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UROLOGICAL SURVEY

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EDITORIAL COMMITTEE

STONE DISEASE

Chapter 1: AUA guideline on management of staghorn calculi: diagnosis and treatment recommendations

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NO ABSTRACT AVAILABLE

Editorial Comment

In 1994, the AUA Nephrolithiasis Clinical Guidelines Panel on Staghorn Calculi recommended that percutaneous nephrolithotomy (PNL) with or without adjuvant shock wave lithotripsy (SWL) (combination therapy) should constitute first line therapy for most patients with staghorn calculi. A new Guidelines panel was recently convened to review the literature from 1992 through 2003 to ascertain any recent changes in treatment outcomes for staghorn calculi. Based on their findings, the recommendation for first line treatment of staghorn calculi was PNL.

This modification in treatment recommendation since the 1994 Guideline was based on superior stone-free rates for PNL compared with combination therapy (78% versus 66%, respectively), fewer mean total procedures/pt (1.9 vs. 3.3, respectively) and comparable morbidity. Further, the panel noted a decline in stone free rates for combination therapy since the 1994 recommendations, largely due to less rigid adherence to the regimen of PNL-SWL-PNL and greater reliance on SWL to clear fragments from the kidney. With the development of improved flexible nephroscopes and the Holmium: YAG laser, PNL monotherapy is used more readily and with greater success, resulting in less reliance on SWL for treatment of residual fragments.

Once again, the Panel discouraged SWL monotherapy for treatment of staghorn calculi based on inferior stone free rates and higher mean total procedures per patient compared with the other treatment options. Although open surgery remains an option for the treatment of patients with complex staghorn calculi who might not be rendered free of stones after a reasonable number of percutaneous procedures, this option should be utilized exceptionally rarely.

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Is newer always better? A comparative study of 3 lithotriptor generations

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Purpose: At a single center we compared the efficacy of 3 generations of lithotriptors using identical protocol inclusion and followup criteria but with different modes of anesthesia.

Materials and Methods: We compared stone disintegration and dilatation of the pyelocaliceal system achieved in a prospective, randomized trial comparing the original HM3 (Dornier Medtech, Kennesaw, Georgia)

and Lithostar Plus (LSP) lithotriptors, and a matched, consecutive series of 107 treatments with the Modulith SLX. Stone disintegration and dilatation of the pyelocaliceal system were evaluated by abdominal plain x-ray and renal ultrasonography 1 day and 3 months after treatment.

Results: A total of 82 treatments with the HM3, 75 with the LSP and 107 with the SLX were analyzed, matched for stone burden and location within the pyelocaliceal system. On postoperative day 1, 91%, 65% and 48% patients treated with the HM3, LSP and SLX, respectively, were stone-free or had fragments that were 2 mm or less (HM3 vs. LSP $p < 0.001$, HM3 vs. SLX $p < 0.001$ and LSP vs. SLX $p = 0.015$). Three to 5 mm fragments were found in 7%, 21% and 35% of patients ($p = 0.006$, < 0.001 and 0.06), and fragments 6 mm or greater were found in 1%, 14% and 15% ($p = 0.002$, < 0.001 and 0.1, respectively). The re-treatment rate was 4% in the HM3 group, 13% in the LSP group and 38% in the SLX group (HM3 vs. LSP $p = 0.05$, HM3 vs. SLX $p < 0.001$ and LSP vs. SLX $p < 0.001$). Obstructive pyelonephritis occurred in 1% of the HM3 group, 8% of the LSP group and 5% of the SLX group (HM3 vs. LSP $p = 0.02$, HM3 vs. SLX $p = 0.12$ and LSP vs. SLX $p = 0.4$). All re-treatments except those in 5 patients were performed with the HM3. Therefore, the 3-month stone-free rate was comparable in all 3 groups (HM3 87%, LSP 80% and SLX 81%).

Conclusions: This study indicates that the HM3 lithotriptor disintegrates caliceal and renal pelvic stones better than the LSP and SLX machines, resulting in fewer complications and re-treatments. Disintegration with the LSP machine was also superior to that of the SLX with a need for fewer re-treatments.

Editorial Comment

Since the introduction of shock wave lithotripsy over 2 decades ago, there have been efforts under way to develop new lithotriptors that are easier to use, require less anesthesia, cause less pain, occupy less space and cost less without compromising the stone free rates achieved with the original Dornier HM3. By nearly all accounts the lithotripter manufacturers succeeded, with one critical exception, success rates. Retrospective SWL series suggested that stone free and retreatment rates for newer generation lithotripters were often inferior to those of the first generation Dornier HM3. Subsequently, Graber and colleagues showed superiority of the HM3 in a direct comparison with the Lithotstar Plus with regard to stone free and retreatment rates in a prospective, randomized trial, the only of its kind. The current study utilized data from the randomized trial in a matched pair analysis based on stone size and location with the Storz SLX and demonstrated superior outcomes with the HM3 followed by the Lithostar Plus, then the Storz SLX with regard to stone free rates, retreatment rates and post-operative obstructive pyelonephritis. Furthermore, treatment of Lithostar Plus and SLX failures with the HM3 resulted in normalization of the ultimate success rates among the 3 groups, further highlighting the ability of the HM3 to salvage treatment failures from newer generation lithotripters.

The SLX, with an even smaller focal zone and higher peak pressure than either the HM3 or Lithostar Plus, yielded poorer stone free rates than either of the other 2 lithotriptors, suggesting that peak pressure is not the sole measure of fragmentation potential. Thus, the question the authors posed, “Is new always better?” would have to be answered in the negative in this case. Perhaps lithotriptor manufacturers will take heed and learn a lesson from old technology.

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ENDOUROLOGY & LAPAROSCOPY

Renal cryoablation: outcome at 3 years

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J Urol. 2005; 173: 1903-7

Purpose: We report intermediate term oncological followup data on 56 patients undergoing laparoscopic renal cryoablation, of whom each completed a 3-year followup.

Materials and Methods: Since September 1997, 56 patients undergoing laparoscopic renal cryoablation have completed a followup of 3 years each. The postoperative followup protocol comprised serial magnetic resonance imaging (MRI) at 1 day, months 1, 3, 6, 12, 18 and 24, and yearly thereafter for 5 years. Computerized tomography guided needle biopsy of the cryolesion was performed 6 months postoperatively and repeated if MRI findings were abnormal. Followup data were obtained prospectively.

