Editorial Comment

It is well accepted that most blunt trauma to solid organs can be managed effectively by a nonoperative approach. In the past, it was dogma that all penetrating injuries to the abdomen or retroperitoneum required surgical exploration. However, there is mounting evidence that in the properly selected patient, there has been a paradigm shift to an increasing nonoperative or expectant management of penetrating abdominal injuries (where the patient has no peritoneal signs and is hemodynamically stable). Overall, kidney injuries that end up needing surgical exploration is often determined by the mechanism of injury, namely, blunt trauma 2 to 4 %, stab wounds roughly 50%, and gunshot wound roughly 75%. The reason penetrating injuries more commonly require exploration is that the injuries are typically of higher Grade 3 to 5, which more commonly require exploration. Logically, grade for grade, kidney injuries should be teated the same, regardless of the mechanism. Thus, in highly select cases where the kidney is an isolated injury, expectant management can be considered. The proviso being that delayed bleeding may be more common, and secondary procedures such as selective embolization or ureteral stent placement needed in a delayed fashion.

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PATHOLOGY

A Working Group Classification of Focal Prostate Atrophy Lesions

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Focal atrophy is extremely common in prostate specimens. Although there are distinct histologic variants, the terminology is currently nonstandardized and no formal classification has been tested for interobserver reliability. This lack of standardization hampers the ability to study the biologic and clinical significance of these lesions. After informal and formal meetings by a number of the authors, focal atrophy lesions were categorized into 4 distinct subtypes as follows: (i) simple atrophy, (ii) simple atrophy with cyst formation, (iii) postatrophic hyperplasia, and (iv) partial atrophy. In phase 1 of the study, pathologists with varying levels of experience in prostate pathology were invited to view via the Internet a set of "training" images with associated descriptions of lesions considered typical of each subtype. In phase 2 of the study, each participant provided diagnoses on a series of 140 distinct "test" images that were viewed over the Internet. These test images consisted of the 4 subtypes of atrophy and images of normal epithelium, high grade prostatic intraepithelial neoplasia, and carcinoma. The diagnoses for each image from each pathologist were compared with a set of "standard" diagnoses and the kappa statistic was computed. Thirty-four pathologists completed both phases of the study. The interobserver reliability (median kappa) for classification of lesions as normal, cancer, prostatic intraepithelial neoplasia, or focal atrophy was 0.97. The median kappa for the classification of atrophy lesions into the 4

subtypes was 0.80. The median percent agreement with the standard diagnosis for the atrophy subtypes were: simple 60.6%, simple with cyst formation 100%; postatrophic hyperplasia 87.5%; partial atrophy 93.9%. The lower percentage for simple atrophy reflected a propensity to diagnose some of these as simple atrophy with cyst formation. Seven pathologists completed the phase 2 analysis a second time, and their intraobserver reproducibility was excellent. Three of 4 pathologists with low agreement with the standard diagnosis for simple atrophy improved their scores after repeating the analysis after re-examination of the "training set" of images. In conclusion, these criteria for variants of focal prostate atrophy may facilitate studies to examine the relation between various patterns of prostate atrophy and prostate cancer.

Editorial Comment

Seven pathologists with interest and expertise in genitourinary pathology took part in a sponsored meeting to present a morphological classification for prostatic atrophy: simple atrophy, postatrophic hyperplasia, simple atrophy with cyst formation and partial atrophy. Other morphological classifications for prostatic atrophy also exist (1,2). The histologic subtypes of prostatic atrophy do not represent distinct entities but a morphologic continuum of acinar atrophy (3). Subtyping atrophy is useful only to allow recognition of the lesion and to distinguish it from mimics. The study surveyed checked the inter-reproducibility among 34 pathologists from 25 different institutions from 10 different countries of the morphological classification proposed by 7 pathologists.

Prostatic atrophy is one of the most frequent benign mimickers of prostatic adenocarcinoma (4). Atrophy is commonly associated with chronic prostatitis which may have an active component characterized by presence of neutrophils. The lesion can also be the result of treatment with radiation and antiandrogens. Although many examples of atrophy are still considered idiopathic in nature, in cases of age related atrophy there is strong evidence that it may be a manifestation of chronic ischemia due to local arteriosclerosis (1).

Some reports suggest that focal atrophy may be causally linked to prostate cancer and to other pre-neoplastic lesions (5). However, other studies do not support this hypothesis (1,2). Another exciting link of atrophy is related to serum PSA levels. We have just finished in our Institution a study showing that, regardless of cause, there is a significant positive association between extent of atrophy and serum total or free PSA elevation in patients with biopsies showing no cancer, high-grade prostatic intraepithelial neoplasia (HGPIN) or areas suspicious for cancer (ASAP). The findings suggest that damaged epithelial cells in atrophic acini may be source of serum PSA elevation.

