

Robot-Assisted vs. Open Radical Prostatectomy: A Comparison

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Background

Radical retropubic prostatectomy is an established open surgical technique with a long record of reported outcomes.¹⁻³ For a minimally invasive approach to be adopted, it must provide at least equivalent oncologic and functional results to the reference standard surgical therapy. Laparoscopic RP is a technically demanding procedure with a limited number of skilled laparoscopists specifically trained in the technique. For most urologists, the learning curve is unacceptable. Recently, the *da Vinci*[®] robotic interface has been shown to significantly shorten the laparoscopic learning curve.^{4,5}

Objectives

The purpose of this 120 patient study was to compare results of the standard open radical prostatectomy (RP) and the robot-assisted laparoscopic prostatectomy (RLP) when performed by a fellowship-trained oncologic surgeon with 18 years of experience (T.A.).

Methods

One group of 60 patients was treated using the standard open radical prostatectomy. A second group of 60 patients was treated using a robot-assisted laparoscopic prostatectomy. Comparisons were made for clinical characteristics, perioperative results and early clinical outcomes. The robot used in this study was the *da Vinci*[®] Surgical System.

Results

The open RP and RLP groups were comparable for standard clinical factors such as age, body mass index, preoperative prostate-specific antigen (PSA) level, clinical Gleason score, and clinical stage. The mean operative time, estimated blood loss, hospital stay and continence are shown in Table 1. No conversions were required to open RP in the RLP procedures. Neither group had complications, such as bleeding, that required a return to the operating room.

Conclusions

These results demonstrate that robotic-assisted laparoscopic prostatectomy can deliver improved clinical outcomes without compromising cancer control. RLP had oncologic and urinary outcomes that were at least equal to those of conventional open radical prostatectomy. RLP offers the benefits of minimally invasive surgery and does not compromise clinical or pathological outcomes.

References

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Table 1. Patient Comparison

Data Point	Robotic	Open
Age (yr)	62.9 (43-78)	62.7 (50-78)
Body Mass Index	26.3 (20.6-33.6)	26.5 (20-34.5)
Preoperative PSA (ng/mL)	8.1 (0.1-62)	8.4 (1.1-39.6)
Prostate size (g)	52.5 (18-135)	50.7 (30-108)
Operative time (min)	231 (160-340)	214 (175-275)
Estimated blood loss (mL)	103 (25-400)	418 (150-1200)
Transfusions (%)	0 (0)	1 (2)
POD 1 Hb change (g/dL)	-1.6 (0.2-3.4)	-3.3 (0.3-6.1)
Hospital stay (hr)	25.9 (18-96)	52.8 (48-192)
Complications (%)	4 (6.7)	6 (10)
Catheter time (days)	7	9
Continence at 3 mo (0 pads)	76	75
Overall positive margins	16.7%	20%
T2 positive margins	4.5%	9.1%

Data in parentheses are ranges, unless otherwise noted.