Results: For a mean renal tumor size of 2.3 cm mean intraoperative size of the created cryolesion was 3.6 cm. Sequential mean cryolesion size on MRI on postoperative 1 day, and at 3 and 6 months, and 1, 2 and 3 years was 3.7, 2.8, 2.3, 1.7, 1.2 and 0.9 cm, representing a 26%, 39%, 56%, 69% and 75% percent reduction in cryolesion size at 3 and 6 months, and 1, 2 and 3 years, respectively. At 3 years 17 cryolesions (38%) had completely disappeared on MRI. Postoperative needle biopsy identified locally persistent/recurrent renal tumor in 2 patients. In the 51 patients undergoing cryotherapy for a unilateral, sporadic renal tumor 3-year cancer specific survival was 98%. There was no open conversion, kidney loss, urinary fistula, dialysis requirement, or perirenal or port site recurrence in any patients.

Conclusions: Three-year outcomes following renal cryoablation are encouraging. Longer term (5-year) data are necessary to determine the proper place of renal cryotherapy among minimally invasive, nephron sparing options.

Editorial Comment

Minimally invasive ablative techniques are becoming more popular and longer clinical data have been demonstrated by different centers.

The technology seems to ablate the renal cancer cells efficiently and the surgical technique offers comparable complication rates to other nephron-sparing techniques. Not surprisingly, this method of renal mass ablation preserves renal function adequately. As the authors concluded longer clinical follow-up is needed.

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Minimally invasive pediatric nephrectomy

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Curr Opin Urol. 2005; 15: 277-281

Purpose of Review: Since the first laparoscopic pediatric nephrectomy was performed in 1992, many articles have reported the feasibility of minimally invasive nephrectomy, heminephrectomy, and nephroureterectomy in children. This article reviews the literature related to minimally invasive nephrectomy, including robot-assisted surgery, and its complications published between November 2002 and November 2004.

Recent Findings: The retroperitoneoscopic approach to nephrectomy and nephroureterectomy continues to prove successful in the pediatric population, although the transperitoneal approach is beneficial in combined upper and lower tract procedures. Initial reports on bilateral transperitoneal nephrectomy for nephrotic syndrome and laparoscopic nephrectomy for Wilms tumor are presented. Comparison studies between laparoscopic nephrectomy and open procedures are reviewed. Robot-assisted procedures are possible in children but little information is available on their pediatric use at the present time. Laparoscopy in children appears to have a similar complication rate to that in adults.

Summary: More studies are needed to compare the outcomes of minimally invasive procedures with those of open procedures. Robot-assisted surgery offers promise but expense currently limits its use.

Editorial Comment

Since the first laparoscopic nephrectomy in a child was performed by Kavoussi and Koyle in 1992, many articles have demonstrated the feasibility of laparoscopic nephrectomy, heminephrectomy, and nephroureterectomy in children but this surgical technique remains controversial in the pediatric population. This review demonstrates the feasibility, differences between laparoscopic urological surgery in adults versus children, the possible future applications of laparoscopic anatomical knowledge to decrease intraoperative morbidity and superior cosmetic results of minimally invasive surgery.

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IMAGING

Issues, controversies, and clinical utility of combined PET/CT imaging: what is the interpreting physician facing?

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AJR Am J Roentgenol. 2005; 184 (5 Suppl): S138-45

Objective: This article identifies the most commonly encountered issues of combined PET/CT and shows the wide variability in perceived possible solutions to these issues. This article will serve as a catalyst to stimulate discussion between experts in both radiology and nuclear medicine.

Conclusion: Combining a PET tomography and CT scanner into a single unit amounts to advantages that are not merely additive, but synergistic. Even PET/CT skeptics will embrace the technology after becoming acquainted with the possibilities and will accept the reality that there is no return to PET only.

Editorial Comment

Combined PET/CT scanners are rapidly becoming the new standard in oncologic imaging because provides information on the morphology and function of tumors in one examination. This technology incorporates a multislice helical CT (16 or more channels) and high-resolution PET scanners. The information offered by this method has superior diagnostic capabilities and are very useful for staging neoplasms and radiation therapy planning. This an excellent article that discusses with clarity all very important issues related to the application of this new technology. Several interesting issues are discussed such as protocols of examination, how and by whom the scans are interpreted, the variability in reporting methods, where is the best place for the equipment and many other operational, educational and legal issues. The authors emphasizes that at this stage, the best indications of PET/CT are for staging patients with lymphoma, lung and colorectal cancer and for restaging patients who have undergone extensive surgery or who have had significant levels of radiation, both of which tend to distort normal anatomy and cause inflammatory changes (head and neck, colorectal, thyroid and ovarian cancer, and lymphoma). Although at this stage the role of PET/CT in the evaluation of urological malignancies is limited (detection of metastases and recurrences of renal cell cancer, identification of vital tumor tissue after chemotherapy of seminomatous germ cell tumors and detection of nodal metastases from bladder cancer), we still strong recommend the reading of this manuscript which will help the urologist to understand the several complex issues related to the application of this technology.

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Radiologic findings of segmental testicular infarction

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Objective: Our objective was to describe the radiologic findings of segmental testicular infarction and to establish a proper diagnosis that can avoid orchiectomy.

Conclusion: The presence of a triangular-shaped avascular intratesticular lesion on sonography or MRI and enhancement of the surrounding borders on enhanced MR images may suggest a presurgical diagnosis of segmental testicular infarction and therefore avoid a total orchiectomy in these patients.

Editorial Comment

The authors present interesting imaging findings observed in 12 patients with a relatively rare testicular disorder such is segmental testicular infarction. This condition which usually presents as an acute scrotum and may be associated with epididymoorchitis, hematologic disorders, vasculitis and postoperative changes, is usually diagnosed only after orchiectomy. In this series, an acute scrotum was the most frequent clinical presentation, being observed in 8 of 12 patients (67%). Ultrasound findings were very suggestive of this entity (solid and wedge shaped avascular area on color Doppler examination, with the vertex at the testicular mediastinum). Occasionally, however, a small rounded solid mass simulating an intratesticular tumor was observed. On contrast enhanced T1-weighted MR images, segmental testicular infarction showed an enhanced

rim surrounding the lesion in 92 % of patients. This paper is very important for calling the attention of the radiologist and urologist in order to recognize segmental testicular infarction and thus to avoid unnecessary orchiectomy. The authors concluded that these imaging findings (ultrasound and complimentary MRI in difficult cases), associated with the negative tumoral markers and short follow-up, should allow confidence in the diagnosis and thus avoid orchiectomy.

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UROGENITAL TRAUMA

The treatment of posterior urethral disruption associated with pelvic fractures: comparative experience of early realignment versus delayed urethroplasty

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J Urol. 2005;173: 873-6

Purpose: Urological treatment of the patient with severe mechanical trauma and urethral disruption remains controversial. Debate continues regarding the advisability of early realignment vs delayed open urethroplasty. We analyzed our experience with 96 patients to determine the long-term results of the 2 approaches.

