safety of tramadol, a codeine derivative, as a noninvasive method.

Materials and Methods: A total of 300 patients who underwent prostate biopsies were randomized into 4 groups of controls, PNB, perianal/intrarectal lidocaine gel plus PNB and tramadol. Pain was assessed with a numeric analog scale.

Results: Each group consisted of 75 patients, and there was a statistically significant difference among pain scores ($p = 0.001$). Mean pain scores were 4.63 for controls, 2.57 for PNB, 2.03 for infiltration plus gel group and 3.11 for tramadol. Pain and discomfort were least in PNB plus gel arm. The difference of pain score between PNB alone and tramadol group did not reach statistical significance. Infectious complications were higher in the combination group, whereas there were no complications with tramadol.

Conclusions: Any form of analgesia/anesthesia was superior to none. The combination of PNB plus gel provided significantly better analgesia compared to PNB alone or tramadol. If this can be duplicated in other trials, the combination may be accepted as the new gold standard of anesthesia for prostate biopsy. The efficacy of tramadol was similar to that of PNB, and was free of complications. Therefore, tramadol may have a role before prostate biopsy, which needs to be explored.

Editorial Comment

Several methods with different approaches have been used in the recent years in order to obtain analgesia/anesthesia for transrectal ultrasound guided biopsy of the prostate. The authors compared in a prospective randomized trial, three different methods of anesthesia before transrectal prostate biopsy and they achieved significantly better analgesia with the combination of periprostatic nerve block and intrarectal injection of lidocaine gel. They also proposed the use of intravenous infusion of tramadol as an additional procedure for improvement of patient tolerance and comfort. If there is any doubt about the benefit of using local anesthesia for prostatic biopsy this article definitely cleared this out. At our institution periprostatic lidocaine injection has been performed since April 2000. Differently from the method showed in this article where periprostatic nerve block was performed by infiltrating 2.5 cc of 2% lidocaine to the neurovascular bundle at the base of the prostate, we inject 2.5 cc of lidocaine on each side of the prostate apex. This approach has been used due the fact that in our opinion, patient discomfort during biopsy without anesthesia is higher when the prostate apex is biopsied in comparison with the prostate base(1). Following the same principles pointed out by the authors, 500 mg of paracetamol (acetaminophen; nonopiate, nonsalicylate analgesic) is orally administered, 30 minutes before the procedure. Although less potent than tramadol, paracetamol is generally well tolerated and do not have adverse events such as nausea and vomiting which can occur with tramadol in some patients particularly in older ones. This article clearly shows that the association of some type of periprostatic nerve block with intrarectal injection of lidocaine gel is a much better method. Based on their results we decided to include the use of intrarectal injection of lidocaine gel in our protocol.

Reference

1. Schostak M, Christoph F, Muller M, Heicappell R, Goessl G, Staehler M, Miller K: Optimizing local anesthesia during 10-core biopsy of the prostate. *Urology*. 2002; 60: 253-7.

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Coronal imaging to assess urinary tract stone size

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J Urol. 2004; 172: 962-4

Purpose: Urinary tract stones are typically measured using axial images from computerized tomography (CT). Such images provide a precise measurement of stone length and width. However, cephalocaudad dimensions can be difficult to determine from axial images. Coronal reconstructions, which can more accurately measure cephalocaudad dimensions, are seldom used to measure stones. We determined if coronal reconstructions could aid in more precisely determining stone size.

Materials and Methods: CT in patients who had undergone CT to evaluate urolithiasis at our institution during the 9-month period of January 2001 to September 2001 were reviewed. Length and width were measured using axial images, and cephalocaudad length and width were measured using coronal reconstructions. Cephalocaudad length was also estimated from axial images. Total area was calculated from axial and coronal reconstructions. The paired t test was used to assess statistical significance.

Results: The CT images of 102 patients with a total of 151 stones had undergone coronal reconstructions and, thus, were included in the study. Mean area in the axial and coronal reconstruction groups was 22.23 and 31.29 mm³, respectively. Mean greatest axial dimension (length or width) was 4.87 mm and mean greatest coronal dimension (cephalocaudad length) was 6.51 mm. Cephalocaudad length estimated from axial images was 8.8 mm. Differences for all 3 of these comparisons (axial vs. coronal area, greatest axial vs. coronal dimension and estimated vs. actual cephalocaudad length) proved to be statistically significant ($p < 0.0001$).

Conclusions: While urinary tract stones have typically been measured using axial images, coronal images provide a different impression of stone size. These data demonstrate that examining only axial images provides an inaccurate measure of stone size. We suggest that coronal images should also be used to measure more accurately stone size, which is critical for clinical decision making.

Editorial Comment

The authors describe the impact on the estimation of the size of ureteral stone when this measurement is done also on coronal images. This is an important contribution since several studies have shown the accuracy of non-enhanced CT estimation of stone size using only the transverse plane (axial images). Size measurement and location of the stone in the ureter, are the most important determinants of therapy. The authors have shown that size measurement is precisely evaluated by non-enhanced CT, particularly when the coronal images are additionally used for obtaining an accurate volumetric measurement of the urinary calculi (greatest axial and craniocaudal length). An accurate determination of the size of the stone in the ureter is important since about 90% of stones 1 mm in diameter does pass, but less than 50% of stones larger than 7 mm pass. Urinary calculi located in the upper ureter and measuring 5 mm or more, usually do not pass spontaneously, whereas distal stones even if fairly large most often do pass. In general, stones larger than 6 mm commonly require intervention. In conclusion, radiologist should use both planes (axial and coronal) in order to obtain adequate measurement of stone size.

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UROGENITAL TRAUMA

Evaluation and management of renal injuries: consensus statement of the renal trauma subcommittee.

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BJU Int. 2004; 93: 937-54

Objective: To determine the optimal evaluation and management of renal injuries by review of the world's English-language literature on the subject.

