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**Introduction & Objectives:** Patients with clinical localized prostate cancer undergo Robotic-assisted radical prostatectomy and the pathology shows pathology stage T2 (pT2) with tumor extension to inked surgical margins. Biochemical recurrence (BCR) during follow-ups maybe found in some patients, but the others are not (non-BCR). We review and analyze the various clinical or pathological features on BCR of organ confined prostate cancer with positive surgical margin.

**Materials & Methods:** From 2008 to 2011, 48 patients underwent Robotic-assisted radical prostatectomy with the pathology of pT2 with positive surgical margin were enrolled. We used AJCC 8<sup>th</sup> edition as stage system. They were followed for 10 years. 25 patients had BCR, while the other 23 patients did not. Several clinical or pathological features were designed to find if any significant difference existed between the two groups.

**Results:** There was a significant difference in the aspect of initial PSA value between BCR group and non-BCR group, which were 28.6 ng/ml ( $\pm 19.9$ ) in BCR group, and 17.0 ng/ml in non-BCR group ( $\pm 11.3$ ) respectively ( $p < 0.001$ ). As for other factors, we could not find any significant difference. In positive cores of transrectal ultrasound guided prostate biopsy, BCR groups was 4.3( $\pm 2.8$ ) positive chips in total 10.1( $\pm 2.0$ ) chips, and non-BCR groups was 4.1( $\pm 2.5$ ) positive chips in total 10.5( $\pm 1.9$ ) chips ( $p = 0.832$ ). In cancer cells percentage in biopsy cores, BCR group was 26.5% ( $\pm 21.2\%$ ) with comparing to non-BCR group of 24.0% ( $\pm 20.3\%$ ) ( $p = 0.686$ ). Turing to tumor percentage in surgical specimen, BCR group with 15.1% ( $\pm 9.8\%$ ) of tumor were check out of specimen volume 51.0 ml ( $\pm 36.3$  ml) and non-BCR group with 12.8% ( $\pm 9.5\%$ ) out of specimen volume 41.7 ml ( $\pm 11.5$  ml) ( $p = 0.406$ ). There were 22 patients of BCR group proved to be peri-neural invasion (88%) and 15 patients (65.2%) in non-BCR group ( $p = 0.061$ ).

**Conclusions:** There is a significant correlation of initial PSA level with post-operative BCR. The higher the PSA level is, the more possibility of patients encounters with BCR when intra-operative incision on prostate cancer occurs.