Materials and Methods: We retrospectively reviewed the records of 191 men with posterior urethral disruption after severe blunt pelvic injury between 1984 and 2001, of whom 96 survived. Data on 57 patients who underwent early realignment were compared to those on 39 treated with delayed urethroplasty with an average 8.8-year followup (range 1 to 22). All patients were evaluated postoperatively for incontinence, impotence and urethral strictures.

Results: The majority of patients had severe concomitant organ injuries (78%) and severe pelvic fractures (76%). The overall mortality rate was 51%. Diagnosis of urethral rupture was based on clinical findings and retrograde urethrography. Strictures developed in 49% of the early realignment group and in 100% of the suprapubic tube group. Impotence (33.6%) and incontinence (17.7%) were less frequent in the early realignment group than in the delayed reconstruction group (42.1% and 24.9%, respectively). Patients with delayed reconstruction underwent an average of 3.1 procedures compared with an average of 1.6 in the early realignment group.

Conclusions: Early realignment may provide better outcomes than delayed open urethroplasty after posterior urethral disruption. Increased complications are not seen and, although it can be inconvenient in the massively injured patient, it appears to be a worthwhile maneuver.

Editorial Comment

Mouraviev et al, detail their extensive experience with a retrospective review of 191 urethral disruption injuries. The acute management of pelvic fracture and associated urethral injury is controversial. Classically, acute management is a “delayed approach” of placement of a suprapubic tube, percutaneously, if the bladder is

full, or open, if the bladder is decompressed or has a concomitant bladder or bladder neck injury. After a minimum period of three months, the urethral injury is reconstructed. This method of delayed definitive management is particularly useful in rural or small hospitals where no Urologist is available. The main complication of this method is the near 100% stricture rate. Of historical interest is open primary repair of acute urethral disruption, which is absolutely contraindicated due to technical difficulty, risk of uncontrolled pelvic bleeding, and unacceptably high rates of impotence and incontinence.

The other management option that has gained considerable recent support is delayed or immediate primary urethral realignment by endoscopic means. Here, two cystoscopes, one antegrade and one retrograde, are used to get a wire and catheter across the urethra. The immediate approach is reserved for the stable patient with a short urethral distraction distance. The delayed approach is a type of damage control, where the unstable patient is first resuscitated and then when stable, the urethra is later realigned (usually after 2 to 10 days, typically concomitantly when Orthopedics internally fixes the pelvic fracture).

Contrary to prior reports, the authors here report higher impotence (42%) and incontinence (25%) with the delayed approach over early realignment. This is difficult to explain since such complications are thought to be from the mechanism of the original injury. Regardless, similar to the literature, primary realignment appears here to reduce the eventual stricture and impotence rates. When posterior strictures do occur, it appears that the eventual stricture may be shorter and easier to manage. This may be a selection bias, since patients with the most severe urethral distractions are typically the most severely injured and unstable, and thus often not primarily realigned. Another added benefit to realigning the urethra is that the suprapubic tube can be removed and not be in the way of any inguinal orthopedic incisions. Primary urethral realignment makes good common sense, appears to reduce complications; and is thus an integral management tool in the contemporary management of urethral distraction injuries.

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Traumatic ureteral injuries: a single institution experience validating the American Association for the Surgery of Trauma-Organ Injury Scale grading scale

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Purpose: Ureteral injuries are uncommon and challenging. In this study we report our institutional experience with ureteral injuries. We evaluated the American Association for the Surgery of Trauma-Organ Injury Scale (AAST-OIS) for ureteral injuries as a predictor of outcomes for complexity of repair, morbidity, mortality and associated injuries.

Materials and Methods: We performed a retrospective, 120-month study (January 1992 to December 2002) at an urban, level I trauma center.

Results: In the 57 patients mean hospital Admission blood pressure +/- SD was 115 +/- 25 mm Hg, mean Revised Trauma Score was 7.38 +/- 0.84 and mean Injury Severity Score was 15 +/- 1.15. The mechanism of injury was penetrating in 55 cases (96.5%), including gunshot wound in 52 (54.5%) and stab wound in 2

(5.5%), and in blunt 2 of motor vehicle accidents (3.5%). The anatomical location was the left side in 33 cases (58%), right side in 23 (40%) and bilateral in 1 (2%). The distribution of injuries was proximal in 15 cases (26%), mid in 21 (37%) and distal in 21 (37%). Associated injuries were present in 56 patients (98%). An intraoperative diagnosis was made in 44 cases (77%). Of the patients 50 (88%) required complex repairs or an adjunct procedure, including a double pigtail stent in 33 (58%), ureteroureterostomy in 20 (35%), ureteroneocystostomy with a psoas hitch in 10 (18%), external diversion in 9 (16%), suprapubic cystostomy in 8 (14%), nephrostomy in 2 (3.5%), nephrectomy in 2 (3.5%) and ligation in 2 (3.5%). Injury grade was I to V in 5 (8%), 8 (13%), 13 (22.8%), 18 (31.6%) and 13 (22.8%) cases, respectively. Overall 51 patients (89%) survived. No deaths were related to ureteral injury. Renal salvage was achieved in 49 of the 51 surviving patients (96%).

Conclusions: Ureteral injuries are uncommon. The complexity of repair and number of associated injuries increase with AAST-OIS injury grade. Mortality increases with AAST-OIS injury grade but it is not related to the ureteral injury. Excellent results can be achieved with complex techniques of primary repair, leading to renal salvage.

Editorial Comment

The American Association for the Surgery of Trauma developed an organ injury scale for each of the Urologic organs, as published in the Journal of Trauma in 1989 and 1992 (1,2). The great value in such scales is that they enable a uniform method of defining urologic injuries and so facilitate the development of comparative studies and research. These injury scales were based on the consensus of experts in urologic trauma, and not by evidence based medicine. The above retrospective review is another in a long line of papers seeking to validate that the complexity of repair and outcomes correlate to the AAST scale of degree of injury.

Other lessons learned from this study are that ureteral injuries are rare events. The majority of ureteral injuries are due to penetrating trauma. The location of penetrating ureteral injuries is roughly evenly distributed among each one-third of ureter. Penetrating injuries have a very high associated organ injury rate, and it is the associated injuries that primarily cause the morbidity and potential mortality. The most reliable method to diagnosing a ureteral injury is intraoperative direct exploration. Ureteral injuries from blunt trauma are typically due to deceleration and at the ureteropelvic junction.

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PATHOLOGY

Atrophy in prostate needle biopsy cores and its relationship to prostate cancer incidence in screened men

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Urology 2005; 65: 745-9

Objectives: To evaluate whether the incidence of atrophy reported on sextant biopsies is associated with subsequent prostate cancer detection and to obtain a more thorough analysis of the different categories and extent of atrophy, we performed a review of benign biopsy cores.

