

ance. In some patients with hyperaldosteronism the presence of hyperplastic glands may actually contain unilateral aldosteronoma. This report brings to us new and important radiological signs that might help us in the differentiation between bilateral adrenal hyperplasia from aldosterone-producing adenoma. Differentiating between these two distinct causes is fundamental because an aldosteronoma is usually best treated surgically, whereas bilateral adrenal hyperplasia is treated medically. A specificity of 100% was achieved when a mean limb width of greater than 5 mm was used to diagnose bilateral adrenal hyperplasia.

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UROGENITAL TRAUMA

Recent advances in management of female lower urinary tract trauma

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Purpose of Review: Abdominal and pelvic injuries are often associated with devastating lower urinary tract injuries. The literature is replete with studies involving male lower urinary tract trauma, however the diagnosis and management of similar injuries in women is not as well covered. In this article we will review recent advances in the diagnosis and management of female lower urinary tract trauma.

Recent Findings: The recent literature emphasizes the importance of diagnosing and managing female lower urinary tract injuries, both of the bladder and the urethra, caused by blunt or penetrating trauma to the lower abdomen, pelvis and perineum. Successful management of these injuries is based upon accurate diagnosis, recognition of associated injuries, and prompt treatment. Diagnosis and treatment of female bladder perforation have been well established. Reports of female urethral injuries are scarce, however, and subsequently the management is not standardized.

Summary: High suspicion, accurate diagnosis and prompt treatment are key for the successful management of female lower urinary tract injuries associated with lower abdominal, pelvic and perineal trauma. A standardized algorithm for management of female urethral injuries would be helpful.

Editorial Comment

Female urethral trauma is sufficiently rare that few of us have any significant individual experience. This analysis nicely encapsulates the diagnosis and treatment of both bladder and urethral injuries in women. While the treatment of bladder injuries will be reviewed for many, several aspects of care for female urethral injury bear emphasis. 1)- Urethral injuries in women are far more common in those less than 17 years old. 2)- Index of suspicion should remain high, and hematuria or vaginal bleeding should be evaluated with cystoscopy, even if that is inconvenient in the multi-injured patient. 3)- MRI may be used in females to delineate anatomy before definitive reconstruction, if required. 4)- Repair of severe urethral injury with subsequent fistula or stricture is not yet standardized in the literature. Transfer to a center with experience in this entity may be warranted. Options include first stage Johanson urethroplasty, two stage Johanson urethroplasty, "cut to the light" urethrotomy and dilation, bladder flap urethroplasty, vaginal flap urethroplasty, buccal mucosal onlay

urethroplasty, anastomotic urethroplasty or even bladder neck closure and suprapubic urinary diversion. Surgeons should use the approach they are most comfortable with, awaiting future publications which might better establish the best technique.

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Ureteral injuries from external violence: the 25-year experience at San Francisco General Hospital

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Purpose: We review our 25-year experience with traumatic ureteral injury, for which the approach to management differs from the far more common iatrogenic injury.

Materials and Methods: Review of our trauma data base disclosed 36 patients with 38 ureteral injuries (33 penetrating [24 gunshot, 9 stab wounds] and 5 blunt) from 1977 to 2003, a period during which we treated approximately 4,000 traumatic genitourinary injuries.

Results: The site of injury was the upper ureter in 70%, mid in 8% and distal in 22%. Major intra-abdominal injuries were often associated, but hematuria and hypotension were not consistent findings (75% and 50%, respectively). Excretory urograms performed in 24 patients was diagnostic in only 40%. Computerized tomography and retrograde pyelogram were diagnostic in 4 of 4 and 1 of 1 injuries, respectively (100%). Overall, diagnosis was by radiographic findings in 13 of the 36 injuries (36%) and by laparotomy in 23 (64%). Management was with stenting in 2 patients, primary closure in 12, ureteroureterostomy in 12, ureteroneocystostomy in 5, transureteroureterostomy in 1, Boari flap in 1 and nephrectomy in 1. The complication rate was 18%.

