6 PIRADS v.2 protocol in own material: What is the probability of prostate cancer and where to look for it in primary and repeated biopsy?

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Introduction & Objectives: The PIRADS 2 protocol is routinely used in the assessment of focal prostatic lesions. The probability of prostate cancer (PCa) and the grade of Gleason score (Gls.) increase with category. The first purpose of this study was to assess the likelihood of PCA in the own material in relations to the PIRADS category. The second was assessment of the most common tumor location in the group of patients referred for primary and repeated biopsy.

Materials & Methods: Study group included thirty nine consecutive men subjected to primary (25 men – 64%) and repeated (14 men – 36%) TRUScoreBx due to suspicion of PCA. The median age was 66 (50–78) yo. The median PSA level was 6.6 ng/ml, PSAD 0.11. All men underwent 1.5T (23 men – 59%) or 3T (16 men – 41%) mpMRI (T2 – weighted, diffusion weighted, dynamic contrast enhanced). We defined 81 suspected lesions on MRI images – 6 lesions were scored PIRADS 5 (7.4%), 33 lesions – PIRADS 4 (41%); 41 lesions – PIRADS 3 (51 %) 1 lesion – PIRADS 2 (1%). During the same procedure study protocol consisted of: systematic biopsy performed by the first operator blinded for mpMRI results (mean 12 cores), cognitive biopsy performed by the first operator after reviewing mpMRI results (mean 2 cores) and finally software TRUS-MRI fusion biopsy performed by the second operator using BioJet System biopsy platform (mean 2.2 cores).

Results: Prostate cancer was diagnosed in 67% of PIRADS 5, 39% of PIRADS 4 and 17% of PIRADS 3 category lesions. The detailed distribution of histopathological units found in the collected cores was as follows:
– PIRADS 5 – 2 x Gls. 6 (3+3), 2 x Gls. 7 (3+4), 2 x T0;
– PIRADS 4 – 3 x Gls. 6 (3+3); 6 x Gls. 7 (3+4), 2 x Gls. 7 (4+3), 1 x Gls. 8 (4+4), 1 x 9 (4+5), 20 x pT0 including: 9 x prostatitis, 2 x HG PIN, 3 x ASAP;
– PIRADS 3 – 6 x Gls. 6 (3+3); 1 x Gls. 7 (4+3); 34 x pT0 – including 9 x prostatitis, 1 x HG PIN.
The location of the foci with confirmed cancer was as follows:
– primary biopsy: peripheral zone posterior 7x, peripherial zone anterior 4x, transition zone posterior 1x, transitional zone anterior 1x, anterior stroma 0x;
– repeated biopsy: peripheral zone posterior 8x, peripherial zone anterior 1, transition zone posterior 0, transition zone anterior 3, anterior stroma 4.

Conclusions: In this study, we found positive correlation between risk of PCA and category of PIRADS v.2 system. The probability of PCA detection and relation to the Gleason score is lower than reported in the literature. In primary biopsy PCA is more frequently found in the peripherial zone. In repeated biopsy PCA is more often located in the anterior parts, including the anterior stroma. Further studies confirming the above mentioned observation are necessary.