Methods: In the Rotterdam section of the European Randomized Study of Screening for Prostate Cancer, 4117 and 1840 men underwent sextant biopsy in the first and second screening round (4-year interval), respectively. Sextant biopsy was prompted by elevated prostate-specific antigen levels. For review, randomly taken benign sextant biopsies (n = 202) with a follow-up of at least 8 years were chosen.

Results: Before review, atrophy was reported in the biopsies of 11.4% and 8.7% of the first and second round, respectively. The prostate cancer incidence during 8 years of follow-up after an initial diagnosis of atrophy was 10.4%, which was not significantly different than the 12.3% of cancers detected after a benign diagnosis without reference to atrophy. After review, the incidence of simple atrophy, post-atrophic hyperplasia, and sclerotic atrophy in sextant biopsies was 91%, 47%, and 9%, respectively. Extensive atrophy was observed in 5% of biopsies. Only 2 men (4.7%) in the reviewed group had a subsequent diagnosis of prostate cancer in the 8 years of follow-up. Additionally, prostatic intraepithelial neoplasia was diagnosed in 3 men (7.0%) in the second screening round.

Conclusions: Atrophy, especially its simple form, is a very common lesion in prostate biopsy cores (94%). Atrophy in an asymptomatic population undergoing screening was not associated with a greater prostate cancer or prostatic intraepithelial neoplasia incidence during subsequent screening rounds.

Editorial Comment

Prostatic atrophy is one of the most fequent histologic mimics of prostatic adenocarcinoma. It occurs most frequently in the posterior lobe or peripheral zone and gained importance with the increasing use of needle biopsies for the detection of prostatic carcinoma. Chronic inflammation of longstanding duration has been linked to the development of carcinoma in several organ systems. In the prostate, chronic inflammation is associated with both hyperplastic atrophy (or postatrophic hyperplasia) and simple atrophy. De Marzo et al. (1) from Johns Hopkins propose combining these lesions into a category called proliferative inflammatory atrophy (PIA). The authors suggest that there are morhological transitions within the same acinar/duct unit, between high-grade prostatic intraepithelial neoplasia (HGPIN) and PIA which occur frequently. This finding supports a model whereby the proliferative epithelium in PIA may progress to GHPIN and subsequently to adenocarcinoma of the prostate.

This hypothesis is contested by others. In an autopsy study done by us, no association was found between atrophy and either HGPIN or histologic carcinoma (2). In a subsequent study also in autopsies, we did not found any association between atrophy with inflammation (PIA) and either HGPIN or histologic carcinoma (3). Anton et al. (4) studying radical prostatectomies concluded that hyperplastic atrophy (or postatrophic hyperplasia) is a relatively common lesion present in about one-third of prostates, either with or without carcinoma. The authors found no association between the presence of postatrophic hyperplasia and the likelihood of cancer and no topographic association between postatrophic hyperplasia and prostate foci.

The findings of Postma et al. of the present survey, are similar to Bakshi et al. (5). The latter authors 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.

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Incidence and follow-up of patients with focal prostate carcinoma in 2 screening rounds after an interval of 4 years

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Background: Focal carcinoma detected by needle biopsy has been a common finding since prostate-specific antigen (PSA)-based screening was introduced. Clinicopathologic features in patients with focal prostate carcinoma who underwent radical prostatectomy (RP) or who were treated with watchful waiting (WW) were analyzed to detect clinical predictors for disease progression during follow-up.

Methods: Patients were selected from the European Randomized Screening study for Prostate Cancer. Focal carcinoma on sextant biopsy was defined as < or = 3.0 mm involvement by tumor in 1 biopsy core lacking Gleason pattern 4 or 5. PSA doubling time was used in the WW group as a marker of disease progression.

Results: The proportion of patients with focal prostate carcinoma increased significantly from 16% in the first screening round to 29% in the second screening round. One hundred eighteen men underwent RP, and 108 men were treated with WW. The median tumor volume was 0.13 mL. PSA level and prostate volume were predictive for tumor volume in a multivariate regression analysis. A PSA density cut-off level of $\leq$ 0.1 ng/mL/cm^3 predicted organ-confined tumor (< 0.5 mL) in 94% of patients.

Positive surgical margins were predictive for PSA recurrence. Four patients in the RP group had PSA recurrence at follow-up. PSA doubling times < 2 years, < 3 years, and < 4 years were noted in 4.9%, 14.6%, and 22.0% of patients in the WW group, respectively.

Conclusions: The median tumor volume was small (0.13 mL). A comparison between PSA recurrence in the RP group and PSA doubling time in the WW group showed a significantly more favorable outcome after RP if a PSA doubling time of < 3 years or < 4 years was chosen as a marker for disease progression in the WW group. A WW policy with delayed curative intent may be recommended in patients ages 55-75 years with focal carcinoma and PSA density < 0.1 ng/mL/cm^3.

Editorial Comment

"Minimal" or "insignificant" refers to a low-grade, organ confined cancer < 0.5 mL in a surgical specimen of radical prostatectomy. It must be emphasized that it does not mean "latent", "dorment" or "indolent" cancer but a low-volume incipient neoplasia that can progress either as a latent or clinical carcinoma. Unfortunately there is no known marker for biologic behavior of prostatic cancer.

Postma et al. propose some criteria on needle biopsies to predict these minimal cancers: focal carcinoma on sextant biopsy defined as ≤ 3 mm in length in only one core, no Gleason grade (pattern) 4 or 5, and PSA density cut-off level of ≤ 0.10 ng/mL. Using these criteria, the authors predicted 94% of patients harboring low-grade, organ confined < 0.5 mL tumors.

We have used the criteria proposed by Epstein et al. (1): needle biopsies with prostate carcinoma in fewer than 3 cores (from a 6-core biopsy sample), absence of Gleason grade (pattern) 4 or 5, no more than 50% prostate carcinoma involvement in any of these cores, stage T1c and PSA density < 0.15 ng/mL. Using these criteria, in 1994, the authors found that 79% of tumors with volume ≤ 0.5 mL were organ confined and did not qualify as high-grade lesions at the time of radical prostatectomy. Bastian et al. (2) from Johns Hopkins, applied these criteria in a series of 237 men with extended neddle biopsies who had undergone radical prostatectomy for T1c disease between December 2000 and August 2003. According to the Epstein needle biopsy criteria, low-grade, organ-confined prostate carcinoma was detected in 91.6% of all patients.

