OBJECTIVES: To correlate the extent and location of positive surgical margins after radical prostatectomy with disease progression.

METHODS: Data on 495 patients who underwent radical prostatectomy by one surgeon were analyzed. All radical prostatectomy specimens were sectioned entirely using 2 to 3-mm step sections by one pathologist. One hundred fifty-one patients (30.5%) had one or more positive surgical margins and were subjected to further detailed analysis. Recurrence was defined as a serum prostate-specific antigen (PSA) level of 0.2 ng/mL and rising on at least two postoperative measurements.

RESULTS: The mean follow-up was 25.3 months (range 3 to 73). The overall recurrence rate was 13.3%. Neoadjuvant hormonal treatment was given to 37 (25%) of those with a positive margin. Patients with positive surgical margins had a significantly higher incidence of recurrence compared with those with negative margins (27.8% versus 6.9%, P = 0.001). The recurrence rate for various locations was 29% apex/urethra, 30% posterior, 33% anterior, 36% lateral, 48% posterolateral, and 57% bladder neck. Time to recurrence was shorter in patients older than 70 years (P<0.055); with a preoperative PSA greater than 10 ng/mL (P<0.0001); with a biopsy Gleason score greater than 7 (P = 0.02); with a prostatectomy Gleason score greater than 7 (P<0.001); with seminal vesicle invasion (P = 0.0001); having more than 1 location of a positive margin (P = 0.002); or having a positive margin at the bladder neck (P = 0.003) or the posterolateral surface of the prostate (P = 0.02) compared with other locations. Multivariate proportional hazards analyses indicated that age older than 70 (P = 0.005), a prostatectomy Gleason score of 7 (P = 0.015) or 8 to 10 (P = 0.003), and positive margin(s) at the bladder neck (P = 0.003) were independently associated with a shorter time to recurrence among patients with a positive margin.

CONCLUSIONS: In our study, among patients with positive surgical margins, those with multiple positive margins, or a margin involving the bladder neck or the posterolateral surface of the specimen carried a higher risk of progression. A positive margin at the bladder neck appears to be the most significant adverse prognostic indicator. This information may help in decisions regarding additional therapy.

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