Methods: A consensus conference convened by the World Health Organization and the Societe Internationale d'Urologie met to critically review reports of the diagnosis and treatment of renal trauma. The English-language literature about renal trauma was identified using Medline, and additional cited works not detected in the initial search obtained. Evidence-based recommendations for the diagnosis and management of renal trauma were made with reference to a five-point scale.

Results: There were many Level 3 and 4 citations, few Level 2, and one Level 1 which supported clinical practice patterns. Findings of nearly 200 reviewed citations are summarized.

Conclusions: Published reports on renal trauma still rely heavily on expert opinion and single-institution retrospective case series. Prospective trials of the most significant issues, when possible, might improve the quality of evidence that dictates the behaviour of practitioners.

Editorial Comment

Consensus conferences, using the so called "Cochrane Review Method" are becoming increasingly common, and may be useful to summarize intricate data sets such as how to manage complex genitourinary trauma. The technique is robust for several reasons. First, an attempt to read "every" published paper on the subject is made. Secondly, the manuscripts are carefully graded by "level of evidence" (Level 1=randomized trials; 2=prospective studies; 3=retrospective studies, 4=case series/case reports, 5=expert opinion). Third, consensus conference members are chosen with proven expertise in the field, all in order to maximize the value of the review. This particular review was sponsored by the World Health Organization (WHO) and was undertaken by the Societe Internationale d'Urologie (SIU), and represents thousands of hours of work.

In this review, over 1400 articles on the subject of renal injury were identified, although only 182 were ultimately cited in this review. Although the findings of this 14,000 word review are too numerous to discuss in detail here, I encourage readers who wish to understand the most modern and up to date treatment of renal injuries to obtain and read it. Interestingly, there were only a few prospective studies and only 1 randomized trial in existence across the whole trauma series. Clearly, the future of research in the field of genitourinary trauma will be best served by conducting prospective and perhaps even randomized studies into those questions most urgently requiring answers.

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Pediatric renal injuries: management guidelines from a 25-year experience

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J Urol. 2004; 172: 687-90

Purpose: We defined the mechanism and cause of pediatric renal trauma, and developed guidelines for management based on the outcome analysis of operative vs nonoperative management.

Materials and Methods: We retrospectively reviewed 374 pediatric renal injuries at San Francisco General Hospital, comparing operative vs nonoperative management based on clinical presentation, type of renal injury, hemodynamic stability, associated injuries and the results of radiographic imaging.

Results: Blunt trauma accounted for 89% of pediatric renal trauma with a renal exploration rate of less than 2%. Penetrating trauma represented the remaining 11% with a renal exploration rate of 76%. Of grade IV renal injuries 41% were successfully managed nonoperatively based on computerized tomography and staging in hemodynamically stable children. Our overall renal salvage rate was greater than 99%.

Conclusions: Pediatric renal trauma is often minor and observation poses no significant danger to the child. In serious pediatric renal injuries early detection and staging based on clinical presentation and computerized tomography are critical for determining operative vs nonoperative management. Regardless of the type of management the standard of care is renal preservation (less than 1% nephrectomy rate in this series).

Editorial Comment

This series, from the most reliable American center of excellence in GU trauma surgery, is one of the largest pediatric series ever published. The lessons from this series are clear:

1. Most (96%) blunt pediatric renal injuries of low severity (Grades I-III).
2. Overall, 41% of Grade IV injuries were managed nonoperatively (mostly blunt). Even some (24%) penetrating renal injuries were treated nonoperatively.
3. Few patients (1/37 explored, overall 1/374 patients seen) patients required a nephrectomy.
4. Worsening urinary extravasation required stent placement uncommonly—in only 1 case.

Large and authoritative series such as this lend further support for an initial nonoperative approach to most hemodynamically stable renal injuries, even in children. Patients with suspected Grade V vascular injuries (avulsion of the hilar vessels, and those that acutely require more than 3 units of blood, are the only absolute indications for surgery.

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PATHOLOGY

Bladder neck invasion is an independent predictor of prostate-specific antigen recurrence

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Cancer. 2004; 101: 1563-8

Background: The 1997 TNM staging system for prostatic carcinoma and the 2002 revision thereof classified prostatic carcinoma with bladder neck involvement classified as pT4 disease. This classification is based on the belief that tumors that invade surrounding structures are more aggressive and warrant higher staging than tumors that do not invade surrounding structures. Recent reports in the literature suggested that microscopic involvement of the bladder neck does not carry independent prognostic significance. Therefore, resection specimens with bladder neck involvement should not be classified as pT4. The current study prospectively examined the prognostic significance of bladder neck involvement by prostatic carcinoma.

Methods: The authors analyzed the totally embedded and whole-mounted radical prostatectomy specimens from 364 consecutive patients. The mean patient age was 66 years (range, 41-77 years). The bladder neck, which had been coned from the specimen, was cut in a perpendicular fashion. Involvement of the bladder neck was defined as the presence of neoplastic cells within the smooth muscle bundles of the coned bladder neck. The data were prospectively collected. Bladder neck involvement was analyzed in relation to age, preoperative prostate-specific antigen (PSA) level, prostate weight, Gleason score, final pathologic classification, tumor volume, surgical margin status, the presence of high-grade prostatic intraepithelial neoplasia, multifocality, seminal vesicle invasion, extraprostatic extension, perineural invasion, and PSA recurrence.

Results: Bladder neck involvement was found in 22 (6%) of 364 patients. Univariate results indicated that bladder neck involvement versus no bladder neck involvement was significantly associated with preoperative PSA ($P < 0.001$), higher pathologic classification ($P < 0.001$), larger tumor volume ($P < 0.001$), extraprostatic extension ($P < 0.001$), positive surgical margins ($P < 0.001$), and PSA recurrence ($P = 0.003$). In a multivariate logistic regression model controlling for pathologic classification, Gleason score, and surgical margin status, bladder neck involvement was an independent predictor of PSA recurrence ($P = 0.04$). The adjusted odds ratio for bladder neck involvement was 3.3 (95% confidence interval, 1.04-10.03).