The histologic criteria used by Bastian et al. and Postma et al. differ in two aspects: number of cores with carcinoma and the extent of core involvement. Postma et al. are more restrictive considering just one core involved and report the linear length of cancer. Epstein et al. consider a maximum of 2 cores involved and the percentage of involvement of the core. It seems to us that linear length is superior to the percentage of involvement: percentage varies according to the length of the core, unless is established a minimum length of the core for percentage evaluation.

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INVESTIGATIVE UROLOGY

The laparoscopic management of intersex patients: the preferred approach

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Objective: To present possibly the largest series of the use of laparoscopy for treating intersex patients.

Patients and Methods: Fifty intersex patients (34 with male and two with female pseudohermaphroditism, nine with gonadal dysgenesis, four with true hermaphroditism, and one with complex hypospadias), aged 0.5-46 years (mean 18.3), underwent laparoscopy to remove gonads and/or ductal structures incompatible with the social gender, or for gonadal tumour or a potential risk for malignancy. When necessary, genitoplasty was performed concomitantly.

Results: At the laparoscopic evaluation, 10 gonads of six patients were absent, while four were identified as 'vanishing'; 72 gonads (46 dysgenetic, 17 normal testes, one normal ovary, one ovotestis, seven gonadoblastomas or dysgerminomas) were removed; two ovotestes were replaced in the scrotum after removing the ovarian segment, as was one normal testis. Twelve patients with a urogenital sinus had its vaginal component removed, 11 including a hysterectomy. Three of these patients had a combined perineal approach to complete its removal, together with masculinizing genitoplasty. There were no intraoperative complications or conversions; two patients had complications after surgery.

Conclusions: Laparoscopy allows the straightforward identification and removal of gonads. All abnormal ductal structures must be removed, as this increases the chance of resecting unidentified gonads. Removing the uterus and vaginal component of the urogenital sinus in patients with male social sex is feasible, with low morbidity. Genitoplasty, according to the social sex, can be performed in the same procedure.

Editorial Comment

The authors present the largest series of patients with intersex treated by laparoscopy. Different from the most recent series of intersex patients, due to specific social and geographical conditions of a developing country, most of the patients in this study were first evaluated as adults, and therefore treated accordingly to the already defined sexual situation. Nonetheless, whenever necessary, associated genitoplasty was performed, according to the sexual function of each patient.

Laparoscopy is usually used for gonadal evaluation, resection or biopsy, and for identifying internal ductal derivatives. It is also used for removing all normal structures contrary to the assigned social sex, as well as gonads that are dysgenetic, nonfunctional or malignant or of increased malignant potential. In the present work, the authors completed all procedures in 50 patients with minimal blood loss. The duration of the procedures was 55 to 270 min, including associated genitoplasty. There were no complications during surgery or conversion to laparotomy. When there was only a laparoscopic procedure the hospital stay was 1 to 3 days, and with associated genitoplasty, the stay was 6 to 11 days.

The authors concluded that this technique allowed easy identification and removal of gonads. They also found that other organs could be removed and genitoplasty performed with minimal morbidity.

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Prostate cancer dedifferentiation following antiandrogen therapy: a morphological finding or an increased tumor aggressiveness?

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Rev Assoc Med Bras. 2005; 51: 117-20

Background: Neoadjuvant androgen deprivation in prostate cancer induces tumor volume regression but does not improve outcome of the patient. A possible explanation for this phenomenon could be an increase of the residual tumor aggressiveness brought about by antiandrogen therapy. The purpose of the present study was to evaluate the frequency of tumor dedifferentiation following androgen blockade in prostate cancer and to determine if the remaining tumor shows signs of increased aggressiveness.

Methods: Thirty patients bearing locally advanced prostate cancer (stages T2c - T3) were submitted to neoadjuvant anti-androgenic therapy during four months followed by radical prostatectomy. Gleason scores from biopsy and surgical specimens were compared. Furthermore, the cell proliferation index was evaluated by immunohistochemistry assay for PCNA, tests with strong nuclear staining were considered positive. The percentage of positive nuclei, counted in 500 cells, was determined in several categories of the Gleason score from surgical specimens.

Results: In 11(37%) surgical specimens the Gleason score was equal or lower than that found in the biopsy and in 19 (63%) the total score was higher in the surgical specimens ($p < 0.05$). The median of PCNA expression was 4.5%, 10%, 12% and 14% in Gleason scores 2-4, 5-6,7 and 8-10, respectively ($p > 0.05$). The median of cell proliferation indexes was 9% for glandular or specimen confined tumors and was 17% for extraprostatic tumors ($p < 0.05$).

Conclusion: High Gleason score was found in almost 2/3 of patients submitted to antiandrogen therapy. However, the cell proliferation index measured by PCNA was the same for tumors with lower or higher Gleason scores. It seems that cell dedifferentiation seen after neoadjuvant androgen deprivation represents a mere morphologic phenomenon and not a real increase in tumor aggressiveness.

Editorial Comment

In the present study, the authors observed a significant increase in the Gleason score in the surgical specimens of prostate carcinoma after hormonal therapy. This fact was verified in 64% of the tumors initially classified as well and moderately differentiated. Nevertheless, comparing the expression of PCNA in relation to Gleason score of surgical specimens, the authors observed similar proliferation activity. Analyzing the data, the authors argue that probably it is just a morphological phenomenon, since the similar proliferative activity means that the tumors have the same aggressiveness.

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RECONSTRUCTIVE UROLOGY

Engineering of a vascularized scaffold for artificial tissue and organ generation

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Tissue engineering is an emerging field in regenerative medicine to overcome the problem of end-stage organ failure. However, complex tissues and organs need a vascular supply to guaranty graft survival and render bioartificial organ function. Here we developed methods to decellularize porcine small bowl segments and repopulate the remaining venous and arterial tubular structures within these matrices with allogeneic porcine endothelial progenitor cells. Cellular adherence and vitality was characterized by quantitative 2-[(18)F]-fluoro-2'-desoxy-glucose (FDG) positron emission tomography (PET) and subsequent immunohistological work up. The generated matrices showed insulin-dependent FDG uptake predominantly in the region of the former vascular structures. Stain for vitality and the specific endothelial markers CD31, VE-Cadherin and Flk-1 matched this functional finding. Providing evidence for vitality up to 3 weeks post reconstitution and typical endothelial differentiation, these results indicate that our generated matrix allows the generation of complex bioartificial tissues and organs for experimental and future clinical application.

