

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 than 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

does not detect many additional cancers (group 3). Our study demonstrates that the risk of cancer on biopsy within 1 year following a diagnosis of HGPIN (13.3%) is not that predictive of cancer on re-biopsy if good sampling (8 or more cores) is initially performed. For patients diagnosed with HGPIN on extended initial core sampling, a repeat biopsy within the first year is unnecessary in the absence of other clinical indicators of cancer.

Editorial Comment

In 2005 were published the recommendations on prognostic factors in prostate needle biopsies of an International Consultation Organized by the WHO Collaborating Center for Urologic Tumors (1). The recommendations included: 1) As the clinical significance or biologic relevance of low-grade prostatic intraepithelial neoplasia is not known and appears insignificant, this diagnosis should not be made in needle biopsies; 2) The diagnosis of high-grade prostatic intraepithelial neoplasia (HGPIN) is predictive of subsequent cancer detection in 27% to 31% (recent data) and 30% to 60% of patients, respectively; 3) Owing to the lower predictive value for cancer in recent years, attention has focused on HGPIN parameters in needle core biopsies that may be more useful in the subsequent detection of cancer. Whether the extent of involvement of HGPIN is a better predictor of subsequent prostate cancer is controversial as well as the pattern of HGPIN (micropapillary, cribriform, etc.).

In the study surveyed, the risk of cancer on biopsy within 1 year following a diagnosis of HGPIN was 13.3% in cases of an initial 8 core or more sampling. This percentage is lower than 27% to 31% of other recent studies. This study emphasizes the trend for a substantially decreasing in subsequent cancer detection if HGPIN is seen in extended biopsies. The authors conclude that for patients diagnosed with HGPIN on extended initial core sampling, a repeat biopsy within the first year is unnecessary in the absence of other clinical indicators of cancer.

Reference

1. Amin M, Boccon-Gibod L, Egevad L, Epstein JI, Humphrey PA, Mikuz G, et al.: Prognostic and predictive factors and reporting of prostate carcinoma in prostate needle biopsy specimens. *Scand J Urol Nephrol Suppl.* 2005; 216: 20-33.

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Relationship between Primary Gleason Pattern on Needle Biopsy and Clinicopathologic Outcomes among Men with Gleason Score 7 Adenocarcinoma of the Prostate

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Objectives: To examine the relationship among needle biopsy primary grade, prostatectomy grade, and postprostatectomy biochemical recurrence among men with Gleason score 7 disease.

Methods: We identified 320 men with Gleason score 7 tumors on prostate biopsy treated with radical prostatectomy between 1991 and 2001 by a single surgeon. None of these patients had received neoadjuvant or adjuvant hormonal therapy or radiotherapy. The chi-square test and Kaplan-Meier method were used to evaluate the correlation among biopsy Gleason score, prostatectomy Gleason score, and biochemical recurrence.

Results: A total of 252 (79%) and 68 (21%) men had primary Gleason pattern 3 and 4 identified on needle biopsy, respectively. Of the patients with Gleason pattern 3+4 tumors on biopsy, 24% were upgraded to primary pattern 4 or more on final pathologic analysis. Of the patients with Gleason pattern 4+3 tumors on biopsy, 47% were downgraded to primary pattern 3 or less on final pathologic analysis. The actuarial risk of biochemical prostate-specific antigen recurrence was significantly lower among patients with Gleason pattern 4+3 on biopsy, if the prostatectomy Gleason score was downgraded to 3+4 or less ($p = 0.03$).

Conclusions: Approximately 47% of men with a diagnosis of Gleason pattern 4+3 on needle biopsy are downgraded at radical prostatectomy and will have biochemical prostate-specific antigen recurrence-free outcomes similar to patients originally diagnosed with Gleason pattern 3+4 adenocarcinoma. This group of patients may benefit from definitive treatment such as radical prostatectomy for management of their disease.

Editorial Comment

Gleason score 7 may result from 3+4=7 or 4+3=7. Data regarding the importance of the percentage of Gleason 4 pattern in Gleason score 7 tumors are rapidly expanding but still controversial (1). In recently generated nomograms, patients with Gleason scores of 4+3 and 3+4 are stratified differently, underscoring the importance of the relative amount of pattern 4 (2). Whether or not the actual percentage of pattern 4 tumor should be included in the report is not clear based on the data published to date and, if this emerges as an important parameter, meaningful discriminatory cut-off points for the percentage of pattern 4 will need to be defined.

In the article surveyed, most frequently there is downgrading of patients originally graded as Gleason pattern 4+3=7. In 24% of the patients with Gleason pattern 3+4 tumors on biopsy were upgraded to primary pattern 4 or more on final pathologic analysis, and approximately 47% with a diagnosis of Gleason 4+3 on needle biopsy were downgraded at radical prostatectomy. The latter group had biochemical prostate-specific antigen recurrence-free outcomes similar to patients originally diagnosed with Gleason pattern 3+4 adenocarcinoma.

References

1. Amin M, Boccon-Gibod L, Egevad L, Epstein JI, Humphrey PA, Mikuz G, et al.: Prognostic and predictive factors and reporting of prostate carcinoma in prostate needle biopsy specimens. *Scand J Urol Nephrol Suppl.* 2005; 216: 20-33.
2. Makarov DV, Sanderson H, Partin AW, Epstein JI: Gleason score 7 prostate cancer on needle biopsy: is the prognostic difference in Gleason scores 4 + 3 and 3 + 4 independent of the number of involved cores? *J Urol.* 2002; 167: 2440-2.

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INVESTIGATIVE UROLOGY

Urinary Hyaluronan as a Marker for the Presence of Residual Transitional Cell Carcinoma of the Urinary Bladder

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