Solutions for minimally invasive urologic surgery
Surgeon Benefits

Enables surgeons to offer an effective, minimally invasive surgical approach for cystectomy

The visualization, precision, dexterity and control provided by the da Vinci Surgical System offers the following potential surgeon benefits versus open cystectomy:

- Favorable operative, pathologic and short-term clinical outcomes\(^{1,2,3}\)
- Precise and rapid bladder removal with minimal blood loss\(^{5}\)
- Enhanced ability to preserve the neurovascular bundles in appropriately selected patients\(^{5}\)
- More rapid return of bowel function\(^{1,3}\)

• High-definition 3D vision
• EndoWrist\(^{®}\) instrumentation
• Intuitive\(^{®}\) motion
Six ways *da Vinci* technology facilitates a precise cystectomy:

**Ureteral Dissection and Isolation**

The *da Vinci* System’s 3D HD vision and *EndoWrist* Instrumentation facilitate accurate identification and dissection of the ureters. Additionally, ligation of the ureters can be precisely carried out with the aid of the Hem-o-lok® Large Clip Applier.

**Ligation of the Dorsal Venous Complex**

Accessing the correct anatomical angles while suture-ligating the Dorsal Venous Complex (DVC) can be accurately performed with the aid of the *EndoWrist* Needle Drivers and *da Vinci* 3D HD endoscopic camera.

**Bladder Dissection**

The articulation of the *EndoWrist* Instruments enables dissection of posterior, lateral and anterior bladder attachments.

**Nerve-Sparing Techniques**

The access provided by the *EndoWrist* Maryland Bipolar Forceps and curved scissors allows for a cauterity-free, nerve-sparing dissection in select male and female patients.

**Lymphadenectomy**

The dexterity provided by the *EndoWrist* Instrumentation facilitates a more precise and comprehensive dissection of lymphatic tissue.

**Urethra-Neobladder Anastomosis**

Creation of a watertight urethra-neobladder anastomosis can be achieved using the *EndoWrist* Needle Drivers for precise needle and suture placement.

For technology videos visit [www.daVinciSurgeryCommunity.com](http://www.daVinciSurgeryCommunity.com)
Prospective randomized controlled trial of robotic versus open radical cystectomy for bladder cancer; Perioperative and pathologic results

This single-institution study with limited clinical and oncologic follow-up, showed that while robotic cystectomy required longer operative times, it demonstrated patient benefits over open cystectomy including estimate blood loss (EBL), time to normal bowel function and less in-house analgesia usage.

<table>
<thead>
<tr>
<th></th>
<th>Mean difference (95% CI)</th>
<th>Open adjusted mean</th>
<th>Robotic adjusted mean</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBL, ml</td>
<td>292 (144, 439)</td>
<td>564</td>
<td>273</td>
<td>0.0003</td>
</tr>
<tr>
<td>Time to BM, d</td>
<td>11.1 (0.4, 1.7)</td>
<td>4.3</td>
<td>3.2</td>
<td>0.0033</td>
</tr>
<tr>
<td>In-house analgesia, mg</td>
<td>57.9 (14.1, 101.7)</td>
<td>151.6</td>
<td>93.6</td>
<td>0.0110*</td>
</tr>
<tr>
<td>OR time, h</td>
<td>-0.70 (-0.88, -0.52)</td>
<td>3.5</td>
<td>4.2</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Clavien units</td>
<td>1.13 (0.00, 2.27)</td>
<td>2.8</td>
<td>1.7</td>
<td>0.0503</td>
</tr>
<tr>
<td>Length of stay, d</td>
<td>0.59 (-0.88, 2.05)</td>
<td>6.0</td>
<td>5.4</td>
<td>0.4210*</td>
</tr>
</tbody>
</table>

BM = bowel movement; CI = confidence interval; EBL = estimated blood loss; OR = operating room

*A Not statistically significant

A Comparison of Postoperative Complications in Open versus Robotic Cystectomy

This prospective study (n=87) demonstrated that patients undergoing robotic cystectomy experienced less excess blood loss, a lower rate of blood transfusion, and a significantly shorter length of stay when compared to open cystectomy.

Furthermore, robotic cystectomy patients experienced a lower rate of overall complications and a significantly lower rate of major complications (Clavien III-V) than open cystectomy patients.

<table>
<thead>
<tr>
<th></th>
<th>Open</th>
<th>Robotic</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean operative time, h (±SD)</td>
<td>5.95 (±2.2)</td>
<td>6.25 (±1.5)</td>
<td>0.29*</td>
</tr>
<tr>
<td>Mean EBL, ml (±SD)</td>
<td>1172 (±916)</td>
<td>460 (±299)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Mean PRBC transfused, units (±SD)</td>
<td>3.65 (±3.9)</td>
<td>1.42 (±1.6)</td>
<td>&lt;0.0001</td>
</tr>
<tr>
<td>Median LOS, d (range)</td>
<td>8 (3-60)</td>
<td>5.5 (3-28)</td>
<td>&lt;0.0001</td>
</tr>
</tbody>
</table>