Editorial Comment

So far, one of the limiting factors in using cultivated tissue flaps or in vitro generation of whole organs was vascularization. Bioartificial grafts will usually become necrotic in the centre before sufficient revascularization takes place whenever a graft is implanted into the donor organism. The authors referring their results from Stuttgart, Germany and belong to one of the most advanced institutions dealing with biomaterials for regenerative medicine. They have shown that by using allogeneic porcine endothelial progenitor cells vascularization of acellular tissue flaps became possible. The achievements of this study were twofold: The authors were able to show that an endothelial differentiation was possible from their progenitor cells, and that with the help of progenitor cells differentiating into endothelial cells revascularization became possible as well. Once we achieve the goal of a “fast-track” revascularization of artificially cultivated flaps, we will be able to use much larger tissues and only then, we will be able to think about urinary bladder off the shelf.

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Urethral sensitivity in incontinent women

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Eur Urol. 2005; 48: 116-20

Objectives: The aim of this study was to ascertain whether frequent voiding and urge incontinence are associated with supersensitivity to electrical stimulation in the posterior urethra.

Methods: Current perception thresholds (CPT) were tested at four stimulus frequencies (1, 3, 20, and 100Hz; duration 0.5ms) using a square-wave constant current electrical stimulator connected to ring electrodes on a urethral catheter. The strength of the current at the first tingling sensation was regarded as the CPT. CPT analysis and cystometry were performed on 61 women (ages 28-89 years).

Results: CPTs were significantly higher at lower than at elevated stimulus frequencies, and they were also generally higher in old than in younger patients. Seven women repeated the CPT test after two months, and the thresholds were unchanged. There were no significant differences in sensitivity between patient groups with stress incontinence, urge, or mixed symptoms. Moreover, CPT was not significantly related to bladder volume at first sensation of filling.

Conclusion: Measuring CPT is an easy and reproducible method of testing urethral sensibility, but our results do not support the suspicion that urethral hypersensitivity is involved in increased voiding frequency and urge incontinence.

Editorial Comment

This paper was initially designed to study urethral sensitivity in women with stress urinary incontinence, urge incontinence or combined symptoms. Among other things, these authors were able to demonstrate a direct correlation between median sensory thresholds of the urethra and different age groups. There had been previous reports about a decrease of muscle cells (1) in the urethral sphincter with increasing age but there are to my knowledge no previous reports about a decreasing sensitivity of the urethral mucosa in older women. When we do a urethra-sparing cystectomy both in male and female patients, functional results tend to be less favorable in patients beyond 75 yrs. However, we know that some patients will have perfect results despite an age over 75 yrs. It has further been demonstrated that preservation of autonomic nerves, which most probably contain afferent sensory nerve fibers from the urethral mucosa, will improve not only sexual function but also urinary incontinence (2).

What we can learn from this paper for our elderly patients which are candidates for an orthotopic neobladder to the urethra is that preservation of autonomic nerves to the urethra may improve the functional outcome in old patients (for example those older than 70 yrs). It may also give us a hint how we can select patients who may be borderline candidates due to either their age or the status of their pelvic floor.

If we can standardize a preoperative evaluation, including sensory thresholds and contractility, we may be able to sort out those patients that will be continent despite an advanced age and/or radiation or other factors considered to be a contraindication for an orthotopic neobladder. These tests may also be a diagnostic help for urologists in their decision on how to treat patients with urinary incontinence. As an example, those with perfect sensitivity but decreased contractility may benefit from pelvic floor supporting surgery whereas those with a decreased or absent sensitivity of the urethra but perfect contractility might have better results with physical therapy and related forms of treatment.

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UROLOGICAL ONCOLOGY

Androgen suppression adjuvant to definitive radiotherapy in prostate carcinoma – long-term results of phase III RTOG 85-31

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Int J Radiat Oncol Biol Phys. 2005; 61: 1285-90

Purpose: Radiation Therapy Oncology Group protocol 85-31 was designed to evaluate the effectiveness of adjuvant androgen suppression, using goserelin, in unfavorable prognosis carcinoma of the prostate treated with definitive radiotherapy (RT).

Methods and Materials: Eligible patients were those with palpable primary tumor extending beyond the prostate (clinical Stage T3) or those with regional lymphatic involvement. Patients who had undergone prostatectomy were eligible if penetration through the prostatic capsule to the margin of resection and/or seminal vesicle involvement was documented histologically. Stratification was based on histologic differentiation, nodal status, acid phosphatase status, and prior prostatectomy. The patients were randomized to either RT and adjuvant goserelin (Arm I) or RT alone followed by observation and application of goserelin at relapse (Arm II). In Arm I, the drug was to be started during the last week of RT and was to be continued indefinitely or until signs of progression.

Results: Between 1987 and 1992, when the study was closed, 977 patients were entered: 488 to Arm I and 489 to Arm II. As of July 2003, the median follow-up for all patients was 7.6 years and for living patients was 11 years. At 10 years, the absolute survival rate was significantly greater for the adjuvant arm than for the control arm: 49% vs. 39%, respectively ($p = 0.002$). The 10-year local failure rate for the adjuvant arm was 23% vs. 38% for the control arm ($p < 0.0001$). The corresponding 10-year rates for the incidence of distant metastases and disease-specific mortality was 24% vs. 39% ($p < 0.001$) and 16% vs. 22% ($p = 0.0052$), respectively, both in favor of the adjuvant arm.

Conclusion: In a population of patients with unfavorable prognosis carcinoma of the prostate, androgen suppression applied as an adjuvant after definitive RT was associated not only with a reduction in disease progression but in a statistically significant improvement in absolute survival. The improvement in survival appeared preferentially in patients with a Gleason score of 7-10.

Editorial Comment

Androgen suppression adjuvant to radiotherapy is often performed, for better or worse. The long-term sequelae of this therapy e.g. bone demineralization and loss of muscle, are slowly recognized and will be in the focus of a later comment. The advantage of adjuvant therapy especially with regard to survival, however, was disputable. The long-term outcome data of this RTOG trial supports the efficacy of adjuvant hormone therapy.

Briefly, both progression measured as local and distant failure, and survival with or without evidence of disease were statistically significant better in the treatment arm. With regard to Gleason score, the subset of patients with Gleason 8-10 benefited most.

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Monotherapy for stage T1-T2 prostate cancer: radical prostatectomy, external beam radiotherapy, or permanent seed implantation

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Radiother Oncol. 2004; 71: 29-33

Background and Purpose: To review the freedom from biochemical recurrence (FBR) rates after permanent prostate brachytherapy (PPB), external beam radiotherapy (RT) to a minimum 70Gy, or radical prostatectomy (RP) for clinically localized stage T1-T2 adenocarcinoma of the prostate.

Patients and Methods: The study cohort consisted of 1819 consecutively treated clinical stage T1-T2 (AJCC 1997) localized prostate cancer patients between 1992 and 1998. All patients received monotherapy treatment without additional adjuvant therapy. The distribution by treatment modality was as follows: RT for 340, RP for 746, and PPB for 733 cases. The median follow-up time was 58 months for all cases (51 months for PPB cases, 56 months for RT cases, and 64 months for RP cases). Biochemical relapse was defined as to be detectable PSA levels in RP cases, and the ASTRO consensus panel definition for the RT and PPB cases.