Conclusions: In the current study, bladder neck involvement was an independent predictor of early PSA recurrence. The data demonstrated the importance of continued assessment of bladder neck invasion and supported the placement of tumors with bladder neck involvement in a stage that recognizes the prognostic implications of such involvement.

Editorial Comment

Recent studies have questioned the high risk for disease recurrence in cases of bladder neck involvement by the prostate cancer (pT4 disease) (1-4). The risk of recurrence conferred with bladder neck invasion appears not to be different from that with extraprostatic extension (pT3a) or seminal vesical invasion (pT3b).

In a recent study based on patients submitted to radical prostatectomy at our institution (4), we found that bladder neck involvement correlates with pathologic unfavorable findings on radical prostatectomy specimens as well as to preoperative PSA levels. However, the PSA-recurrence risk associated with bladder neck involvement (pT4) was similar to extraprostatic extension (pT3a) and substantially lower than seminal vesicle invasion (pT3b). Our findings favor a need for downstaging of bladder neck involvement in the next version of the TNM staging system.

The findings of Poulos et al. contradict our study and of other authors (1-4). The subject is controversial and demands further scrutiny. We believe that macroscopic or microscopic involvement of the bladder neck has different biologic implications. The original TNM classification considered as T4 the macroscopic involvement of the bladder neck. Today only microscopic involvement is seen on radical prostatectomies.

References

1. Yossepowitch O, Engelstein D, Konichezky M, Sella A, Livne PM, Baniel J: Bladder neck involvement at radical prostatectomy: positive margins or advanced T4 disease? *Urology*. 2000; 56: 448-52.

2. Dash A, Sanda MG: Prostate cancer involving the bladder neck: recurrence-free survival and implications for AJCC staging modifications. *Mod Pathol.* 2002; 15: 159A.
3. Yossepowitch O, Sircar K, Scardino PT, Ohori M, Kattan MW, Wheeler TM, et al.: Bladder neck involvement in pathological stage pT4 radical prostatectomy specimens is not an independent prognostic factor. *J Urol.* 2002; 68: 2011-15.
4. Billis A, Freitas LLL, Magna LA: Prostate cancer with bladder neck involvement: pathologic findings with application of a new practical method for tumor extent evaluation and recurrence-free survival after radical prostatectomy. *Int Urol Nephrol.* (in press).

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Prostate needle biopsies: multiple variables are predictive of final tumor volume in radical prostatectomy specimens

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Cancer. 2004; 101: 527-32

Background: Tumor volume is one of the most powerful predictors of patient outcome in prostatic adenocarcinoma. It is uncertain as to which preoperative variables are most predictive of final tumor volume at radical prostatectomy, especially among patients who have had positive biopsies at multiple biopsy sites. The current study attempted to identify the biopsy variables that are most predictive of final tumor volume.

Methods: The authors examined prostate biopsy specimens from 151 consecutive patients with at least 2 positive biopsy sites. The following data were collected: highest percentage of adenocarcinoma at any biopsy site, percentage of adenocarcinoma at the biopsy site with the highest Gleason score, highest percentage of cores positive for adenocarcinoma at any biopsy site, percentage of positive cores with carcinoma at the site with the highest Gleason score, number of positive sites, tumor bilaterality, and percentage of biopsy sites positive for disease. All patients underwent radical prostatectomy. The prostatectomy specimens were entirely embedded and whole mounted. Tumor volume was measured using the grid method. Logarithmic transformation was applied to tumor volumes for the purposes of the analysis.

Results: Highest percentage of adenocarcinoma at any biopsy site ($P = 0.012$), percentage of adenocarcinoma at the biopsy site with the highest Gleason score ($P = 0.021$), number of positive biopsy sites ($P = 0.026$), tumor bilaterality ($P = 0.008$), and percentage of biopsy sites positive for disease ($P = 0.0001$) all were significant predictors of tumor volume on linear regression analysis. Highest percentage of cores positive for adenocarcinoma ($P = 0.081$) and percentage of positive cores with carcinoma at the site with the highest Gleason score ($P = 0.240$) were not significant predictors of tumor volume. Based on the model F statistic, percentage of biopsy sites positive for tumor, tumor bilaterality, and highest percentage of adenocarcinoma at any biopsy site were the variables that were most predictive of tumor volume.

Conclusions: Highest percentage of adenocarcinoma at any biopsy site, percentage of adenocarcinoma at the biopsy site with the highest Gleason score, number of positive biopsy sites, tumor bilaterality, and percentage of biopsy sites positive for disease all are useful preoperative predictors of tumor volume in radical

prostatectomy specimens. Although these preoperative biopsy parameters were significant in linear regression models, none was sufficient as a single predictor of tumor volume.

Editorial Comment

The study by Poulos et al. showed that multiple pathologic findings seen in needle biopsies are predictive of final volume in radical prostatectomy specimens. The authors used the grid method for measuring tumor volume. Some institutions have calculated the tumor volume accurately, using computer-assisted image analysis systems. Because this method is not feasible for the routine clinical practice, other investigators have proposed alternative simpler means. The grid method is one of these alternative simpler means that measures tumor extent.

A number of studies have documented that the tumor extent, the volume or the percentage of prostatic tissue involved by the tumor within the prostate gland may be important prognostic indicators. However, the subject is controversial. Although most authors agree that tumor extension (percentage of carcinoma or tumor volume) in patients with prostate carcinoma should be reported in radical prostatectomies because of its prognostic importance, in some analyses, tumor size has not been considered to be an independent predictor of tumor recurrence (1,2).

