continence and potency, with minimal risk of residual tumor. Despite improvements in detection of early prostate cancer and in surgical procedures, approximately 25% of patients develop biochemical recurrence after radical prostatectomy (1). The clinicians usually use PSA kinetics in order to differentiate local recurrence from mestastatic disease. Since MR imaging, particularly with endorectal coil, may be used in the evaluation of the postprostatectomy bed, for the detection of recurrent disease, it is of crucial importance to adequately differentiate retained SV remnants from recurrent disease. In this interesting study, the authors' detected SV remnants in 52 (20%) of 263 of the patients examined, with an additional 99 patients (38%) having findings suggestive of retained fibrotic SV tips. In 22 (8%) of the patients examined, the seminal vesicles were retained at more than half their presurgical size. The appearance of SV remnants may persist for years after surgery. SV remnants showing low signal intensity on T2-weighted images ranged from intermediate to low signal intensity, compared with the signal intensity of water. The decreased signal intensity is assumed to be related to differing degrees of fibrosis. Fibrotic, SV remnants and retained fibrotic SV tips were found most commonly in the superolateral aspects of the prostatectomy fossa. The authors also pointed out that, although, retained SVs do not secrete PSA, they tend to pull down along the lateral aspects of the rectum and then may be palpated on digital rectal examination as small firm nodules and may be mistaken for a local recurrence. Another point to be considered is that local recurrence may occur within retained SVs.

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UROGENITAL TRAUMA

Reasons to Omit Digital Rectal Exam in Trauma Patients: No Fingers, No Rectum, No Useful Additional Information

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Background: Performance of digital rectal examination (DRE) on all trauma patients during the secondary survey has been advocated by the Advanced Trauma Life Support course. However, there is no clear evidence of its efficacy as a diagnostic test for traumatic injury. The purpose of this study is to analyze the value of a policy mandating DRE on all trauma patients as part of the initial evaluation process and to discern whether it can routinely be omitted.

Methods: Prospective study of patients treated at a Level I trauma center. Clinical indicators other than DRE (OCI) denoting gastrointestinal bleeding (GIB), urethral disruption (UD), or spinal cord injury (SCI) were sought and correlated with DRE findings suggesting the same. Impression of the examining physician as to the need and value of DRE was also studied. Patients with a Glasgow Coma Scale Score (GCS) of 3 and pharmacologically paralyzed were excluded from the SCI analyses. UD analysis included only males.
Results: In all, 512 cases were studied (72% male, 28% female) ranging in age from 2 months to 102 years. Thirty index injuries were identified in 29 patients (6%), 17 SCI (3%), 11 GIB (2%), and 2 UD (0.4%). DRE findings agreed positively or negatively with one or more OCI of index injuries in 93% of all cases (92% seeking SCI, 90% seeking GIB, 96% seeking UD). Overall, negative predictive value of DRE was the same as that of OCI, 99% (SCI 98% versus 99%, GIB, 97% versus 99%, UD both 100%). Positive predictive value for DRE was 27% and for OCI 24% (SCI 47% versus 44%, GIB 15% versus 18%, UD 33% versus 6%). Efficiency of DRE was 94% and OCI was 93%. For confirmed index injuries, indicative DRE findings were associated with 41% and OCI 73% (SCI 36% versus 79%, GIB 36% versus 73%, UD 50% versus 100%). OCIs were present in 81% of index injury cases. In all index injury cases where OCIs were absent, positive DRE findings were also absent. DRE was felt to give additional information in 5% of all cases and change management in 4%. In cases where the clinician felt DRE was definitely indicated (29%) it reportedly gave no additional information in 85% and changed management in 11%.
Conclusion: DRE is equivalent to OCI for confirming or excluding the presence of index injuries. When index injuries are demonstrated, OCI is more likely to be associated with their presence. DRE rarely provides additional accurate or useful information that changes management. Omission of DRE in virtually all trauma patients appears permissible, safe, and advantageous. Elimination of routine DRE from the secondary survey will presumably conserve time and resources, minimize unpleasant encounters, and protect patients and staff from the potential for further harm without any significant negative impact on care and outcome.

Editorial Comment

The old teaching mantra in trauma management is that the only trauma patient who should not get a digital rectal exam (DRE) is either the patient who has no rectum or the doctor who has no fingers. This interesting paper by Esposito et al questions the overall value (yield) of the trauma DRE. Traditionally, the trauma DRE assesses for signs that suggest either rectal injury, urethral disruption injury or spinal cord injury. Rectal injury is suggested on DRE by occult blood (hemoccult test positive) in the rectal vault or loss of rectal wall integrity. Urethral disruption injury is suggested by a “high riding prostate”. Spinal cord injury is suggested by loss of or decreased rectal sphincter tone, and thus disruption of the S4-S5 spinal arc. The authors contend that related clinical findings and signs, such as blood at the urethral meatus, scrotal hematoma, perineal hematoma, and type of pelvic fracture are more reliable as positive predictors of injury then the DRE. In this study, DRE was found to add information in only 5% of cases and changed management in only 4%; and this was only significant for rectal tone (SCI) and rectal bleeding (rectal injury) and not for urethral injury. I have always felt that a labeled “high riding prostate” was a misnomer. Usually the trauma DRE is performed by the most inexperienced examiner and to them, all prostates feel high riding. The issue of poor inter-rater reliability to prostate DRE has been addressed by Smith & Catalona (1). With pelvic fracture and urethral disruption the pelvis fills with blood, the planes are obliterated and the prostate can be difficult to palpate. Thus a non-palpable prostate would seem to be more predictive of possible urethral injury (2). A well designed multi-institution study would put this issue at rest.

