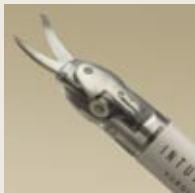


# EndoWrist® Instruments Optimized for da Vinci® Hysterectomy

## 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



### Hot Shears™ Instrument

Monopolar Curved Scissors  
Product Code 400179  
Product Code 400180, Tip cover



### Cobra Grasper

Product Code 400190



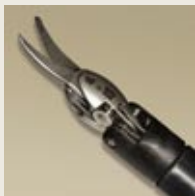
### Permanent Cautery Spatula

Product Code 400104



### Permanent Cautery Hook

Product Code 400183



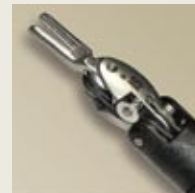
### Curved Scissors

Product Code 400178



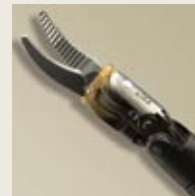
### Harmonic™ Curved Shears

Product Code 400174 - Housing  
Product Code 400169 - Insert



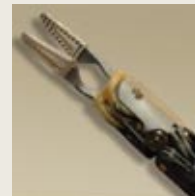
### DeBakey Forceps

Product Code 400036



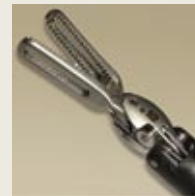
### Maryland Bipolar Forceps

Product Code 400172



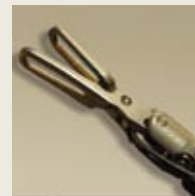
### PreCise™ Bipolar Forceps

Product Code 400110



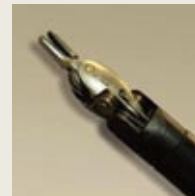
### Cadiere Forceps

Product Code 400049



### ProGrasp™ Forceps

Product Code 400093



### Large Needle Driver

Product Code 400006



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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

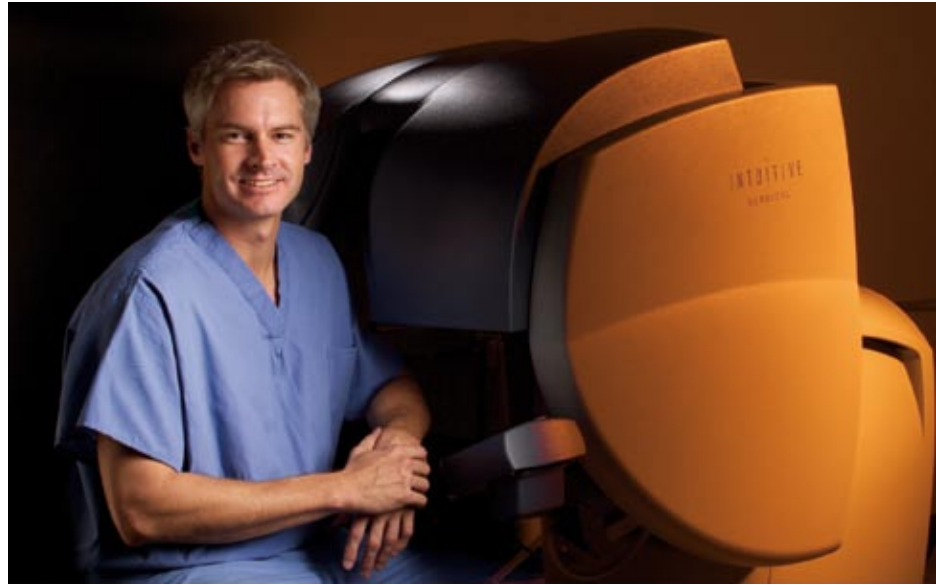
To contact a representative or receive additional information, please call Intuitive Surgical Customer Service at 1-888-409-4774.

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INTUITIVE  
SURGICAL®



*da Vinci*® Hysterectomy

# Robotic-Assisted Minimally Invasive Hysterectomy

Kevin Reynolds, M.D.

Arnold P. Advincula, M.D.

University of Michigan Medical Center  
Ann Arbor, Michigan

## Background

More than 600,000 hysterectomies are performed annually in the United States. Despite extensive data demonstrating the benefits of minimally invasive surgery, approximately 65% of hysterectomies are still performed using abdominal incisions.

