High Gleason grade carcinoma at a positive surgical margin predicts biochemical failure after radical prostatectomy and may guide adjuvant radiotherapy.


Abstract

Study Type - Prognosis (case series) Level of Evidence 4 What's known on the subject? and What does the study add? Only 30-35% of patients with positive surgical margins after radical prostatectomy develop recurrent disease. Adjuvant radiotherapy reduces the rate of biochemical relapse or metastasis and improves overall survival after radical prostatectomy. Various pathological factors, such as location and extent of positive margins, have been proposed as possible prognostic factors in men with margin-positive prostate cancer, however, the recent International Society of Urological Pathology consensus meeting in Boston noted that there is limited data on the significance of Gleason grade of the carcinoma at a positive margin. The present study shows that the presence of high grade prostate cancer, i.e. Gleason pattern 4 or 5, at a positive surgical margin is an independent predictor of biochemical recurrence after radical prostatectomy. Moreover, patients with lower grade carcinoma at the margin have a similar prognosis to men with negative margins. Hence, assessment of Gleason grade at the site of positive margin may aid optimal selection of patients for adjuvant radiotherapy.

OBJECTIVE: To establish predictors of biochemical recurrence by analysing the pathological characteristics of positive surgical margins (PSMs), including Gleason grade of the carcinoma at the involved margin.

PATIENTS AND METHODS: Clinicopathological and outcome data on 940 patients who underwent radical prostatectomy (RP) between 1997 and 2003 were collected. Of these, 285 (30.3%) patients with PSMs were identified for pathological review, including assessment of location of margin, linear extent, number of PSMs, plane of margin and Gleason grade (3 vs 4 or 5) at the margin.

RESULTS: At a median follow-up of 82 months, the biochemical recurrence rate of the PSM cohort was 29%. On univariate analysis, the presence of Gleason grade 4 or 5 at the margin (34.4% of cases) was significantly associated with biochemical recurrence (hazard ratio [HR] 2.80, 95% confidence interval [CI]= 1.82-4.32, P < 0.001) compared with the presence of Gleason grade 3. Linear extent of margin involvement was also associated with recurrence (P= 0.009). Single vs multiple margin involvement, location, and plane of the involved margin were not significant predictors of recurrence. On multivariate analysis, Gleason grade 4 or 5 at the margin remained an independent predictor of recurrence (HR 2.14, 95% CI = 1.29-4.03, P= 0.003).

CONCLUSION: The Gleason grade at the site of a PSM identifies patients at increased risk of biochemical recurrence and should aid stratification of patients for adjuvant radiation therapy.

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