Introduction and Objective: Counseling patients with prostate cancer is influenced by Gleason score, PSA value, and clinical stage. However, pre-operative Gleason score on biopsy does not always correlate with final pathologic Gleason score following radical prostatectomy. Our purpose was to compare pre-operative Gleason score to the Gleason score on pathological specimen following Robotic-Assisted Radical Prostatectomy (RARP) and to determine if upstaging of Gleason score correlated with high grade disease or local invasion.

Methods: After Institutional Review Board approval, we performed a retrospective review of 663 consecutive patients who underwent robotic RARP between February 2003 and October 2009 at our institution. A total of 90 patients (13.6%) were identified with a higher Gleason score on final pathologic specimen compared to preoperative Gleason score (upstaged group). This upstaged group was compared to an age-matched cohort of 133 patients (20.1%) with Gleason scores that did not change from pre-operative biopsy to post-operative pathology (stable group). Variables analyzed include preoperative PSA, final pathology prostate specimen weight, percent of positive tissue of cores on biopsy, and the presence perineural invasion, lymphovascular invasion, positive margins and capsular penetration.

Results: The mean pre-operative Gleason score in the upstaged group was 6.05 (Range: 4 - 8, SD = 0.752) compared to a mean preoperative Gleason score of 6.56 (Range: 5 - 10, SD = 0.0752) in the stable group. The mean increase in Gleason score in the upstaged group was 1.40. The presence of perineural invasion was significantly more prominent in the upstaged group compared to the stable group (91% vs 74%, p=0.0023). There was also a greater degree of positive margins (43% vs. 28%, p=0.0177) and capsular penetration (48% vs. 34%, p=0.0372) in the upstaged group. All other variables were statistically similar.

Conclusions: Patients with an increase in Gleason score on final pathology following RARP had a higher risk of having positive margins, perineural invasion, and capsular penetration. Further studies are necessary to evaluate which pre-operative factors can predict who is at risk for upstaging of Gleason score. The study could be strengthened by having all pathology slides interpreted by a single genitourinary pathologist in order to avoid intra-observer variability.