Histopathological Evaluation of Nerve Sparing Technique for Radical Prostatectomy

Introduction and Objective: Owing to the rapid dissemination of da Vinci surgical system all over the world including Asia, a lot of robot-assisted radical prostatectomies (RALP) in Asia are now performed using robotic assistance. However, the Japanese government had not approved da Vinci until November in 2009 and a very small number of RALP were performed in Japan compared to the other countries until then. As with any new surgical technique, an associated learning curve is necessary to attain proficiency. Nerve sparing (NS) technique is very important to preserve potency. We analyzed the prostatic specimen with intrafascial NS, interfascial NS and non-NS to assess feasibility of NS technique at Kobe University Hospital.
Materials and Methods: Forty patients underwent RALP by the same surgical team at our institution. The records of the first 19 consecutive patients who underwent NS RALP (5 intrafascial NS, 18 interfacial NS, 15 non NS) were reviewed and histopathological examination was performed. The presence and distribution of periprostatic neurovascular structures were histologically evaluated. A mid-gland section of each prostate was immunostained with the S100 antibody for quantitative analysis of nerves. Nerves and ganglions exclusively in periprostatic location were counted.
Results: The mean PSA level of all patients was 7.56. The stage distribution was pT2a in 5, pT2b in 1, pT2c in 10, pT3a in 2 and pT3b in 1. The Gleason score was 6 and 7 in 2 and 17, respectively. Positive surgical margin (PSM) was in 4 cases. The difference in the number of nerve bundle counts in three groups was statistically significant.
Conclusions: The NS RALP is a safe procedure that effectively preserves the nerve bundle without increasing PSM rate at the institution with surgeons lacking experience in performing robotic surgery.