Conclusions: Although traumatic ureteral injury is rare these patients are often critically ill and delay in diagnosis will increase the risk of complications. Contrast enhanced imaging in patients who are not undergoing laparotomy for associated injury should not be limited to those with hematuria and hypotension since these are not entirely sensitive. Most injuries are short segment loss in the upper ureter and can be repaired with debridement and tension-free anastomosis (sic).

Editorial Comment

Ureteral injuries from external violence are rare and few large series exist. An update on the treatment of ureteral strictures from San Francisco General Hospital (which first presented some of these patients in 1989) allows a review of salient principles. It is the largest series yet published on the subject.

There are several relevant points in this paper: 1)- In most series, a significant proportion of the patients have initially missed injuries. In this series only 3/38 had missed injuries (8%). This shows that if the doctors really look, they can decrease the number of missed injuries; 2)- All blunt injury patients need ureteric imaging with computed tomography scan or intraoperative one-shot intravenous pyelogram (IVP) if they have gross hematuria, or microhematuria together with shock, major associated injuries, or deceleration injury; 3)- The authors suggest that if the criteria of flank ecchymosis or flank tenderness is added to the above criteria in cases

of blunt trauma, then detection of ureteric injury is improved (although I wonder how much this would increase the number of CT scans performed in the trauma population...); 4)- All penetrating injury patients need ureteric imaging if they have gross hematuria, microhematuria, or a flank wound; 5)- One shot IVP can be helpful in identifying ureteric injury, but intraoperative inspection of the ureter should still be done if the missile path is close to the ureter; 6)- The authors suggest that patients too unstable to tolerate ureteral repair should have the ureter tied off with silk suture and postoperative percutaneous nephrostomy placed. Definitive delayed repair can be completed later. Interestingly, none of the 38 injured ureters required this approach!; 7)- Most upper and mid ureteral injuries can be treated by minimal debridement and uretero-ureterostomy; 8)- Most distal ureteral injuries should be treated by ureteroneocystostomy; 9)- Some patients with delayed presentation may respond to ureteric stenting at the time of retrograde pyelogram. If not, then open repair will be required.

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PATHOLOGY

Correlation of minute (0.5 mm or less) focus of prostate adenocarcinoma on needle biopsy with radical prostatectomy specimen: role of prostate specific antigen density

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Purpose: Few studies have examined the radical prostatectomy followup of a minute focus of adenocarcinoma on prostate needle core biopsy.

Materials and methods: We searched the surgical pathology data base (1999 to 2000) for patients with a minute focus of Gleason score 6 adenocarcinoma (defined as a single focus less than or equal to a 40x microscopic field) who subsequently underwent radical retropubic prostatectomy at our institution. Potentially insignificant tumors were defined as those with a radical prostatectomy tumor volume of less than 0.5 cc, Gleason score 6 or less and organ confined disease.

Results: A total of 54 patients (mean age 58 years, range 45 to 70) were evaluated. The average number of prostate cores per biopsy was 6.3. All had Gleason score 6 by study design. Mean prostate specific antigen (PSA) was 6.0 (range 0.8 to 15). Average tumor volume at radical prostatectomy was 0.39 cc. Of the 54 tumors 24 (44%) were 0.1 cc or less. Two-thirds of the tumors were clinically potentially insignificant. Using a PSA density (PSAD) cutoff of 0.15 we identified 30 of 36 patients (83%) with potentially insignificant tumors. Of those with a PSAD of 0.15 or less with clinically significant tumors, 5 of 6 still had relatively small, organ confined tumors with Gleason score less than 7.

Conclusions: In the era of PSA screening most patients with a minute focus of Gleason score 6 or less adenocarcinoma on needle biopsy had potentially insignificant tumors. However, one-third of patients had clinically significant tumors warranting definitive therapy. The smallest focus of cancer on needle biopsy is not a guarantee of a clinically insignificant tumor. PSAD may have some value within this group in guiding clinicians and patients as to the likelihood of having clinically insignificant tumors.