

**Purpose:** To evaluate the influence of perineural invasion (PNI) in the biopsy specimen on biochemical progression-free survival in hormone naïve prostate brachytherapy patients.

**Materials and Methods:** From 1995 through 2001, 512 consecutive hormone naïve patients (173 low-risk, 212 intermediate risk, and 127 high-risk) underwent permanent brachytherapy for clinical stage T1b-T2c NxM0 prostate cancer. All patients underwent brachytherapy at least 3 years prior to analysis. The median follow-up was 5.3 years. Biochemical progression-free survival was defined by a PSA cutpoint  $\leq 0.4$  ng/mL after nadir and by the ASTRO consensus definition. PNI was defined as carcinoma tracking along or around a nerve within the perineural space. Clinical, treatment and dosimetric parameters evaluated for biochemical progression-free survival included PNI, age, PSA, Gleason score, percent positive biopsies, prostate volume, brachytherapy planning volume, V100/150/200, D90, supplemental external beam radiation therapy, tobacco consumption, BMI, hypertension and diabetes.

**Results:** PNI was documented in 133 patients (26.0%). Regardless of which biochemical progression-free definition was used, 94.0% and 94.9% of patients with and without PNI remained free of biochemical progression. The median time to failure in patients with and without PNI was 17.2 months and 17.9 months respectively. For the entire biochemically disease-free cohort, the median post-treatment PSA was  $< 0.1$  ng/mL. In univariate Cox regression analysis, pretreatment PSA, percent positive biopsies, prostate volume and Gleason score predicted for biochemical outcome. PNI did not approach statistical significance ( $p = 0.671$ ). In multivariate analysis, only pretreatment PSA ( $p < 0.001$ ) and percent positive biopsies ( $p < 0.001$ ) maintained statistical significance.

**Conclusions:** In hormone naïve brachytherapy patients implanted with generous periprostatic treatment margins, the presence of PNI in the biopsy specimen did not adversely impact 8-year biochemical progression-free survival. PNI is not an independent indicator for ADT in prostate brachytherapy patients.