References

1. Epstein JI, Carmichael M, Partin AW, Walsh PC: Is tumor volume an independent predictor of progression following radical prostatectomy? A multivariate analysis of 185 clinical stage B adenocarcinoma of the prostate with 5 years of follow-up. *J Urol.* 1993; 149: 1478-85.
2. Billis A, Magna LA, Ferreira U: Correlation between tumor extent in radical prostatectomies and preoperative PSA, histological grade, surgical margins, and extraprostatic extension: application of a new practical method for tumor extent evaluation. *International Int Braz J Urol.* 2003; 29: 113-20.

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INVESTIGATIVE UROLOGY

Intracavernosal injection of vascular endothelial growth factor improves erectile function in aged rats

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Eur Urol. 2004; 46: 403-7

Objectives: To investigate whether intracavernosal injection of vascular endothelial growth factor (VEGF) can restore erectile function in the aging rat.

Materials and Methods: Ten young (4-5 months) and 30 old (24 months) Sprague-Dawley male rats were used. The old rats were divided into 3 groups: vehicle-only (phosphate buffered saline plus 0.1% bovine serum albumin; n = 10), VEGF 1 microg/kg (n = 10), and VEGF 10 microg/kg (n = 10). At 2 and 4 weeks after

treatment, erectile function and histology were evaluated by hemodynamic study, histomorphometric analysis, and immunohistochemistry.

Results: After 4 weeks of treatment, the ratio of peak intracavernosal pressure to systemic arterial blood pressure in response to neurostimulation was significantly higher in both the VEGF 1 microg/kg (79.9 +/- 7.7%) and the VEGF 10 microg/kg group (76.8 +/- 5.8%) compared to the vehicle-only group (63.1 +/- 8.5%; $p < 0.05$). The percentage of cavernosal smooth muscle was significantly higher in the VEGF 10 microg/kg group (16.1 +/- 1.4%) compared to the vehicle-only group (12.8 +/- 2.2%; $p = 0.047$). VEGF treatment in old rats increased e-NOS and VEGF expression in both treatment groups.

Conclusion: Intracavernosal injection of VEGF appears to restore smooth muscle integrity and improve erectile function in aged rats.

Editorial Comment

This is an interesting and welcome study in the era of tissue engineering techniques. After old rats treatment as described, the authors elegantly evaluated through hemodynamic study, histomorphometric analysis and immunohistochemistry, whether an intracavernosal injection of VEGF could restore erectile function and whether it was related to trabecular structural changes in aged rats.

The authors found that intracavernosal injection of VEGF resulted in significant increases in intracavernous pressure in response to neurostimulation after 4 weeks in both VEGF treatment groups. VEGF treatment in old rats increased not only e-NOS and VEGF expression in endothelial lining, but also the percentage of corpus cavernosal smooth muscle. Thus, intracavernosal injection of VEGF improves penile erectile quality in aged rats.

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Fibrin glue for the suture-less correction of penile chordee: a pilot study in a rabbit model

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BJU Int. 2004; 94: 433-6

Objective: To evaluate the use of fibrin glue as a scaffold for patching defects in the tunica albuginea in a rabbit model for a future application in correcting chordee.

Materials and Methods: Nine New Zealand white male rabbits were utilized. All had a 15 x 5-mm defect created in the ventral tunica albuginea. Fibrin glue (1 mL) was applied to cover the defect in tunica albuginea and the penile skin closed with a continuous 5/0 chromic catgut suture. Animals were killed in groups of three at 2, 6 and 12 weeks afterward. The evaluation included an artificial erection test with intracavernosal injection of prostaglandin E1 (5 microg), cavernosography and histopathological examination of sections of the penis stained with haematoxylin and eosin or Masson trichrome.

Results: None of the rabbits died during the procedure or developed bleeding or haematoma afterward. All animals had straight erections on testing with prostaglandin (5 microg). There was no evidence of corporal narrowing or venous leakage on cavernosography. Histopathological evaluation showed evidence of the fibrin sealant layer, with angiogenesis and a cell infiltrate at 2 weeks. At 6 and 12 weeks there was completely normal regeneration of the tunica albuginea.

Conclusions: In this pilot study in a rabbit model the haemostatic effect of fibrin glue was confirmed on covering a defect in the tunica albuginea. Moreover, there was regeneration of normal tunica albuginea with no scarring at 6 weeks and maintained at 12 weeks. Further well-controlled studies are required before using fibrin glue for corporal body grafting to treat chordee.

Editorial Comment

Many materials have been investigated for corporal body grafting in surgical correction of chordee and Peyronie's disease (porcine small intestinal submucosa and tunica acellular matrix, as examples). This article evaluated the feasibility of using a commercially available fibrin glue ('Tisseel', Baxter Healthcare Corp., Irvine, California) for covering corporal body defects, with potential application in the surgical management of severe chordee. In rabbits, the results were excellent. Fibrin glue may be considered a suitable substance for corporal body grafting in the future.

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RECONSTRUCTIVE UROLOGY

Complete primary repair of bladder exstrophy: initial experience with 33 cases

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J Urol. 2004; 172(4 Pt 1): 1441-4; discussion 1444

Purpose: We evaluated our initial experience with complete primary repair of bladder exstrophy in 33 children.

Materials and Methods: Between 1998 and 2001, 33 children with classic bladder exstrophy were treated with 1-stage primary repair for the first time in all except 4, who had undergone previous failed initial bladder closure. Our series included 26 boys and 7 girls with a mean age of 2 months (range 3 weeks to 14 months). The bladder was closed in continuity with the urethra and complete penile disassembly was used for epispadias repair. Anterior transverse innominate osteotomy was performed in all cases. Combined general and caudal anaesthesia were applied in all cases with an indwelling epidural caudal catheter in 7.

Results: Median followup was 42 months (range 24 to 62). Enterocystoplasty was needed in 3 cases during primary repair of a small bladder plate. Wound dehiscence was not recorded. Bladder neck fistula was reported in 2 children, while urethral fistula was recorded in 1 boy. Abdominal ultrasound detected no hydro-nephrosis in all except 3 patients. Voiding cystourethrogram showed vesicoureteral reflux in 6 patients. No loss of renal function or febrile urinary tract infection was recorded. A dry interval of 3 hours or greater was reported in 24 children (72.7%), while 9 who were incontinent of urine after failed toilet training needed other procedures to achieve continence.

