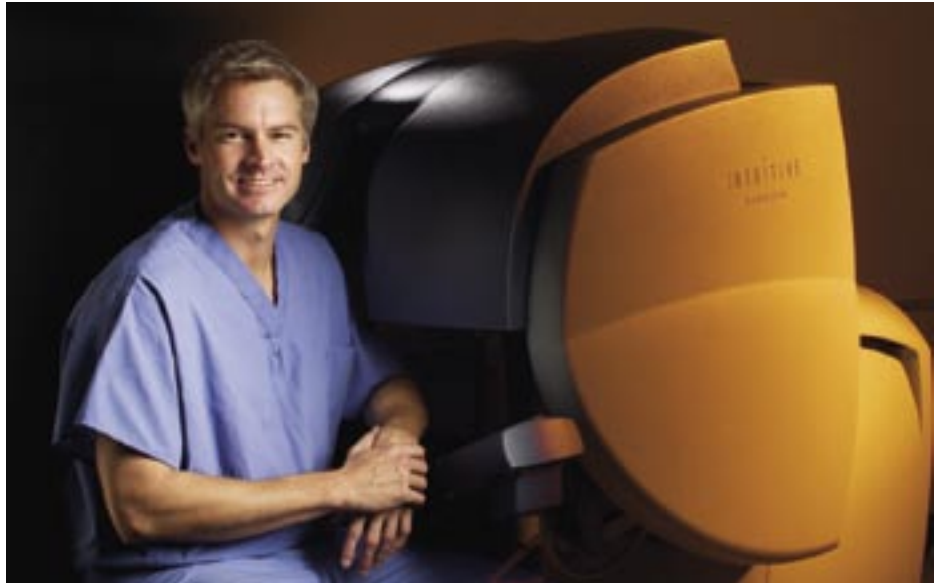


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*da Vinci® Prostatectomy - dVP*

# Robot-Assisted vs. Open Radical Prostatectomy: A Comparison

Thomas E. Ahlering, M.D.\*

Associate Professor  
Chief, Division of Urological Oncology  
Department of Urology  
University of California Irvine Medical Center

## Background

Radical retropubic prostatectomy is an established open surgical technique with a long record of reported outcomes.<sup>1-3</sup> 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*<sup>®</sup> robotic interface has been shown to significantly shorten the laparoscopic learning curve.<sup>4,5</sup>

## 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*<sup>®</sup> 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

- Walsh PC Partin AW and Epstein JI. Cancer control and quality of life following anatomic radical retropubic prostatectomy: Results at 10 years. *J Urol.* 1994; 152:1831-1836.
- Hautmann RE, Sauter TW and Wenderoth UK. Radical retropubic prostatectomy: Morbidity and urinary incontinence in 418 consecutive cases. *Urology* 1994; 43: 47-51.
- Catalona WJ, Carvalhal GF, Manger DE, et al. Potency, continence and complication rates in 1870 consecutive radical retropubic prostatectomies. *J Urol.* 1999; 162: 433-438.
- Menon M, Shrivastava A, Tewari A, et al. Laparoscopic robot-assisted radical prostatectomy: Establishment of a structured program and preliminary analysis of outcomes. *J Urol.* 2002; 168: 945-949.
- Ahlering TE, Skarecky D, Lee D, et al. Successful transfer of open skills to a laparoscopic environment using a robotic interface: Initial experience with laparoscopic radical prostatectomy. *J Urol.* 2003; 170: 1738-1741.

\* Dr. Ahlering discloses that he has no financial relationship with Intuitive Surgical, Inc.

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.

## da Vinci® Prostatectomy- dVP

da Vinci® Prostatectomy performed with the four-arm da Vinci® Surgical System represents the latest minimally invasive technique for the treatment of prostate cancer.

### High Resolution 3D Vision • EndoWrist® Instrumentation • Intuitive Motion • 4th Arm

- > Superior visualization of tissue planes and the neurovascular bundles
- > Allows meticulous dissection of the prostate and surrounding structures
- > Enables precise suturing of the DVC and urethrovesical anastomosis
- > Provides traction and counter-traction of the prostate, bladder and adjacent anatomy

## Procedure Overview: Robotically Assisted Radical Prostatectomy with the da Vinci® Surgical System - - - - -



### Patient Positioning

- > Patient placed supine with legs separated and flexed
- > Steep Trendelenburg provides direct access to pelvis



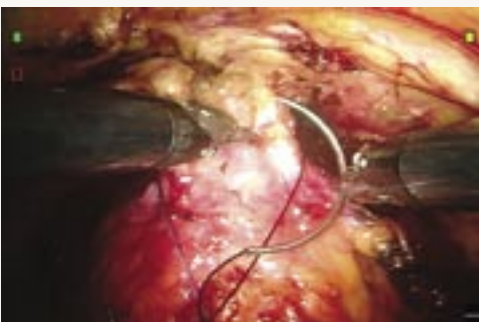
### Port Placement

- > da Vinci® ports placed 8 cm apart on 18 cm radius from pubic bone
- > Port for 3D scope placed 1-2 cm left of umbilicus



