Location of Positive Margins in Radical Prostatectomy Specimens: Prognostic Implications

Introduction and Objective: To investigate the impact of location of positive surgical margins (PSM) on biochemical outcome after radical retropubic prostatectomy (RRP).
Material and Methods: We included data from a prospective cohort of 605 consecutive patients treated with RRP for localized prostate cancer. Patients were stratified for location of PSM (apical vs. non-apical). Patients were followed for biochemical recurrence (BR), defined as PSA≥0.2 ng/ml after RRP. Primary endpoint was biochemical recurrence-free survival. Kaplan-Meier and Cox proportional hazard model was used for uni- and multivariate analysis.
Results: Median follow-up was 2.7 years. BR occurred in 81 (13.4%) patients. The overall PSM rate was 35.4%. Of these, apical PSMs were present in 42.5% and non-apical in 57.5%. The presence of any PSM had a significant impact on the risk for biochemical recurrence (BR) (Hazard ratio (HR)= 3.3; 95% CI: 2.1-4.9, p<0.0001). Compared with margin negative patients both apical and non-apical PSM increased the risk of BR (HR=2.1 and 4.2, p=0.02 and p<0.0001, respectively). In multivariate analysis; pT-category, PSA and specimen Gleason score independently increased the risk of BR. In an exploratory multivariate analysis of pT2 tumours, the impact of apical PSM on biochemical recurrence-free survival was not statistically significant. However, non-apical PSM was associated with a statistically significantly increased risk of BR (HR=3.4, p=0.01).
Conclusion: The presence of PSMs after RRP is associated with a higher risk of BR. Non-apical PSMs are associated with a significantly higher risk of BR compared to and apical PSMs. This is even more evident in pT2 tumours. This could have clinical implications when selecting patients for adjuvant treatment in post RRP high-risk patients.