Vascular invasion predicts recurrence after radical prostatectomy: stratification of risk based on pathologic variables.

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Abstract

OBJECTIVES: To determine whether vascular invasion (VI) is an independent predictor of prostate cancer recurrence and/or survival and to stratify risk of recurrence in patients with VI.

METHODS: Vascular invasion status was documented in 620 radical prostatectomy specimens with an average of 7.5 years of follow-up. The relationship between VI and other clinical and pathologic features was tested. Vascular invasion as an independent predictor of recurrence was investigated by logistic regression analysis. Survival analyses and stratification of VI patients was developed with Kaplan-Meier survival curves.

RESULTS: Vascular invasion was identified in 110 patients (18%) and correlated significantly (P < 0.0001) with high Gleason grade, extracapsular extension (EPE), seminal vesicle invasion, increasing cancer volumes, positive margins, and elevated preoperative prostate-specific antigen (PSA) levels. Logistic regression analysis demonstrated that VI was a strong and independent predictor for disease recurrence, when considered with grade, EPE, seminal vesicle invasion, lymph node involvement, cancer volume, preoperative PSA levels, and positive margins. At 12 years after radical prostatectomy, patients with VI demonstrated significantly lower disease-specific survival (P = 0.0005). Among patients with VI, stratification of grade, EPE, and the number of VI foci identified three significantly different prognostic groups.

CONCLUSIONS: In long-term follow-up, VI was a significant predictor of prostate cancer recurrence and death after radical prostatectomy. In patients with VI, high Gleason grade, EPE, and more than five foci of VI are associated with poor prognosis.

PMID: 15491714 [PubMed - indexed for MEDLINE]