Definition of Insignificant Tumor Volume of Gleason Score 3+3=6 (Grade Group 1) Prostate Cancer at Radical Prostatectomy - Is it Time to Increase the Threshold?

Kryvenko ON, Epstein JI.

Abstract

OBJECTIVE: To investigate tumor volume (TV) of insignificant Gleason score 3+3=6 (Grade Group 1) prostate cancer with contemporary grading.

METHODS: We studied 439 consecutive radical prostatectomies with Gleason score 3+3=6 (Grade Group 1) cancer entirely submitted for histologic examination.

RESULTS: Four-hundred-and-seven (92.7%) cases were organ-confined (pT2), 17 (3.9%) had positive margin at apex (pT2+), and 15 (3.4%) had extraprostatic extension (EPE)(pT3a), 10 focal and 5 non-focal. pT2 and pT3 cases did not differ by age or gland weight. When total TV was <0.5 cm³, there were 6/311 (1.9%) tumors with EPE and 6/311 (1.9%) with tumor at the margin at the apex for a total of 12/311 (3.8%) significant cancers. TVs between 0.5-1.0 cm³ and 1.0-2.0 cm³ had similar incidences of significant cancers. With TV between 0.5-2.0 cm³, there were 5/108 (4.6%) cases with EPE and 7/108 (6.5%) with pT2+ at the apex for a total of 12/108 (11.1%) significant cancers. The incidence of significant cancer increased further with TV >2.0 cm³.

CONCLUSIONS: Only 3.8% of <0.5 cm³ Gleason score 3+3=6 (Grade Group 1) cancers had EPE or extended apically where surgical removal was not possible. In contrast, 11.1% of cancers 0.5-2.0 cm³ had these adverse features and would not have been tumors amenable for active surveillance. Our data indicate that increasing threshold above 0.5 cm³ is associated with a significantly increased likelihood of EPE and positive surgical margin. This should be considered in the future studies dealing with prognostic value of TV and in studies assessing active surveillance criteria.

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KEYWORDS: Gleason core 3+3=6; Grade Group 1; Prostate cancer; insignificant; tumor volume

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