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Ultrasound Detection of Blunt Urological Trauma: A 6-Year Study

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The objective of this study was to assess the utility of emergency ultrasonography in the detection of blunt urological injury. A retrospective review was conducted of all consecutive emergency blunt trauma ultrasonograms (US) obtained at a level I trauma centre from January 1995 to January 2001. Among the 4320 emergency ultrasonograms performed, 596 patients (14%) had intraabdominal injury and, of these, 99 patients (17%) had urological injuries. The sensitivity of ultrasound for all urological injuries was 67%, and specificity was 99.8%. For isolated urological injuries, sensitivity and specificity were 55.6 and 99.8%, respectively. Ultrasound was most accurate in the detection of grade III renal injuries, identifying 14/15 (93%), and 13 underwent laparotomy. For isolated urological injuries, 15 of 25 (60%) patients with a true-positive US underwent laparotomy compared to 3 of 20 (15%) with a false-negative US. Isolated urological injury was significantly associated with an ultrasonographic pattern of free fluid in the left upper quadrant and the left pericolic gutter (odds ratio=55.1; $P < 0.001$), followed by isolated fluid in the left pericolic gutter (odds ratio=8.6; $P = 0.04$). Although emergency ultrasonography is useful in the triage of patients with blunt urological trauma, it may miss significant urological injury requiring further intervention. As most renal injuries may be managed non-operatively, further studies such as contrast-enhanced CT or angiography should be obtained in the stable patient with suspected blunt urological injury.

Editorial Comment

Computed tomography with intravenous contrast is the gold standard when imaging the injured kidney. In this day and age, most CT scanners are quick and helical, and thus without separate delayed images, injuries to the collecting system or ureteropelvic junction can be missed. Although CT has its clear advantages, most of the world does not have the luxury of a CT scan available and working 24 hours a day, in every trauma center. An accepted alternative to CT has been a complete intravenous urogram, followed by possible angiography. This interesting paper by McGahan et al explores the value of US as a screening tool for renal injuries. The manuscript, however, is muddied by its statistics, wordiness, and nonstandard renal trauma grading scale.

Arguably, ultrasound (US) is relatively cheap, safe, rapid, portable, and non-invasive method for imaging the abdomen. FAST (focused assessment with ultrasonography in trauma) has become an accepted method for evaluating the blunt trauma patient for possible intra-abdominal injuries. The value of US, however, is operator dependent. In properly trained hands, US have a sensitivity and specificity for detecting the presence of hemoperitoneum (suggesting intra-abdominal injury) as diagnostic peritoneal lavage (DPL). Ultrasound can be done at the bedside in the resuscitation area while simultaneously performing other diagnostic or therapeutic procedures. The indications for abdominal US are the same as for DPL.

The true value to FAST is in the evaluation for blood in the pericardial sac, hepatorenal fossa, splenorenal fossa, and the pelvis. A second or control scan is then performed 30 minutes later. The control scan is done to detect progressive hemoperitoneum in patients with a slow bleeding rate. As a retroperitoneal organ, renal trauma blood and urine (free-fluid) are confined to Gerota's fascia and the retroperitoneum. With kidney trauma associated free fluid is absent up to 1/2 the time. Free fluid noted with renal injuries is more likely to be free fluid from associated intra-abdominal injuries then from the kidney injury. This means that FAST must rely on parenchymal evaluation for grading of a renal injury. US imaging can be severely limited by obesity, subcutaneous air, and previous abdominal operations. Further limitations of US are its inability to distinguish between a urine leak and blood, and inability to reliably assess the vascularity of the kidney. Although not currently readily available, there is good promise that micro-bubble, contrast enhanced US may improve kidney parenchymal evaluation. Overall, FAST seems to be of value as a tool for triaging the unstable trauma patient, but when it comes to evaluating the stable kidney injured patient, US is not ready for prime time.

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PATHOLOGY

Risk of Prostate Cancer on First Re-Biopsy within 1 Year Following a Diagnosis of High Grade Prostatic Intraepithelial Neoplasia is Related to the Number of Cores Sampled

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Purpose: We determined the influence of the extent of needle biopsy sampling on the detection rate of cancer on first biopsy within 1 year following a diagnosis of HGPIN.
Materials and Methods: We identified 791 patients with HGPIN on the initial biopsy who had a followup biopsy within 1 year of their diagnosis. The mean interval from diagnosis of HGPIN to re-biopsy was 4.6 months. In the initial biopsy with HGPIN, 323 men had 8 or more cores (median 10, range 8 to 26) and 332 men had 6 core biopsies.
Results: In the 6 core initial sampling group, the risk of cancer on re-biopsy was 20.8% compared to only 13.3% following an initial 8 core or more sampling ($p = 0.011$). With 6 core biopsies for both the initial and re-biopsy the risk of cancer was 14.1% (group 1). With an initial 6 core biopsy and 8 core or more biopsy on followup, the risk of cancer was 31.9% (group 2). With 8 core or more biopsy sampling for both initial and repeat biopsies, the risk for cancer was 14.6% (group 3). The differences between groups 1 and 3 as compared to group 2 were statistically significant ($p = 0.001$ and $p < 0.0001$, respectively).
Conclusions: With relatively poor sampling (6 cores) on the initial biopsy, associated cancers are missed resulting in only HGPIN on the initial biopsy, and with relatively poor sampling on re-biopsy there is also a relatively low risk of finding cancer on re-biopsy (group 1). With poor sampling on the initial biopsy and better sampling on re-biopsy, some of these initially missed cancers are detected on re-biopsy yielding a higher detection of cancer (group 2). Sampling more extensively on the initial biopsy detects many associated cancers, such that when only HGPIN is found they often represent isolated HGPIN. Therefore, re-biopsy even with good sampling