It is thought that the steep learning curve associated with using conventional laparoscopic technology has contributed to slow adoption of a minimally invasive approach. The *da Vinci*® Surgical System addresses the limitations of conventional laparoscopy by providing fully-articulated instruments, high-resolution 3D vision and an ergonomic user interface. With these features, complex dissection, suturing and tissue handling can be performed with greater ease while using a minimally invasive approach.

## Objectives

To study the robotic-assisted approach to hysterectomy.

## Methods

This study, which was conducted on an intent-to-treat basis, analyzed data collected from the first 15 consecutive robotic-assisted hysterectomies ever conducted at the University of Michigan.

All patients underwent either AAGL type IVE or LSH III hysterectomies. The AAGL type IVE hysterectomy is defined as totally laparoscopic removal of the uterus and cervix, including vaginal cuff closure. The LSHIII hysterectomy is defined as a totally laparoscopic supracervical procedure with removal of the uterine corpus, including division of the uterine arteries.

## Results

Fifteen consecutive patients underwent a robotic-assisted hysterectomy. Twelve patients underwent AAGL type IVE hysterectomies. Three patients underwent LSHIII. Thirteen of the 15 patients had prior pelvic surgery, thereby placing them at higher risk for pelvic adhesions. Five of the 15 patients had had two or more cesarean sections that resulted in dense scarring or partial obliteration of the anterior cul de sac. Four patients experienced complications including postoperative infections that were unrelated to the technology used.

Operative variable	N-15	Standard deviation
Age (yrs)	40.8	28-53
BMI, kg/m <sup>2</sup>	27.6	20-39.6
Mean uterine weight, g	118.5	30-284
Mean operating time, min	255	170-432
Mean estimated blood loss, cc	96	50-300
Conversion rate %	0	
Avg. length of stay, days	1.8	Range (1-5)

## Conclusions

Based on our experience, robotic-assisted hysterectomy is a promising new technique that can overcome many of the technical limitations of conventional laparoscopy. Complex portions of the operation, such as securing the uterine arteries and cardinal ligaments, performing an accurate culdotomy and oversewing the vaginal cuff are performed with greater ease, thus providing unique advantages as compared with conventional laparoscopy.

### References:

Reynolds K, Advincula A. Robotic-Assisted Minimally Invasive Hysterectomy. Unpublished study (as of 7/05) submitted to Intuitive Surgical.

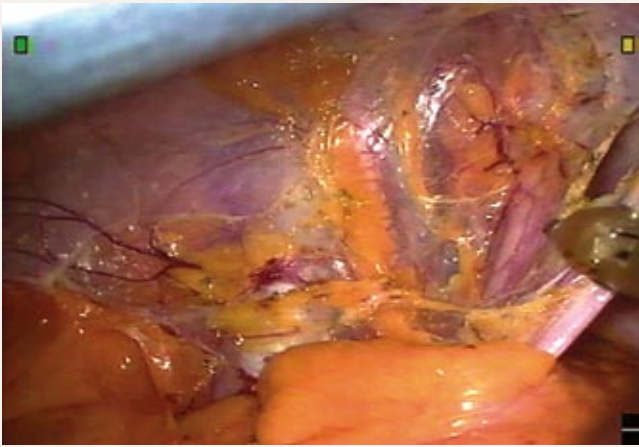
## da Vinci® Hysterectomy

High Resolution 3D Vision • *EndoWrist*® Instrumentation • Intuitive Motion

The *da Vinci* Surgical System enables the most advanced minimally invasive approach to a total abdominal hysterectomy, and offers potential for:

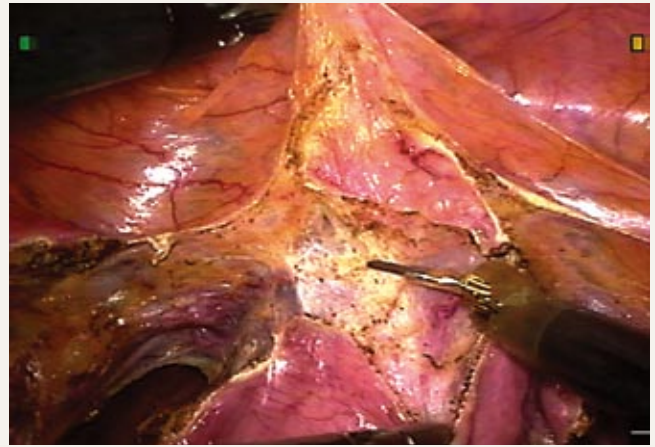
- › Enhanced dexterity for complex hysterectomies - endometrial cancer, endometriosis
- › Superb visualization for dissection around ureters and bladder
- › More precise colpotomy
- › Easier vaginal cuff suture-closure

