

surgery. The Parkland Group addresses more the acute CT findings and need for embolization. Just as with blunt splenic injuries, the presence of intravascular contrast extravasation (“a contrast blush”) on the arterial phase of a CT scan and the presence of a large perirenal hematoma (> 4 cm from renal capsule to hematoma edge) greatly predicted the likelihood for persistent bleeding and thus a significant vascular injury. The Parkland group argues that the AAST injury grading scale for major renal injuries should be subclassified into Grade 4, A = low risk and G4 B = High Risk, where a blush and large hematoma were present. I think that such a suggestion is a good one and would help to better guide therapy. Overall, I think we need to be more vigilant about identifying early signs of significant arterial renal injuries and early and quickly sending these patients to the interventional radiologist for super selective embolization.

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PATHOLOGY

doi: 10.1590/S1677-553820090006000019

The significance of a positive bladder neck margin after radical prostatectomy: The American Joint Committee on Cancer pathological stage T4 designation is not warranted

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J Urol. 2009 Nov 13. [Epub ahead of print]

Purpose: The American Joint Committee on Cancer currently designates invasion of the bladder neck as a pT4 lesion. However, retrospective analyses have not demonstrated biochemical recurrence-free survival after radical prostatectomy to be consistent with other T4 lesions. We examined biochemical recurrence-free survival and cancer specific survival in men with a positive bladder neck margin.

Materials and Methods: Of nearly 17,000 patients in the Johns Hopkins Institutional radical prostatectomy database (1982 to 2008) 198 (1.2%) were identified with a positive bladder neck margin. Kaplan-Meier analyses were used to evaluate biochemical recurrence-free survival and cancer specific survival. A multivariate proportional hazards model predicting biochemical recurrence-free survival and cancer specific survival was fit with prostate specific antigen, Gleason sum and pathological stage to determine the significance of a positive bladder neck margin.

Results: Of the 198 men with a positive bladder neck margin 79 had an isolated bladder neck margin without seminal vesicle or lymph node involvement. The 12-year biochemical recurrence-free survival of men with organ confined disease, extraprostatic extension, seminal vesicle invasion and lymph node involvement without a positive bladder neck margin was 91.1%, 61.1%, 24.5% and 8.1%, respectively. For men with a positive bladder neck margin and those with an isolated positive bladder neck margin biochemical recurrence-free survival was 16.8% and 37.1%, respectively. The 12-year cancer specific survival for men with organ confined disease, extraprostatic extension, seminal vesicle invasion and lymph node involvement without a positive bladder neck margin was 93.5%, 89.0%, 77.0% and 66.8%, respectively. For men with a positive bladder neck margin and

those with an isolated positive bladder neck margin cancer specific survival was 78.2% and 92.5%, respectively. A positive bladder neck margin was not a significant predictor of outcome ($p = 0.4$) on multivariable analysis. Conclusions: The incidence of an isolated positive bladder neck margin is low. Men with an isolated positive bladder neck margin after radical prostatectomy experienced a 12-year biochemical recurrence-free survival of 37% and cancer specific survival of 92%, similar to patients with seminal vesicle invasion (pT3b) and extraprostatic extension (pT3a), respectively. The existing American Joint Committee on Cancer classification for prostate cancer should be reconsidered.

Editorial Comment

According to the tumor, node, and metastasis (TNM) classification, prostate cancer with bladder neck invasion is considered a significantly advanced disease next to rectal involvement and/or external sphincter involvement (pT4). However, most studies evaluating the positive margins of radical prostatectomy specimens do not consider bladder neck involvement with such an advanced stage as defined by the TNM classification (1-5).

Within the TNM system the T4 category was initially intended for tumors noted on clinical assessment to invade adjacent organs, such as the rectum or bladder. Such tumors were thought to be aggressive with a high propensity to recur and metastasize. However, presently clinical stage T4 cancer is rarely if ever treated surgically and, therefore, the corresponding pathological definition of stage pT4 disease has come to refer almost exclusively to the microscopic involvement of smooth muscle bundles of the bladder neck (6).