SD = standard deviation; EBL = estimated blood loss; PRBC = packaged red blood cells; LOS = length of stay;
PSM = positive surgical margins

<table>
<thead>
<tr>
<th></th>
<th>30 d</th>
<th>90 d</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patients, no.</td>
<td>104</td>
<td>83</td>
<td>-</td>
</tr>
<tr>
<td>Patients with complications, no. (%)</td>
<td>61 (58.7)</td>
<td>34 (41.0)</td>
<td>0.04</td>
</tr>
<tr>
<td>Patients with major complications, no. (%)</td>
<td>31 (29.8)</td>
<td>8 (9.6)</td>
<td>0.007</td>
</tr>
</tbody>
</table>

*Not statistically significant

For additional data pertaining to these studies visit www.daVinciSurgeryCommunity.com
## POSSIBLE BENEFITS COMPARED TO OPEN SURGERY:

- Lower risk of major complications, including death
- Less blood loss and lower rate of blood transfusions
- Less need for narcotic pain medicine
- Quicker return to a normal diet
- Shorter hospital stay
- Quicker recovery of bowel function
- Minimal scarring

## POSSIBLE RISKS INCLUDE:

- Ileus (blocked bowel)
- Urinary leak
- Deep vein thrombosis (blood clot often in the leg)

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### EndoWrist® Instruments Optimized for da Vinci® Cystectomy

<table>
<thead>
<tr>
<th>Standard/Si PNs</th>
<th>Features</th>
</tr>
</thead>
</table>
| **Hot Shears™** (Monopolar Curved Scissors) 400179/420179 Requires Tip Cover: 400180 | - Combined scissors and monopolar cautery  
- Tapered tip profile |
| **Maryland Bipolar Forceps** 400172/420172 | - Curved, tapered jaw design  
- Fenestration at jaw base |
| **Large Needle Driver** 400006/420006 | - Carbide-insert style jaws  
- Diamond pattern jaw profile |
| **Hem-o-lok® Clip Applier, Large** 400230/420230 | - *EndoWrist* architecture  
- Robotically enabled instrument |
| **Fenestrated Bipolar Forceps** 400205/420205 | - Fenestrated wide jaw profile  
- Bipolar energy |

<table>
<thead>
<tr>
<th>Standard/Si PNs</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PK™ Dissecting Forceps</strong> 400227/420227 Requires Instrument Cords: 400228 (for PK/SP) 400229 (for G400)</td>
<td>- Grasping, dissecting and coagulating tissues and pedicles</td>
</tr>
<tr>
<td><strong>ProGrasp™ Forceps</strong> 400093/420093</td>
<td>- Grasping and retracting</td>
</tr>
<tr>
<td><strong>Cobra Grasper</strong> 400190/420190</td>
<td>- Grasping and retracting</td>
</tr>
<tr>
<td><strong>Permanent Cautery Hook</strong> 400183/420183</td>
<td>- Mobilizing and dissecting tissues</td>
</tr>
<tr>
<td><strong>Round Tip Scissors</strong> 400007/420007</td>
<td>- Cutting and dissecting tissues and pedicles</td>
</tr>
</tbody>
</table>
All surgeries carry risks of adverse outcomes. While clinical studies support the use of the da Vinci Surgical System as an effective tool for minimally invasive surgery for specific indications, individual results may vary. Contraindications applicable to the use of conventional endoscopic instruments also apply to the use of all da Vinci instruments. General contraindications for endoscopic surgery include bleeding diathesis, morbid obesity and pregnancy. Be sure to read and understand all information in the applicable user manuals, including full cautions and warnings, before using da Vinci products. Failure to properly follow all instructions may lead to injury and result in improper functioning of the device. Unless otherwise noted, products featured are cleared for commercial distribution in the U.S. and bear the CE mark. For availability and clearances outside the US, please check with your local representative or distributor. We encourage patients and physicians to review all available information. Clinical studies are available through the National Library of Medicine at www.ncbi.nlm.nih.gov/pubmed.

The PK® Dissecting Forceps

The PK Dissecting Forceps and PK instrument cords are intended to be used with the da Vinci and da Vinci S/Si Surgical System for endoscopic manipulation of tissue including: grasping, dissecting, approximation, coagulation, retraction and ligation. The PK Dissecting Forceps may only be used on soft tissue. Do not use it on cartilage, bone or hard objects. Doing so may damage the instrument or make it impossible to remove from the cannula. The PK Dissecting Forceps is not intended for contraceptive coagulation of the fallopian tube, but may be used to achieve hemostasis following transection of the fallopian tube. The PK Dissecting Forceps is classified as a BF applied part. This instrument is hence not suitable for direct cardiac applications.

Hem-o-lok® Clip Applier

Hem-o-lok ligation clips are intended for use in procedures involving ligation of vessels or tissue structures. Surgeons should apply the appropriate size clip for the size of the vessel or tissue structure to be ligated such that the clip completely encompasses the vessel or tissue structure. Hem-o-lok Ligating Clips are not intended for use as a fallopian contraceptive tubal occlusion device. Hem-o-lok Ligating Clips are contraindicated for use in ligating the renal artery during laparoscopic donor nephrectomies.

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