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Widespread High-Grade Prostatic Intraepithelial Neoplasia on Prostatic Needle Biopsy: A Significant Likelihood of Subsequently Diagnosed Adenocarcinoma

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In comparison with earlier studies, recent reports have demonstrated a lower incidence of prostate carcinoma after an initial diagnosis of high-grade prostatic intraepithelial neoplasia (HGPIN). The latter has led to a general tendency to reconsider the absolute need for a rebiopsy in this setting. The current retrospective study assesses the subsequent likelihood of identifying prostatic adenocarcinoma (PCa) in 41 patients with an initial diagnosis of "widespread" HGPIN defined as HGPIN present in 4 or more biopsy cores. All patients underwent at least 1 follow-up (F/U) sampling procedure in a period of 1 to 41 months. PCa was found in 16/41 patients (39%), all except 1 identified on the first F/U biopsy with the remaining patients diagnosed on a transurethral resection after a negative first F/U biopsy. All but 1 prostatic carcinoma diagnoses were obtained within 2 years from initial biopsy with 10 rendered within the first year. On average, prostate cancer was identified at 10.4 months (range: 1 to 36). One-fourth of all identified prostatic carcinomas were of Gleason score 7 or more. In 4 additional patients (9.7%), F/U biopsy revealed HGPIN with adjacent atypical small glands suspicious but not diagnostic of carcinoma (PINATYP). Of 41 patients, 10 (24.3%) continued to show HGPIN with the remaining 11/41 patients (26.8%) showing benign prostatic tissue. Patients >or=70 years of age at the time of initial biopsy had a statistically significant higher rate of PCa or HGPIN/PINATYP diagnosis on repeat biopsy compared with younger patients (P=0.02), with 55% of older men being diagnosed with cancer as compared with 33% in younger men. Patients with fewer cores sampled on initial biopsy were more likely to be diagnosed with carcinoma as opposed to HGPIN/PINATYP on F/U (P=0.015). Other factors such as the number of F/U procedures, serum prostate-specific antigen level before initial HGPIN biopsy, number of cores per F/U biopsy, and F/U interval length did not affect the likelihood of finding carcinoma. In summary, our study reveals a 39% risk of finding PCa on repeat biopsies obtained after an initial diagnosis of widespread HGPIN. Our findings support the need for a repeat biopsy in this subset of patients.

Editorial Comment

There are many evidences for the association of high-grade prostatic intraepithelial neoplasia (HGPIN) and prostatic carcinoma (1): the cytologic features are similar, both are located most frequently in the peripheral zone, both have more than 3 times the proliferative activity of benign glands, highest grade of PIN has loss of basal cell layer that is similar to carcinoma, increased frequency, extent and severity of PIN in the presence of carcinoma, age incidence peak precedes carcinoma, and similar immunophetype.

Atypical glandular proliferation, dysplastic lesion, atypical lesion, intraductal dysplasia among others were designations used to refer to this lesion. In 1989 (2), in a workshop sponsored by the American Cancer Society in Bethesda, a unified comenclature was adopted: prostatic intraepithelial neoplasia (PIN). Considering that grade 1 (low-grade) PIN has a very poor reproducibility among pathologists and a very low (if any) association to carcinoma, it is proposed to report only grade 2 or 3 PIN (high-grade PIN)

Recent reports have shown that due to an increased needle biopsy core sampling, which detects many associated cancers on initial biopsy, there is a decreased incidence of cancer following a diagnosis of HGPIN. Due to this facts, it is now recommended that men do not need routine repeat needle biopsy within the first year following the diagnosis of HGPIN (3). The study surveyed showed that there is an exception to this recommendation in case HGPIN is extensive (present in 4 or more cores). In this case there is a 39% risk of finding prostate cancer on repeat biopsies.

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INVESTIGATIVE UROLOGY

Concentration of Elastic System Fibers in the Corpus Cavernosum, Corpus Spongiosum, and Tunica Albuginea in the Rabbit Penis

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The corpus cavernosum (CC) extracellular matrix is essential for normal penile erection and is implicated in erectile dysfunction. Although investigations of these issues have used the rabbit CC, organization of its components is not well known to date. We characterized and quantified the volumetric density (Vv) of the elastic system fibers in the corpus spongiosum (CS), CC and tunica albuginea (TA) of the rabbit penis. Adult New Zealand rabbits (n = 10) were used. The penile mid-shaft fragments were fixed with 4% phosphate-buffered formalin solution and/or Bouin's liquid for 24-48 h, and processed using standard histological techniques. The sections were stained with Weigert's Fucsin-Resorcin with previous oxidation. The elastic system fibers Vv (%) was determined in 25 random fields of each fragment, using the M-42 test grid. The histochemical methods detected elastic system fibers in CS, CC and TA of all animals. The Vv of elastic fibers average was 25.03+/-2.0% for CC, 32.23+/-1.41% for CS and 22.38+/-3.61% for TA. Results for CC and CS were not significantly different. The great amount of elastic fibers distribution beneath the endothelium suggests that these fibers may have an important role in the erection process in rabbits. The present data should therefore provide important information for devising experiments and interpreting results when using the rabbit penis as a model for penile dysfunctions, especially when making comparisons with humans.

Editorial Comment

The general understanding of the morphological changes and physiology of penile erection has been obtained considering different animal models such as rats, domestic animals, primates and rabbits. Therefore, normative data on the erectile tissue of these animals are important when studying diverse physiological situations and experimental pathological conditions, and comparing the findings obtained with findings in humans.

The purpose of this study was to better understanding the rabbit penis using morphometrical analysis of the elastic fibers in the corpus spongiosum (CS), corpus cavernosum (CC) and tunica albuginea (TA).

A previous study demonstrated that the volumetric density (Vv) of elastic system fibers in the rat CC was 9%, and therefore, it was concluded that the cellular and matricial components of the rat CC differ markedly from those of humans in content and organization (1). Consequently, inferences and correlations based on physiological