We found similar results of Pierorazio's et al. study from 290 patients submitted to radical prostatectomy (7). We compared the time to biochemical (PSA) progression-free outcome for patients with bladder neck (BN) invasion to patients with extraprostatic extension (EPE) or seminal vesicle invasion (SVI). A univariate Cox proportional hazards model was created and a final multivariate Cox proportional hazards model was developed to assess the influence of several variables simultaneously. BN invasion was present in 55/290 (18.96%) surgical specimens and 18/290 (6.2%) also showed positive surgical margins. Patients with microscopic BN invasion had significantly higher preoperative PSA, higher Gleason score, higher apical and circumferential positive surgical margins, more advanced pathological stage, and more extensive tumors. At 5 years 42%, 40% and 27% of the patients with BN invasion, extracapsular extension (EPE), and seminal vesicle invasion (SVI), respectively, were free of biochemical recurrence following RP. In multivariate analysis, BN invasion did not contribute for a higher relative hazard of PSA recurrence when added to EPE or SVI. We concluded that BN invasion is associated to adverse clinicopathological findings. However, the biochemical-free outcome following radical prostatectomy is similar to patients with EPE but significantly better than patients with SVI. The findings of our study did not favor considering microscopic bladder neck invasion as stage pT4 but, probably, stage pT3a.

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doi: 10.1590/S1677-553820090006000020

Radical prostatectomy findings in patients in whom active surveillance of prostate cancer fails

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J Urol. 2009; 182: 2274-8

Purpose: Little data are available on radical prostatectomy findings in men who experience disease progression following active surveillance.

Materials and Methods: A total of 470 men in our active surveillance program underwent annual repeat needle biopsies to look for progression defined as any Gleason pattern grade 4/5, more than 50% cancer on any core or cancer in more than 2 cores. Slides were available for review in 48 of 51 radical prostatectomies with progression.

Results: The average time between the first prostate biopsy and radical prostatectomy was 29.5 months (range 13 to 70), with 44% and 75% of the patients showing progression by the second and third biopsy, respectively. There were 31 (65%) organ confined cases, of which 25 (52%) were Gleason score 6. Of 48 cases 17 (35%) had extraprostatic extension, 3 had seminal vesicle/lymph node involvement and 7 (15%) had positive margins. Mean total tumor volume was 1.3 cm³ (range 0.02 to 10.8). Of the 48 tumors 13 (27%) were potentially clinically insignificant (organ confined, dominant nodule less than 0.5 cm³, no Gleason pattern 4/5) and 19% (5 of 26) of the radical prostatectomies with a dominant tumor nodule less than 0.5 cm³ demonstrated extraprostatic extension, 4 with Gleason pattern 4. All 10 tumors with a dominant nodule greater than 1 cm³ were located predominantly anteriorly.

Conclusions: Most progression after active surveillance occurs 1 to 2 years after diagnosis suggesting under-sampling of more aggressive tumor rather than progression of indolent tumor. Even with progression most tumors have favorable pathology (27% potentially insignificant). A small percentage of men have advanced stage disease (pT3b or N1). The anterior region should be sampled in men on active surveillance.

Editorial Comment

The criteria for insignificant prostate cancer in the present study were absence Gleason pattern grade 4 or 5, less than 50% cancer on any core or cancer in no more than 2 cores (1,2). It is better to consider these criteria as probabilistic predictors of small volume cancer with favorable pathologic findings. The term insignificant may be interpreted as the latent carcinoma of the prostate. Unfortunately, there is no marker so far to predict the biologic behavior of the prostate cancer. Even small volume cancers with favorable pathologic findings at the time of diagnosis may progress as clinically significant cancers.

The study showed that most progression after active surveillance occurred 1 to 2 years after diagnosis and even with progression most tumors had favorable pathology (27% potentially insignificant). The authors