Conclusions: Complete primary repair with penile disassembly provides a good approach to achieve this purpose without the need for bladder neck reconstruction in some cases. Selection of the proper surgical technique together with adjunctive procedures such as osteotomy and a pain-free early postoperative period can maximize the chance of successful exstrophy repair.

Editorial Comment

Reconstruction of the bladder, bladder neck and urethra in bladder exstrophy patients is still a major challenge for a reconstructive urologist. The series presented here with 33 children out of whom 29 underwent a 1-stage primary repair for the first time is probably the largest series to date. All operations were done in boys and girls less than 14 months old. Preoperative assessment was simple with an intravenous pyelography or abdominal ultrasound. All surgical interventions were done by the same pediatric urologist in all cases. Apart from a well documented surgical technique, meticulous surgical handling was probably the most important factor for having better results than in many other series. There was a 76% continence rate in all children at a toilet trained age. Only three patients - those that underwent enterocystoplasty - were only continent on clean intermittent catheterization.

It is remarkable that incision of the muscular bladder wall is a possible way to increase bladder capacity in those children where the bladder template is too small. It is here that tissue engineering at some time may become useful when earlier (maybe in utero) biopsy harvests may be expanded in the laboratory to be used to increase the detrusor. The bulging or expanding mucosa usually is not the problem especially not in very young children.

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Lymphadenectomy with cystectomy: is it necessary and what is its extent?

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No Abstract Available

Editorial Comment

Several decades ago, well known urologic surgeons in the field made it clear that lymphadenectomy is an important part of anterior exenteration. It was, however, thought to be useful only for staging. More recent reports, however, both from the USA and Europe have shown that patients with minimal involvement of lymph nodes and curable primary transitional cell cancer of the bladder may survive even without further adjuvant treatment. This means that nodal disease defined as N-1 in the TNM system can be cured surgically, at least in some cases. In one larger report the authors even found the T-stage to be more important and the actual prognostic factor for survival regardless whether patients were staged as N-0 or N-1 [1]. This prompted some authors to propose an extension of pelvic lymphadenectomy cranially to the common iliac and the para-aortic region.

The para-aortic and especially the common iliac region were the main trunk of the sympathetic fibers supplying the hypogastric plexus could be found. The division of these fibers may lead to functional problems in the remnant urethra in patients undergoing an orthotopic neobladder after cystectomy [2]. The present paper by two well-known experienced surgeons is a well worked-up series of 200 patients undergoing radical cystectomy and extended lymphadenectomy. Only two surgeons performed all cystectomies, thereby reducing the possibility of an operator dependent variation. The nodes from each anatomic region were sent on a separate template for pathologic evaluation. It was demonstrated that none of the patients with minimal lymph node disease-and those were the ones that had a chance of cure-had nodal involvement outside the pelvic region.

They did find extrapelvic nodal disease, but in all cases these pN2 patients. Most of us agree with the authors' conclusion that these are not the patients which can be cured surgically.

For reconstructive purposes it is important that we can limit our lymphadenectomy in certain patients to a level where we do not have to dissect the sympathetic autonomic nerve supply to the hypogastric plexus and pelvic floor. Thereby functional results of an orthotopic neobladder and vagina can be improved without compromising oncological results.

References

1. Vieweg J, Gschwend JE, Herr HW, Fair WR: The impact of primary stage on survival in patients with lymph node positive bladder cancer. *J Urol.* 1999; 161: 72-6.
2. Stenzl A, Colleselli K, Bartsch G: Update of urethra-sparing approaches in cystectomy in women. *World J Urol.* 1997; 15: 134-8.

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UROLOGICAL ONCOLOGY

Post-brachytherapy transurethral resection of the prostate in patients with localized prostate cancer

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J Urol. 2004; 172: 108-11

Purpose: We assessed the rate and results of transurethral resection of the prostate (TURP) in patients previously treated with brachytherapy as monotherapy for localized prostate cancer.

Materials and Methods: From May 1998 to May 2003, 600 patients with localized prostate cancer were treated with brachytherapy at our institution. Brachytherapy was performed as monotherapy with curative intent for clinically localized prostate cancer without adjuvant treatment in patients with clinical stages T1c (68.4%) or T2a (31.6%) disease. -Iodine and palladium implants were used in 583 and 7 patients, respectively. A real-time interactive implantation technique was used in all but the first 17 patients, who were treated using a preplanned technique.

Results: Of the 600 patients 19 (3.1%) underwent TURP after brachytherapy. Among the patients with acute urinary retention the median interval between prostate brachytherapy and urinary retention was 2 months (range 0.5 to 32). No TURP was done within 6 months after implant. The median interval between prostate brachytherapy and TURP was 7 months (range 6 to 41) and median prostate specific antigen (PSA) before TURP was 0.5 ng/ml (range 0.04 to 3.4). In the 19 patients the median weight of resected prostatic tissue was 8 gm (range 2 to 19) and 1 to 11 seeds were removed (median 5). The perioperative and postoperative courses were uneventful. There was no TURP related incontinence. With a median followup of 28 months after brachytherapy (range 7 to 48) no patient had clinical or biochemical evidence of disease progression, and for the group of 19 patients who underwent TURP median serum PSA at the end of followup was 0.38 ng/ml (range 0.03 to 3.4).

Conclusions: After brachytherapy as monotherapy, TURP can be done safely if indicated. In our experience the resection of prostatic tissue along with a limited number of seeds at least 6 months after implantation did not impair PSA based biological and clinical results of brachy-therapy.