### Key Procedure Steps: da Vinci Hysterectomy



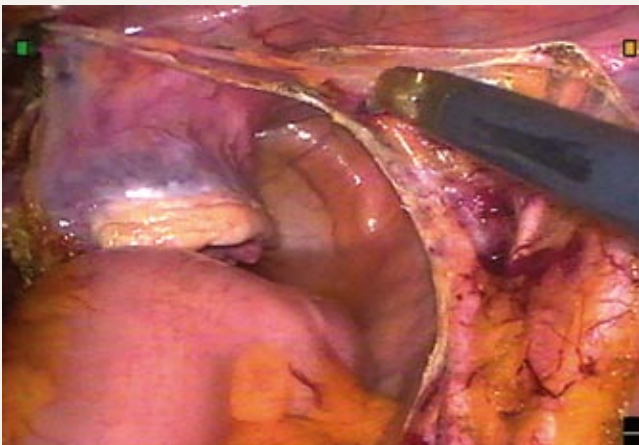
#### Ureter identification

- › *EndoWrist* Permanent Cautery Spatula and *EndoWrist* PreCise™ Bipolar instruments used to incise the peritoneum, expose the ureter



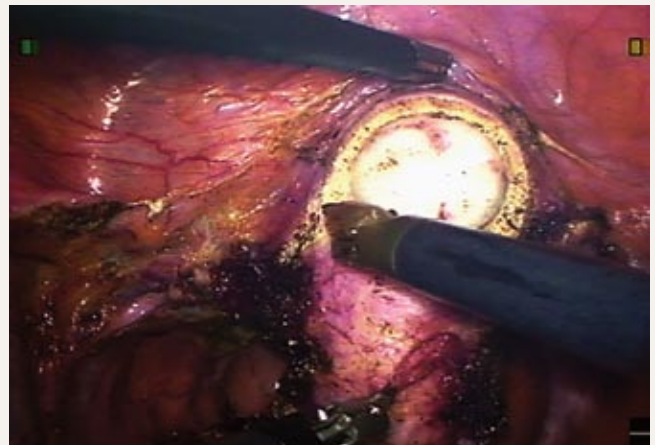
#### Creating the bladder flap

- › Bladder separated from the cervix with gentle traction using the *EndoWrist* Precise Bipolar and careful blunt- and cautery-dissection using the *EndoWrist* Permanent Cautery Spatula



#### Uterine artery dissection

- › Uterine vessels skeletonized using the *EndoWrist* Permanent Cautery Spatula and the *EndoWrist* PreCise Bipolar, then divided



#### Colpotomy

- › 3D visualization and *EndoWrist* instrumentation facilitate precise colpotomy

## NEW! EndoWrist Hot Shears

The world's first fully wristed cautery scissors

- > A more precise operation
  - > Blunt dissection
  - > Fine cutting
  - > Localized coagulation
- > Faster procedure times
  - > Fewer instrument exchanges

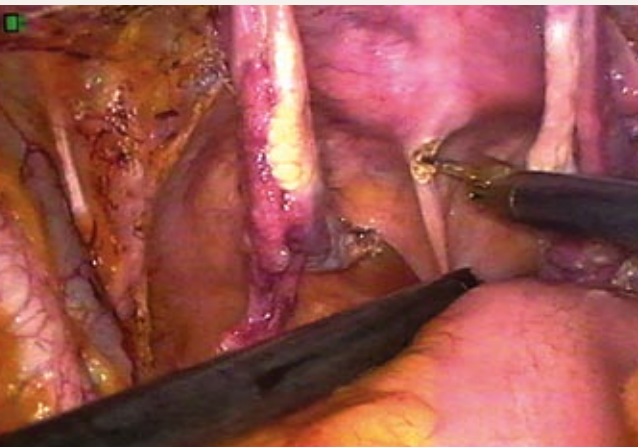


## NEW! EndoWrist Cobra Grasper

- > 4x2 interlocking teeth
  - > Agressive grasping
  - > Secure retraction
- > 60° jaw opening
  - > Greater tissue purchase
- > Horizontally serrated inner jaws
  - > Delicate needle and suture handling

