

## The Influence of Positive Surgical Margins on Clinically Meaningful Oncologic Outcomes in Prostate Cancer Patients Undergoing RARP. Results From a Large, Multi-Institutional Series After Long-Term Follow-Up.

### The impact of Positive Surgical Margins on long term survival after robot assisted radical prostatectomy: 20 years' report from the EAU Robotic Urology Section (ERUS) Scientific Working Group

**Introduction:** Positive Surgical margins (PSM) frequently occur in patients undergoing radical prostatectomy (RP). Although the presence of a PSM at RP represents a well-established risk factor for biochemical recurrence (BCR), the impact of PSM on hard oncologic endpoints has not yet been proved definitively. In this scenario, we tested if the presence and the extension of PSMs were associated with BCR, cancer specific mortality (CSM), and overall mortality (OM) in a cohort of patients who underwent RP with a long postoperative follow up (>10 years).

**Methods:** we used a population of 9876 men who underwent robot-assisted RP (RARP) at 7 centers between 2002-2012. We excluded all patients with incomplete data on pathological report and follow-up, and who received neoadjuvant or adjuvant therapies (final population: 7880 men). Cox multivariable analyses (COX) assessed the impact of margin status (positive vs negative) and PSM extension (negative vs <3mm vs >3mm vs multifocal) on the risk of BCR, CSM, and OM after adjusting for preoperative PSA, pathological T (pT ≤2 vs >2) and N stage (pN 0-X vs 1), and grade group (≤3 vs >3). Finally, time to outcomes was estimated using the adjusted Kaplan-Meier method.

**Results:** Overall, 1245 men (16%) had PSM at final pathology. Among these, 1053 (85%), 152 (12%), and 40 (3%) men had <3 mm, ≥3mm, and multifocal PSM. At a median follow-up for survivors of 140 months, 1357 (17%) men experienced BCR, 831 (11%) men have died, including 101 (1.3%) for PCa. At COX, PSM (positive vs negative) were associated only with BCR (Hazard Ratio [HR]:2.28, 95% Confidence Interval [CI]: 2.03, 2.57). Evaluating margin extension, PSM <3mm (HR: 2.22, CI: 1.97, 2.52), ≥3mm (HR: 2.58, CI: 2.00, 3.32) and multifocal (HR: 2.76, CI:1.72, 4.42) were associated with BCR, but only multifocal PSM were associated with OM (HR: 1.96, CI: 1.04, 3.71) and CSM (HR: 5.03, CI: 2.08, 12.1) (Figure 1).

**Conclusion:** The presence of a PSM at RP is not invariably associated with an increased risk of mortality. We demonstrated an association between multifocal PSM and both OM and CSM. These patients should be considered for additional cancer therapies immediately after surgery.

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