Editorial Comment

In rare instances TUR-P is necessary after brachytherapy for prostate cancer. According to the literature there is a high risk of incontinence in these patients. The authors addressed this point and stated that there is no major risk of TUR-P related incontinence after brachytherapy.

Even more interestingly, pathological examination of resected tissue showed mostly fibromuscular tissue with rare atrophic prostatic glands and no evidence of cancer in all patients except for one, who had persistent prostate cancer with gleason score of 8 on the TUR-P specimen 7 months after brachytherapy, thus contradicting for brachytherapy previous notes on external beam radiation that viable tumor tissue is detectable long-term after irradiation.

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Relationship between initial prostate specific antigen level and subsequent prostate cancer detection in a longitudinal screening study

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J Urol. 2004; 172: 90-3

Purpose: Previous studies of archived blood samples from nonscreened populations have shown an association between the prostate specific antigen (PSA) and the subsequent detection of prostate cancer. In the current study we evaluated the relationship between the initial screening PSA and the subsequent risk of prostate cancer detected in a prospective, longitudinal screening study. We also examined the relationship between initial PSA and the clinicopathological features of the cancers detected.

Materials and Methods: Between May 1991 and November 2001 we enrolled 26,111 volunteers in our PSA and digital rectal examination based prostate cancer screening study. The men were followed biannually or annually depending on the results of previous screening tests. The chi-square and Kruskal-Wallis tests were used to compare the clinical stage, pathological stage and Gleason score of subsequently detected prostate cancers as well as the time to cancer detection in different initial screening PSA strata.

Results: The initial screening PSA stratum was strongly associated with the subsequent detection of prostate cancer as well as the clinicopathological stage and grade of the cancers detected.

Conclusions: Even in the lower PSA ranges initial screening serum PSA can help identify men at increased risk for subsequent prostate cancer detected in a longitudinal screening study.

Editorial Comment

This paper is worthwhile reading for all urologists dealing with prostate cancer.

In this screening study the risk of prostate cancer is estimated dependent on the initial PSA value. Only 1% of men with initial PSA less than 1.0 ng/ml were subsequently diagnosed with prostate cancer. In contrast, more than half of the men with initial PSA greater than 10 ng/ml were subsequently diagnosed with cancer. 77% of those with initial PSA between 2.6 and 4.0 had organ confined disease while 67% with initial PSA between 4.0 and 10.0 had organ confined disease ($p=0.005$). Of the men with initial PSA between 2.6 and 4.0 ng/ml 42% eventually had PSA that increased above 4.0 ng/ml, while only 2% of those with initial PSA less than 1.0 ng/ml had PSA that increased above 4.0 ng/ml during follow up.

The detailed tables show, that men with initial screening PSA between 2.0 and 3.0 had 14.9% relative risk of developing prostate cancer whereas men with PSA 3.0 and 4.0 had relative risk of 23.3%.

All together these data support the notion, that close follow up of men with initial PSA of at least higher than 2.5 should be considered.

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Biochemical failure as single abnormality in patients with prostate cancer following radical treatment with external radiotherapy: follow-up without immediate treatment

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Int Braz J Urol. 2004; 30: 289-95

Introduction: Biochemical failure has been defined as 3 consecutive increases in PSA following curative treatment of prostate cancer. The appropriate management in such cases is controversial. The most usual treatment has been early introduction of hormones. Such patients will live for many years and hormone therapy causes important secondary effects and increases costs. The guideline in our Department of Radiotherapy has been to follow up, with no initial therapy, cases with low PSA and short PSA doubling time. The present study reports this experience.

Materials and Methods: 528 patients with localized prostate cancer were treated by radical approach between 1992 and 1999, with external radiotherapy, with or without adjuvant hormone therapy. After a median follow-up of 77 months, there were 207 (39%) cases with biochemical failure, 78 of which were followed without therapy after the identification of biochemical failure. All of them were asymptomatic patients and had negative radiographic examinations or did not have imaging exams requested since they presented a favorable outcome. The follow-up included at least 2 annual visits with physical examination and PSA.

Results: Of the 78 patients with biochemical failure followed without initial therapy, 7 died from other causes than prostate cancer and the remaining 71 cases were alive and asymptomatic in the last follow-up. Prognostic factors previous to radiotherapy such as stage and Gleason score were not considered when deciding for follow-up without initial therapy in these cases. The most significant aspects considered for this decision were low PSA value (median PSA on the last visit for the 78 cases was only 3.9 ng/mL) and a slow PSA doubling time (in the present experience the median PSA doubling time was 22.5 months).

Conclusion: There seems to be space for expectant management, without initial hormone therapy, in patients with prostate cancer who present biochemical failure and are asymptomatic after radical external radiotherapy. This decision is important, since early introduction of hormones brings late effects and is expensive. Prospective and randomized studies are required to define this issue.

Editorial Comment

The issue of treatment for rising PSA after definitive therapy, either by external beam radiation therapy, the subject in this report, or by radical prostatectomy remains a critical dilemma in the management of patients with prostate cancer. It is critical because of the frequency of occurrence (in this report 39% of 528 patients), the lack of evidence-based medicine upon which to ground one's decision, and the apprehension that is associated

with serial PSA monitoring. As this report indicates, the therapy is often prompted by a “chicken switch” reaction. Until data is available, and it is unlikely that it will be in the foreseeable future, careful evaluation of prognostic variables as the authors describe, provide the therapist with at least a logical approach to triggering the switch to androgen deprivation. Pretreatment of Gleason score and PSA and post-treatment progression indicators as PSA level and doubling time currently provide the trigger for the delivery of androgen deprivation to those for whom it will benefit most and withhold it from those who are at sufficiently low risk that the morbidity consequence to the therapy equals or outweighs the benefits that androgen therapy could deliver. Clinical trials will provide the most useful and unbiased information.

