Laparoscopic versus robot-assisted radical prostatectomy: Comparison of outcomes of a single surgeon

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INTRODUCTION

Prostate cancer is the most lethal neoplasm occurring in men and is responsible for 7.7 deaths per 100,000 individuals worldwide. A multidisciplinary approach is required while treating patients with prostate cancer; however, radical prostatectomy remains the principal therapeutic strategy for localized disease. Although excellent oncological results are achieved with open prostatectomy, efforts has been made to reduce the adverse effects associated with it, by optimizing the functional results of continence and potency. Several studies that attempted to prove the benefits of RALP reported advantages with respect to blood loss, length of hospitalization, pain, and early continence. However, no study has established this modality as the gold standard, and the decision to perform RALP remains preferential, depending on the surgeon and patient. There were several biases in previous studies owing to the differences in technique and surgical dexterity that extend beyond the learning curve process, and evidence suggests that the results depend more on the surgical technique than the access route. Thus, the objective of our study was to compare the functional and oncological results of laparoscopic radical and robot-assisted prostatectomy performed by a single surgeon.

METHODS

This retrospective cohort study of patients who underwent LRP and RALP, which were performed by a single surgeon, between June 2017 and April 2020, was duly authorized by the relevant research ethics committee.

The eligibility criteria for the study were patients whose procedure was performed by the same surgeon after being diagnosed with prostate cancer, and had not undergone any previous curative treatment. Patients whose medical records were inaccessible or unavailable, those without proper registration, and those lost to outpatient follow-up were excluded.

Follow-up was performed by the same surgeon during the 12-month postoperative period. The sample size was obtained for convenience, using the entire available database.

The medical records were reviewed retrospectively and data on the characteristics of the patient, disease, surgical procedure, and postoperative follow-up were collected. Two medical students (under the supervision of two urology residents) and the responsible surgeon collected the data between August 2020 and November 2020. The requisite data of interest that were absent from the medical records were supplemented by telephone contact with patients initiated by the assistant surgeon. The mean difference T-test and the Chi-square test (or Fisher's test when necessary) were used to compare the variables of the two surgical methods.

RESULTS

Thirty-three of the 189 eligible patients were excluded from the analysis, since they fulfilled the exclusion criteria. Data from 103 robotic and 53 laparoscopic surgeries were evaluated. Although the number of comorbidities was greater in the laparoscopic surgery group than that in the robot-assisted surgery group (mean: 1.53 versus 0.86), no statistically significant difference was observed between patients with diabetes and hypertension. The preoperative Gleason score was similar between the two groups. The use of extraperitoneal access (75% versus 46%) and drains (32% versus 15%) was significantly more frequent in the LRP group than that in the LRP group. The duration of the procedure was significantly shorter with the RALP approach (average: 115 versus 174 minutes). No statistically significant difference was observed in the length of hospitalization, transfusion, or duration of bladder catheter use. No difference was observed in the cancer outcomes, such as the rate of disease persistence, nor the number of positive margins. Stratification of the topography of the margin revealed that the incidence of positive bladder margins was higher in the LRP group compared to the RALP group (13% versus 1.9%). Although radical margins were more prevalent in robotic surgery compared to laparoscopic surgery, the difference was not statistically significant (18.4% versus 11.3%). The potency outcomes for RALP were statistically significant superior to those of LRP in all the analyzed periods. There was no difference in the rate of continence during any period.

All complications were classified as Clavien-Dindo II. The complication rate was 5.7% for LRP versus 2.94% for RALP, and the difference was not statistically significant.

RESULTS

Our single-surgeon study that compared the pentafecta of outcomes between RALP and LRP concluded that the potency after RALP was superior to that of LRP. There was no difference in the continence, cancer outcomes, or complications.

The operative time of RALP was shorter than that of LRP, without affecting the oncological and functional results.

Further studies comparing outcomes of LRP and RALP performed by the same surgeon, including prospective studies, are needed to assess the impact of the robotic platform on the surgical results. We opine that the rapid replacement of LRP by RALP makes studies like ours increasingly relevant and important from a clinical perspective.

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