Results: The 7-year FBR rates for PPB vs. EBRT vs. RP were 74, 77, and 79%, respectively. Multivariate analysis identified iPSA ($P < 0.001$) and bGS ($P < 0.001$) as independent predictors of relapse. Treatment modality, age, clinical T-stage, and race were not independent predictors of failure.

Conclusions: Pretreatment PSA levels, and biopsy Gleason score determined outcome in this study cohort. Biochemical failure rates in this study cohort are similar between PPB, RT, and RP as monotherapy for clinically localized prostate cancer.

Editorial Comment

Among several treatment options for localized prostate cancer radical prostatectomy is most often performed worldwide. The scientific basis for this , however, is swaying.

This retrospective outcome analysis of data from 1819 patients treated with either radical prostatectomy (RP), external beam radiation therapy (ERBT), or permanent prostate brachytherapy (PPB) deserves interest as it focuses solely on the subgroup of patients without adjuvant or pretreatment hormone therapy, thus, a relatively favorable subgroup of prostate cancer patients.

For all 1819 patients, the overall 7-year PSA progression rates were 76%. The 7-year PSA progression rates for RP, RT and PPB were 79%, 77% and 74% respectively. The multivariate analysis identified only pretreatment PSA and Gleason score as predictors for failure. With other words, first, no treatment fared significantly better than another. Second, there is still room for improvement especially in RT and PPB, as higher doses and better techniques are currently under evaluation here. I would predict that in 10 years from now RP would play an only minor role for the treatment of prostate cancer.

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FEMALE UROLOGY

Groin pain after a tension-free vaginal tape or similar suburethral sling: management strategies

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Objective: To review different treatment strategies for women with groin pain after tension-free vaginal tape (TVT) or similar suburethral sling procedures.

Patients and Methods: The series comprised 450 women who had a TVT procedure, with a follow-up of 3-50 months. Five women (1%) reported significant groin pain and were offered further treatment. In addition, one woman was referred from another centre and received treatment.

Results: Women with pain were initially treated conservatively, and in most the pain resolved and required no further treatment. Persistent or severe discomfort was treated with a combined steroid (methyl prednisolone, 2 mL, 80 mg) and local anaesthetic (bupivacaine, 10 mL, 0.5%) injection in four women. There were no side-effects from the treatment. One woman was relieved of her pain and required no further treatment. In one woman the local injections failed to improve her symptoms but the pain was not severe enough to warrant further treatment. Two women developed recurrent pain after an initially successful injection, and in these women the TVT was excised. One woman referred from another centre was primarily treated with TVT excision. In the three women treated with distal tape excision, the mean pain scores decreased from 8.7 before excision to 0.7 afterward. One woman is awaiting tape excision.

Conclusion: If conservative management fails to relieve the symptoms of groin pain it can be treated by injecting a mixture of steroid and local anaesthetic. However, local injection failed to provide long-term relief in three of four women. More severe symptoms might require TVT mesh dissection and excision, which provided significant pain relief.

Editorial Comment

The authors report on the incidence and management of clinically significant groin pain following a tension-free vaginal tape procedure. Findings noted a 1% rate of postoperative pain after the TVT procedure. Their study group of 5 women included 4 who were initially treated with an injection of methylprednisolone and bupivacane. Of those 4 women who were treated, one woman achieved an acceptable response and one woman had her pain reduced to a point that no further treatment was needed. The remaining 3 (2 of which underwent initial infiltration of the anesthetic solution) underwent distal tape excision. All 3 of those women had an excellent clinical response with regards to diminution in the pain score.

This report provides an excellent commentary on the presence of groin pain after the tension free vaginal tape procedure and its incidence in their surgical population. In addition, it provides a very workable algorithm of management for these patients. Key points to consider from this paper would be when the pain originally presented: Immediately after surgery or during the postoperative convalescence as adhesions would develop? In addition, it would have been of great value to know the change in pain scores after the injection therapy and to compare them to the change in pain scores after the TVT excision. The paper brings up further cogent points including whether pain after a tension-free vaginal tape has a greater incidence than reported and is the current reported incidence merely reflective of the vigorousness of the interviewing consultant. In summary, this is an excellent paper with regards to both discussing the presence of pain after tension-free vaginal tape as

well as describing a straight forward treatment algorithm. That these surgeons had an excellent response in pain to the excision of the distal end of the tape should be noted and remembered.

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Diagnosis, management and prognosis of vaginal erosion after transobturator suburethral tape procedure using a nonwoven thermally bonded polypropylene mesh

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Purpose: We studied the diagnosis, management and prognosis of vaginal mesh erosion using a thermally bonded nonwoven polypropylene mesh in a transobturator suburethral tape procedure for the surgical treatment of stress urinary incontinence in women.

Materials and Methods: A total of 65 patients diagnosed with stress urinary incontinence underwent a transobturator suburethral tape procedure with a fusion welded, nonwoven, nonknitted polypropylene mesh, with or without a central silicone coated section, at our institution. All women were followed and if vaginal erosion was diagnosed, cystoscopy and vaginoscopy were performed, the mesh was partially or completely removed and, if necessary, posterior cough test and urodynamic study were performed.

Results: Of the 65 patients 9 (13.8%) were diagnosed with vaginal erosion at the vaginal incision during a relatively long postoperative period (mean 290 days). All presented with vaginal discharge and 1 had a severe complication (obturator abscess). Complete mesh removal was necessary in 8 patients and only 2 (22%) had recurrent stress urinary incontinence.

Conclusions: A 13.8% rate of vaginal mesh erosion using a nonwoven thermally bonded polypropylene mesh was reported. This complication was probably due to the characteristics of the mesh and not to the transobturator approach. Complete removal of the tape is recommended and the continence status prognosis is good (78%).

Editorial Comment

The authors review their experience with vaginal erosion in a group of patients that underwent the transobturator suburethral tape procedure. They report a 13.8% rate of vaginal erosion. They note that all patients presented with a vaginal discharge (some being quite impressively copious) and one patient had a severe complication of an obturator abscess. The vast majority of the patients underwent complete mesh removal with subsequent continence level remaining at 78%. The authors felt the complication was not secondary to the actual transobturator technique but merely representative of characteristics of the mesh utilized.