Some of the current Phase III trials addressing the issue of PSA recurrence are continuous vs intermittent androgen deprivation after irradiation (JPR7 – NCI, Canada); androgen deprivation and immediate vs delayed chemotherapy (RTOG, P0014), androgen deprivation ± thalidomide (NCI-00-C0080) and for patients with a rising PSA after androgen deprivation but without evidence of metastatic disease, a trial comparing second line hormone therapy (ketoconazole + hydrocortisone) to chemotherapy (docetaxel and estramustine – ECOG 1899).

Other agents are being investigated to address the rising PSA; i.e. Provenge, Atrasantin (endothelin-A inhibitor), Avastin (angiogenesis inhibitor).

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FEMALE UROLOGY

Percutaneous tibial nerve stimulation in the treatment of overactive bladder: urodynamic data

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Neurourol Urodyn. 2004; 23: 246-51

Aim: The aim of this study was to evaluate urodynamic changes after percutaneous tibial nerve stimulation (PTNS) for the treatment of complaints related to overactive bladder syndrome and to search for urodynamic-based predictive factors.

Methods: Ninety consecutive patients with symptoms related to overactive bladder syndrome were enrolled in this study. Patients underwent 12 PTNS sessions. For evaluating objective success, the primary outcome measure was a reduction in number of urinary leakage episodes of 50% or more per 24 hours. Patients' request for continuation of therapy was considered subjective success. This study focused on urodynamic features at baseline and on changes found after 12 PTNS treatments.

Results: The objective success rate was 56% (leakages/24 hours). Subjective success rate was 64%. Frequency/volume chart data and quality of life scores improved significantly ($P < 0.01$). Pre- and posturodynamic data were available from 46 participants. Detrusor instabilities (DI) could be abolished in a few cases only. Increments in cystometric bladder capacity and in volume at DI were significant ($P = 0.043$ and 0.012 , respectively). Subjects without detrusor instabilities at baseline were 1.7 times more prone to respond to PTNS (odds ratio, 1.75; 95% confidence interval [CI], 0.67-4.6). The more the bladder overactivity was pronounced,

the less these patients were found to respond to PTNS, the area under the receiver operating curve was 0.644 (95% CI, 0.48-0.804).

Conclusion: PTNS could not abolish DI. PTNS increased cystometric capacity and delayed the onset of DI. Cystometry seemed useful to select good candidates: patients without DI or with late DI onset proved to be the best candidates for PTNS.

Editorial Comment

The authors studied 90 patients with symptoms of OAB and performed 12 percutaneous tibial nerve stimulation (PTNS) on them. Their goal in obtaining objective success was a diminution of urinary leaking episodes by 50% or more per 24 hours. When available, the authors examined urodynamic features at baseline and after the course of therapy were completed. They found that patients without any evidence of detrusor overactivity had a 1.7 times more chance of responding to this therapy than patients with detrusor overactivity. In addition, the more pronounced the detrusor activity, the less chance of success would be obtained through this modality.

Sacral nerve stimulation has now established itself as an option of therapy in patients with severe OAB, especially those who have failed pharmacologic therapy. Some urologists are somewhat reticent to become involved in sacral nerve stimulation secondary to the methods of preliminary testing or application of the technology. Into this niche, there may a position for PTNS. Percutaneous tibial nerve stimulation should be reviewed by all urologists for a potential addition for an office therapy, especially if they treat a significant number of patients with voiding dysfunction secondary to detrusor overactivity. The great value of this paper is both as an introduction to percutaneous nerve stimulation as well as helping to identify the sub-populations of patients with voiding dysfunction who this therapy may assist. Long term questions to be answered include its success in the different populations of male vs. female, detrusor activity and voiding dysfunction as well as the durability of the therapy after the multi week course of therapy has been completed. I advise all physicians who are interested in developing or introducing nerve stimulation in their practice to read this article and consider trying this therapy.

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Delayed treatment of bladder outlet obstruction after sling surgery: association with irreversible bladder dysfunction

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Purpose: Our urethrolisis cohort demonstrated an unusual delay time to surgical treatment of bladder outlet obstruction. We determined whether urethrolisis outcomes, i.e. persistent bladder symptoms, were associated with time between sling and urethrolisis surgeries.

Materials and Methods: Retrospective analysis of all patients who underwent urethrolisis for post-sling voiding dysfunction between June 1997 and June 2002 was performed. We excluded from study 6 patients with a known history of overactive bladder symptoms, neurogenic bladder dysfunction and use of anticholinergic pharmacotherapy before stress incontinence surgery. The remaining 15 patients were stratified into 2 outcomes

groups based upon the absence or presence of post-urethrolysis bladder storage symptoms. Patients (7) in group 1 have no current bladder symptoms. Patients (8) in group 2 still require anticholinergic drug therapy for significant bladder symptoms of frequency and urgency. Data collected for the 2 groups included mean age, existence of urinary retention before urethrolysis, mean time to urethrolysis in months, urethrolysis outcome based upon subjective bladder symptoms and followup duration. For comparison of mean age between groups, the standard t test was used. Fisher's exact test was used to compare frequency of urinary retention before urethrolysis between groups. Lastly, the Mann-Whitney U test was conducted to compare time to urethrolysis between groups. All statistical analyses were conducted using the SPSS software package (SPSS, Inc., Chicago, Illinois).

Results: There was no statistically significant difference between the groups with respect to age or frequency of urinary retention before urethrolysis. Time to urethrolysis for the whole cohort ranged from 2 to 66 months. Mean followup after urethrolysis was 17.3 +/- 22.9 months. Comparison of mean time between incontinence and urethrolysis surgeries between group 1 (9.0 +/- 10.1 months) and group 2 (31.25 +/- 21.9 months) demonstrated a statistically significant difference ($p = 0.01$).

Conclusions: This urethrolysis population demonstrated an unusual delay time to surgical treatment of bladder outlet obstruction. We categorized the cohort according to absence or presence of persistent bladder storage symptoms, and found a strong association between persistent bladder symptoms and greater delay to urethrolysis.

