
Gleason score 3+4=7 prostate cancer with minimal quantity of gleason pattern 4 on needle biopsy is associated with low-risk tumor in radical prostatectomy specimen.

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Abstract

A modified Gleason grading system as proposed in the 2005 International Society of Urological Pathology (ISUP) consensus meeting is the current grading system for prostate cancer. With this modified ISUP Gleason grading system, many Gleason score (GS) 6 cancers by the old grading system are upgraded to GS7 cancers on biopsy diagnosis even with minimal quantity (≤5%) of Gleason pattern 4 (GP4) component (GS7miniGP4). However, grade concordance between the core needle biopsy of GS7miniGP4 and the corresponding radical prostatectomy (RP) specimens has not been studied. In this study, we analyzed the pathologic features of 256 consecutive needle biopsies and their corresponding RP specimens. The quantity of GP4 was calculated as the percentage of total cancer for GS7 cancer in the biopsy. Of 256 biopsies, 88 (34.4%), 107 (41.8%), and 61 (23.8%) had a GS of 6, 3+4=7, and 4+3=7, respectively. Of 107 biopsies with GS 3+4=7, 22 (20.6%) are GS7miniGP4. Ten of 22 cases of G7miniGP4 in the biopsies (45%) had pathologically insignificant tumor in the RP. The quantity of GP4 in the GS7 biopsy significantly correlated with GS, pathologic stage, and total tumor volume in the corresponding RP. The GS, pathologic stages, total tumor volume, and insignificant tumor rate in RP were not significantly different between the biopsy groups of GS 3+3=6 and GS7miniGP4, whereas those parameters were significantly different between biopsy groups of GS 3+3=6 and GS 3+4=7 with GP4 6% to 50% and between biopsy groups of GS7miniGP4 and GS7 with GP4 6% to 50%. Our data demonstrate that pathologic parameters in the RP are similar between the biopsy groups of GS7miniGP4 and GS6, and the grading of cases with biopsy GS7miniGP4 is often downgraded in RP specimens. The clinical significance of minimal quantity (≤5%) of GP4 in biopsies with GS7 prostate cancer needs to be further evaluated, particularly because of its potential impact on clinical decisions between active surveillance versus surgery.

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