The authors should be complimented on their report on vaginal erosions after transobturator tape procedures. This procedure, as developed by Delorme, is achieving new levels of popularity and thus any review or edification regarding this new technique is of extreme value. Key points include the presentation of persistent vaginal discharge in all of the patients with vaginal erosion, symptoms of potential dyspareunia and fever presenting in a metachronous fashion. It would have interest to note if the authors treated any of the vaginal erosions in the same conservative manner as delineated by Kobashi & Govier (1). The effect of the

material utilized as the sling as opposed to the actual technique has been commented on in previous reports. With regards to the actual tension-free vaginal tape procedure and the findings of erosions, it was noted that using a tape of polytetrafluoroethylene or polyethylene terephthalate, Ulmsten & Petros reported a 10% rate of erosion (2). When TVT has been performed utilizing different materials, the erosion rate was markedly diminished (3). It is with great probability that the same phenomenon regarding diminishing erosion rates and the transobturator technique will be noted in view of the evolution to new tapes such as Aris™ that is knitted and has a larger pore size of 550 x 170 microns. Lastly, though the sling removal was completed it did not seem to affect the continence status (78%). This rate mirrors other reports of continence levels after sling excision or urethrolysis including those performed after using a retropubic technique and is quite thought provoking in view that the TOT does not really affect a retropubic fibrosis (4).

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PEDIATRIC UROLOGY

Congenital adrenal hyperplasia and lower urinary tract symptoms

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Objectives: To assess urinary symptoms in adult women with congenital adrenal hyperplasia (CAH), as feminizing surgery in infancy is current standard practice for CAH and one of the indications for surgery is to reduce urinary symptoms.

Patients, Subjects and Methods: In a case-control study, 19 women with CAH, of whom 16 had had childhood feminizing genital surgery, and age-matched women with no CAH, were evaluated. Subjects and controls completed the Bristol Female Lower Urinary Tract Symptoms (BFLUTS) questionnaire.

Results: Urge incontinence was reported in 13 (68%) patients and three (16%) controls (P = 0.003); stress incontinence was present in 47% and 26%, respectively (P = 0.31). Results from the controls were comparable with those documented in larger studies on normal populations. Nine of the patients felt that their urinary symptoms had an adverse effect on their lives, compared with only one of the controls (P = 0.008).

Conclusion: Patients with a diagnosis of CAH are more likely to have significant urinary symptoms than normal controls. At present it is not clear whether this is a result of surgery or an effect of CAH. In at least two-thirds of patients surgery did not achieve the objective of reducing urinary symptoms.

Editorial Comment

The authors perform a questionnaire study of lower urinary tract symptoms in patients with congenital adrenal hyperplasia. They found a strikingly high rate of urge incontinence and an increased rate of stress incontinence in these patients compared with controls. Almost 50% of patients were bothered by their urinary tract symptomatology.

This is an important first step in reporting urinary tract function in women with CAH. The results point to a significant problem and demonstrate that this is an issue that we should assess more carefully in the future treatment and evaluation of these patients.

However, there are certain caveats. Only 19 CAH patients were evaluated and 3 had not had any genital or urinary tract surgery. Moreover, in the others, it is very unclear what exact surgery these patients had undergone and whether the procedure was performed by a specialist. Moreover, the same group has reported that many of these operations were inadequate in a similar group of patients. Because this was a questionnaire study (which may have the benefit of eliciting more symptomatology by virtue of its anonymity), we know nothing about urinary flow, residual urine or any other objective parameters of voiding. Strikingly, despite the fact that 47% felt the symptoms had an adverse effect on their lives, the patients apparently had not sought evaluation or treatment. Clearly more study is needed.

Overall, this is an important study that reminds us of the need to be aware of these possible symptoms. It highlights how important it is for all of us to be aware of this issue and to offer evaluation and treatment for these problems.

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Dysfunctional elimination syndrome as an etiology of idiopathic urethritis in childhood

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Purpose: Idiopathic urethritis (IU) of childhood or urethrorrhagia is a common problem characterized by blood spotting in the underwear between voiding. A clear etiology has not been established and treatments vary. We postulate that idiopathic urethritis is a manifestation of underlying dysfunctional elimination syndrome (DES).

Materials and Methods: During a 5-year period we reviewed the records of all children diagnosed with IU in our practice. In total 72 children fit the analysis criteria. There were 68 boys and 4 girls. All children presented with either gross blood per urethra or microhematuria. Children with active infection, immunodeficiency, neurogenic bladder, vesicoureteral reflux, infravesical obstruction, urethral trauma or other genitourinary anomalies were excluded. Evaluation included thorough history and physical examination, urinalysis and urine culture. Renal and bladder ultrasound, voiding cystourethrogram and uroflow/electromyogram/post-void residual volume were obtained in select patients. Study children were divided into 2 cohorts. The first cohort (group 1, 37 patients) was treated with traditional remedies using antibiotics, urinary analgesics and/or anticholinergics. The second cohort (group 2, 35 patients) was treated by bowel and bladder regimens, laxatives when necessary, and biofeedback and/or alpha-blockers when sphincter dyssynergia was identified.

Results: A total of 13 patients in group 1 (35%) had a full response to treatment, 6 (16%) had a partial response and 18 (49%) failed to respond. A total of 29 patients in group 2 (83%) had a full response to treatment, 2 (6%) had a partial response and 4 (11%) had no response. It took an average of 12.1 months to respond fully in group 1, while in group 2 the same full response took an average of 5.2 months. Of the 18 children who crossed over from group 1 to group 2, 15 (83%) had a full response with an average response time of 7.3 months.

Conclusions: Our data clearly reveal a higher cure rate when children with urethritis are treated according to DES guidelines. IU of childhood is a manifestation of underlying DES and should be treated as such.

Editorial Comment

The authors provide a new theory as to the etiology of idiopathic urethritis. This is a frustrating condition that leads to significant parental and patient anxiety and occasionally results in urethral stricture. In a previous era, patients were over-investigated and rarely was a significant cause discovered. Recently patients have been treated primarily with reassurance with some benefit but considerable skepticism.

Hence, the advent of a new theory is welcome. The authors propose that dysfunctional elimination is the basic cause. This abnormal pattern of voiding leads to high velocity, turbulent flow in the posterior urethra that results in the hematuria and dysuria. They also demonstrate that treating these patients for dysfunctional elimination results in greatly improved resolution of symptoms.

Although welcome, there are some questions about the validity of the theory. Symptoms in their patients were frequent. For example, approximately 40% had urgency/frequency, 20% had constipation and about 20% had infrequent voiding. However, if symptoms like these are actively sought, how many of their patients with undescended testes or hernias would also have these symptoms? Similarly, the treatment of dysfunctional elimination is much more involved than reassurance. Could the added attention and ongoing personal interest have helped in the reported resolution? Despite these questions, this is an important contribution and those of us caring for these children should strongly consider this possibility.

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