Editorial Comment

The authors review their specific population of urethrolysis patients and retrospectively analyze the response to surgery and its relation to the passage of time between the original sling and the subsequent urethrolysis. The analysis revealed a strong association between persistent bladder symptoms and greater delay to urethrolysis.

This paper is very timely in view that it raises the issue of when should one intercede for relief of obstruction secondary to an outlet procedure. The paper may have had a greater degree of illumination had there been more definition of the urinary symptoms preoperatively and postoperatively. During the review of the paper, one may infer that the authors assume that all their urethrolysis patients were surgically successful and that the continuation of symptoms was basically due to anatomic/physiologic changes associated with obstruction as opposed to technique failure. Nevertheless, the take home message from this paper is that as soon as the diagnosis of infravesical outlet obstruction is diagnosed it should be definitively remedied; this may be valuable advice indeed when deciding when to intercede with this specific subset of patients.

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PEDIATRIC UROLOGY

The ambitions of adolescents born with exstrophy: a structured survey

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BJU Int. 2004; 94: 607-12

Objective: To determine the factors that control quality of life as perceived by adolescent patients with bladder exstrophy, and to compare their views using standard instruments.

Patients and Methods: Sixteen patients (mean age 19 years, range 16-21, 11 male and five female) were recruited from the departmental database; they represented 46% of those available for the study. After giving informed consent, each had a semi-structured interview, augmented by completing a self-reported scale, with the principal investigator. They then completed the Culture-Free Self-Esteem Inventory-2 (CFSEI-2) and the Brief Symptom Inventory (BSI). The interviews were recorded on audiocassette, transcribed verbatim and evaluated using interpretative phenomenological analysis.

Results: In the interviews there was a remarkable consistency in the domains identified as important to the patients. There was a wish to be normal and to be treated as such. This was defined (amongst other items) as being able to void with an appropriate noise, being treated as peers at school and at home, and having an umbilicus. All patients reported some bullying (all but one in the past), but only severely in three. Concerns about self-image centred on scars and genital appearance. Very similar and effective coping strategies had been created, including practical (e.g. suitable clothes) and emotional (e.g. joking, control of revealed information) aspects. Special arrangements made to help (care by a special assistant or use of a disabled lavatory at school) served only to emphasize their abnormality and were resented. No overt psychiatric or psychological morbidity was detected. There was no difference in scores with the CFSEI-2 or BSI from established age-related norms.

Conclusion: This study confirms the anecdotally reported strong resilience and personality of adolescents with exstrophy. The domains that patients considered important were not those that their carers might have expected or that are used in standard quality-of-life instruments. No morbidity was identified by the two instruments used. In exstrophy, and perhaps in other uncommon conditions, the patients' views of relevant domains should be considered in assessing quality of life.

Editorial Comment

There have been increasing concerns about the psychosocial health of adolescents and young adults born with severe congenital anomalies, like bladder exstrophy. There are few accurate quality of life instruments applicable to these conditions and most are not disease-specific. What data are available are via anecdote or interview and are subject to personal bias.

It is with this as a basis that this paper is of great value. Sixteen patients were evaluated (admittedly only 46% of the sample) via a number of different instruments. It is not surprising that there was an overwhelming wish to "be normal". Among the disease specific concerns was the desire to "sound" normal while emptying their bladders! Interestingly many resented support structures meant to make their lives easier, if these methods singled them out as being different. Body image was quite important as would be anticipated. This was especially so with regards to genitalia in boys and surprisingly to the umbilicus. The lack of an umbilicus drew attention to their being different and affected clothing choices! Overall, these patients appeared to be hard-working, non-complaining and very resilient. They seemed quite adept at developing coping strategies and related well to adults.

Overall the authors are to be congratulated on a very strong effort at focusing on specific quality of life issues that affect these children. This should make a large difference to clinicians caring for these patients in the future. This type of work would be of great benefit to patients with other diseases that we care for and should be encouraged.

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The physical characteristics of young males with varicocele

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Objective: To determine if there is an association with habitus in young males with varicocele, as adolescent boys with varicoceles appear to be mostly taller and leaner than age-matched controls.

Patients and Methods: Retrospectively reviewing our records we obtained the height and weight of 43 consecutive males (mean age 14.3 years, range 11-19) under long-term follow-up for varicocele. The body mass index (BMI), heights and weights were compared with values from the respective growth charts for boys aged 2-20 years (Center for Disease Control and Prevention), and the statistical significance of differences determined using the chi-square test.

Results: The height and weight distributions of patients with varicocele indicated a significant deviation from normal in the 25-95th percentiles for stature and in the 25-75th for weight ($P < 0.05$). Deviations in BMI were insignificantly different from normal at each percentile.

Conclusion: These results indicate that patients with varicocele are significantly taller and heavier than age-matched controls. Future studies to address the key areas identified in this study will help to further assess the distribution of the incidence of varicocele in closely defined subsets of adolescent growth and development, which may provide some insight into the cause of varicoceles.

Editorial Comment

The relationship between body habitus and varicocele has been a matter of conjecture. Anecdotal data suggest that patients with varicoceles are tall and thin. However, this has never previously been investigated. The authors in this study compare the heights, weights and body mass index of varicocele patients to national norms. They discovered that indeed, their varicocele patients were taller than average. They also found that their patients were heavier than normal, but that their body mass index was only slightly increased.

This interesting observation leads to further conjecture about the cause of the adolescent varicocele. Why are these patients more likely to be tall? Conversely, are tall patients more likely to have varicoceles and if so, why? Does this have to do with the length of the spermatic vein? Does it have to do with posture or athleticism? Similarly, why are they heavier, but with a relatively normal body mass index? Is their weight increased due to muscle mass as opposed to adipose tissue? This nice descriptive study leaves more questions than it answers, but opens the door to future investigations. One wonders what other diseases might occur in patients with specific body habitus.

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