Introducing the Synchroseal: A new robotic setting for robot-assisted radical prostatectomy and super-extended lymph node dissection for locally advanced prostate cancer


Sarchi L.1, Bravi C.A.2, Mottaran A.3, Piazza P.3, Knipper S.4, Paciotti M.5, Amato M.1, Farinha R.6, Gonzalez-Meza F.7, Corsetti M.8, Sinatti C.9, Puliatti S.10, De Groote R.9, Mottrie A.9

1University of Modena and Reggio Emilia, Dept. of Urology, Modena, Italy, 2IRCCS Ospedale San Raffaele, Dept of Urology, Milan, Italy, 3IRCCS Azienda Ospedaliero Universitaria di Bologna, Dept of Urology, Bologna, Italy, 4Martini-Klinik Prostate Cancer Center, Dept of Urology, Hamburg, Germany, 5Humanitas Research Hospital-IRCCS, Dept of Urology, Milan, Italy, 6Centro Hospitalar Universitario de Lisboa Central, Dept of Urology, Lisbon, Portugal, 7ORSI Acedemy, Dept of Urology, Melle, Belgium, 8ORSI Academy, Dept of Urology, Melle, Belgium, 9OLV Hospital, Dept of Urology, Aalst, Belgium, 10University of Modena and Reggio Emilia, Dept of Urology, Modena, Italy

Introduction & Objectives: The SynchroSeal is an advanced bipolar surgical energy device for the da Vinci X® and Xi™ surgical systems. It is an 8-mm single-use instrument that has 60° of wristed articulation and a curved jaw design. Despite its many applications, data on robot-assisted radical prostatectomy (RARP) and pelvic lymph node dissection using the Synchroseal is scarce.

Materials & Methods: We described our initial series of patients treated with RARP and super-extended pelvic lymph node dissection for locally advanced prostate cancer using a novel robotic setting for da Vinci Xi surgical system. Three robotic instruments were used (monopolar scissors, needle driver and the Synchroseal) plus two assistant ports (5- and 12-mm). All surgeries were performed using a trans-peritoneal, anterior approach by an experienced surgeon (A.M.) with a lifetime experience of >2000 RARPs. No surgical clips were used during the surgery. Given the locally advanced disease stage, posterior-lateral dissection was performed in the pre-rectal plane, and included the resection of the Denonvilliers fascia. Super-extended lymph node dissection included obturator, external iliac, hypogastric, pre-sacral and common iliac nodes up to the aortic bifurcation. Preoperative characteristics of this initial series were described, as well as peri-operative data, complications, and final pathology report.

Results: A total of 10 patients received surgery with this new robotic setting. Median (interquartile range [IQR]) age and preoperative PSA were 67 (60, 72) years and 9.4 (6.5, 13.1) ng/ml. Overall, 9 (90%) and 8 (80%) patients had biopsy International Society of Urologic Pathology (ISUP) group ≥3 and clinical T3 stage, respectively. Median (IQR) operative time was 200 (180, 210) minutes, and no intra-operative complication was recorded. The median (IQR) estimated blood loss was 300 (200, 600) cc, and no patient required transfusions. On final pathology, 8 (80%) men had ISUP group ≥3, whereas 9 (90%) patients had T3 disease. Median (IQR) number of lymph nodes removed was 24 (18, 31), and 3 (30%) patients had pN1 disease. A total of 2 (20%) men had positive surgical margins (PSM). After surgery, only one patient experienced two complications, a urinary tract infection requiring antibiotics (Clavien-Dindo grade 2) and a transient ischemic attack (Clavien-Dindo grade 1).

Conclusions: In men with locally advanced prostate cancer, the use of Synchroseal during robot-assisted radical prostatectomy and super-extended lymph node dissection is a safe and valid alternative to conventional robotic setting. Awaiting further investigations, and particularly cost-analyses, the Synchroseal might be considered an option for robot-assisted radical prostatectomy in locally advanced disease according to physician’s preference.