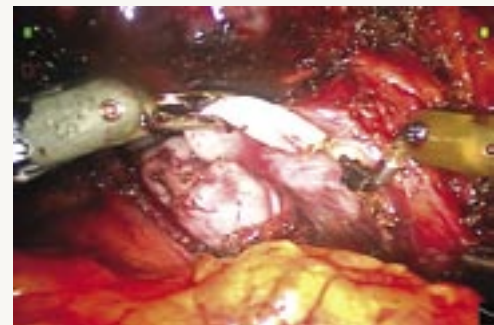
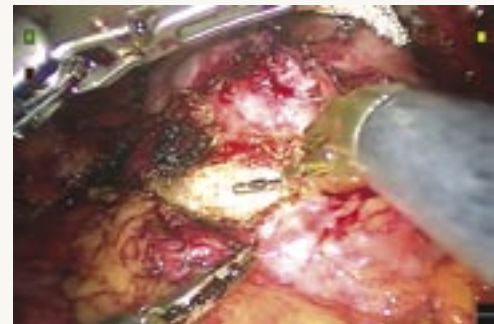
### Dropping the Bladder and Opening of Endopelvic Fascia

- > EndoWrist® Bipolar Maryland and Hook Cautery allow for controlled dropping of the bladder posteriorly and access to the space of Retzius
- > Endopelvic fascia incised using blunt dissection with EndoWrist® Instruments



### Ligating the Dorsal Venous Complex

- > Dorsal vein complex and puboprostatic ligaments dissected prior to ligation
- > Dorsal vein complex accurately ligated with figure-eight stitch



## **EndoWrist® Instruments optimized for *da Vinci*® Prostatectomy**

### **EndoWrist® Curved Scissors**

- › Narrow cutting profile enables precise transection of tissues, nerves and pedicles
- › Curved tip enhances visualization of cutting plane



### **EndoWrist® Bipolar Maryland Forceps**

- › Curved jaw and bipolar energy provide pinpoint hemostasis to tissues and pedicles
- › Unique jaw pattern works both as a grasper and dissector



### **Bladder Neck Transection**

- › With visualization enabled with the *da Vinci*® 30 degree scope, the bladder neck is dissected with *EndoWrist*® Bipolar Maryland Forceps and Cautery Hook

### **Vas Deferens, Seminal Vesicles & Denonvilliers' Fascia**

- › Vas deferens mobilized and transected with *EndoWrist*® Bipolar Maryland forceps and Cautery Hook
- › Seminal vesicles dissected circumferentially
- › Denonvilliers' fascia opened with blunt dissection between the prostate and rectum

### **Nerve-Sparing Technique**

- › Light countertraction used in proximity to neurovascular bundle
- › Care taken not to injure or cauterize nerves
- › Nerve-sparing dissection accomplished along the capsule of the prostate using cold *EndoWrist*® Curved Scissors

### **Urethrovesical Anastomosis**

- › Anastomosis constructed using two *EndoWrist*® Large Needle Drivers with 3-0 Monocryl® sutures on RB1 needles
- › With the added control provided by the *da Vinci* 4th Arm, the bladder neck is approximated to the urethra and the sutures are tied.



›› Review the CD-ROM for an interactive overview of *da Vinci*® Prostatectomy

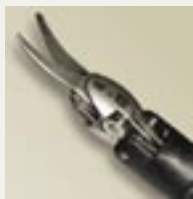
# EndoWrist® Instrumentation Optimized for *da Vinci*® Prostatectomy

## EndoWrist® Instruments provide enhanced dexterity, precision and control

- > 7 degrees of freedom
- > 90 degrees of articulation
- > Intuitive motion and fingertip control
- > Motion scaling and tremor reduction

### Curved Scissors - NEW!

Product Code 400178



#### Feature

- > Curved jaw design
- > Narrow cutting profile
- > Tapered atraumatic tip

#### Benefits

- > Allows easier access to difficult tissue planes
- > Provides precise and clean cutting of tissue
- > Facilitates blunt tissue dissection

### Bipolar Maryland Forceps

Product Code 400172



#### Feature

- > Bipolar energy
- > Blunt, tapered jaws
- > Lateral jaw serrations

#### Benefits

- > Delivers reliable hemostasis with minimal thermal spread
- > Facilitates blunt tissue dissection
- > Provides firm grasping of tissues and pedicles

### Precise™ Bipolar Forceps

Product Code 400110



#### Feature

- > Bipolar energy device
- > Blunt jaw-tip
- > Fenestrated jaw pattern

#### Benefits

- > Delivers reliable and controlled hemostasis
- > Facilitates blunt tissue dissection
- > Grasps tissues firmly and securely

### Permanent Cautery Hook

Product Code 400183



#### Feature

- > Monopolar cautery device
- > Angled hook design

#### Benefits

- > Provides precise hemostasis
- > Maximizes dissection of tissue planes

### Large Needle Driver

Product Code 400006



#### Feature

- > Carbide-insert style jaws
- > Diamond pattern jaw profile

#### Benefits

- > Delivers secure needle control
- > Provides firm grip of different size needles

### ProGrasp™ Forceps

Product Code 400093



#### Feature

- > Wider, stronger jaw opening
- > Fenestrated jaw design
- > 4X increased jaw force

#### Benefits

- > Allows better control of large organs
- > Provides secure tissue grasping
- > Holds and grasps prostate firmly



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U.S. Headquarters:  
Intuitive Surgical, Inc.  
950 Kifer Road  
Sunnyvale, CA 94086  
Tel: +1.408.523.2100  
Fax: +1.408.523.1390

European Office:  
Intuitive Surgical, SA  
5, Place Royale  
78100 Saint-Germain en Laye  
France  
Tel: +33.1.39.04.26.60  
Fax: +33.1.39.04.26.61

To contact a representative or receive additional information, please call Intuitive Surgical Customer Service at 1.888.409.4774.

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