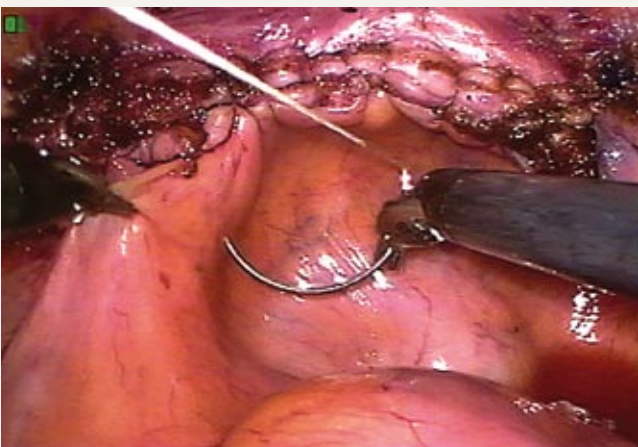


>> Review the CD-ROM for an interactive overview of *da Vinci*® Hysterectomy



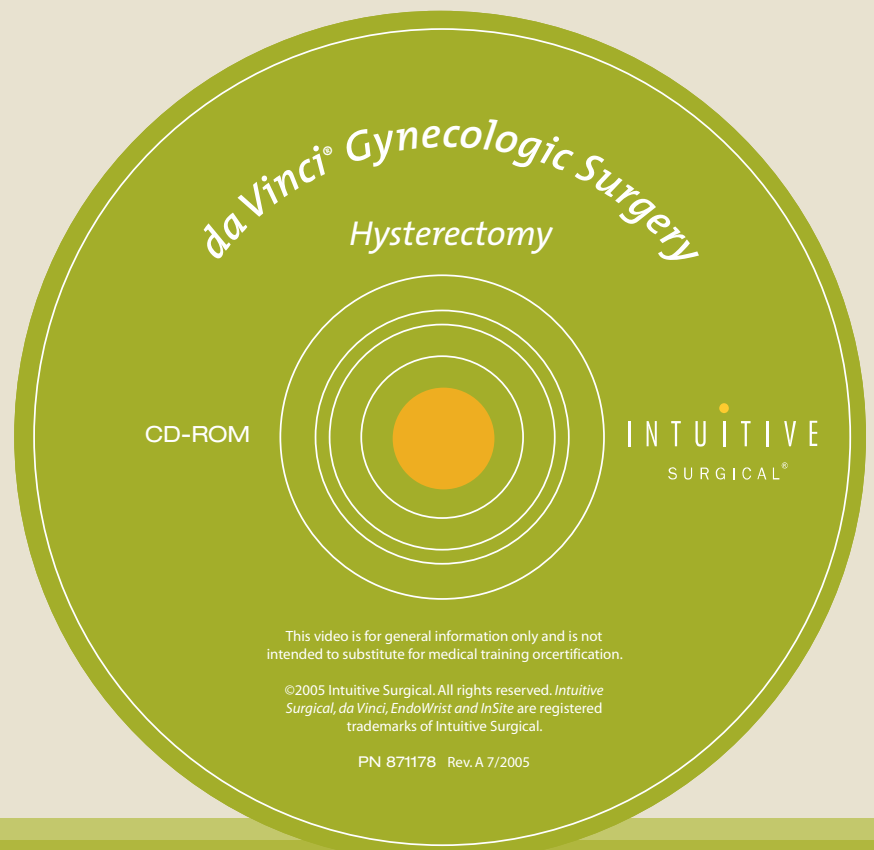
### Dividing the uterosacral ligaments

- > Rectum separated from the posterior wall of the upper vagina and cervix, enabling safer division of the uterosacral ligaments



### Suture closure of the vaginal cuff

- > Vaginal cuff closed with a continuous suture of 0-vicryl, incorporating the anterior and posterior vaginal wall fascia using *EndoWrist* Large Needle Drivers



**da Vinci® Hysterectomy**