

Robotic technology enhances effectiveness of hysterectomy



Each year, more than 600,000 American women undergo a hysterectomy – the most commonly performed gynecologic surgery in the U.S. Compared to conventional abdominal (open) hysterectomies, minimally invasive procedures – including vaginal and laparoscopic hysterectomies – reduce surgical complications and allow women to return to work and other daily activities much sooner. UCLA surgeons are now exploiting the enhanced precision and control of robotic technology to offer minimally invasive hysterectomy to many women who might otherwise not have been candidates for such a procedure.

Women have conventional and less invasive options

Most women who undergo hysterectomies do so to treat irregular menstrual bleeding caused by bulky uterine fibroids (non-cancerous tumors) or to control pain (including painful sexual intercourse). Hysterectomies are also used to treat endometriosis, chronic vaginal bleeding and cancers of the uterus, cervix or ovaries. Depending on the underlying problem, surgeons may remove part of the uterus (partial hysterectomy), the uterus and cervix (total hysterectomy) or, in cases of cancer, the uterus, cervix, upper vagina and supporting tissues (radical hysterectomy). Hysterectomies can be performed using one of three approaches: abdominal, vaginal or laparoscopic.

Robotic technology helps avoid open surgeries

“A major advantage of using robotic technology to perform hysterectomies is that it increases the number of women who can receive minimally invasive surgeries as opposed to more traumatic open procedures,” explains Christopher Tarnay, M.D., director of Female Pelvic Medicine and Reconstructive Surgery at UCLA. Minimally invasive surgery is associated with less blood loss, pain and scarring and faster recovery. “Previously, we may have been reluctant to pursue laparoscopic surgeries in some women because of perceived difficulties, but robotics reduces some of the technical constraints so that we feel more confident undertaking highly complex procedures using less invasive methods,” Dr. Tarnay adds.

In addition to virtually bringing the surgeon’s eye closer to the organ of interest, the robot duplicates the surgeon’s hand and wrist movements in the patient, but with more flexibility and enhanced precision. UCLA is one of only a few centers in Southern California using robotic technology to perform minimally invasive gynecologic surgeries such as laparoscopic hysterectomies.

Abdominal hysterectomy is the most invasive method in which surgeons view and remove the uterus and other gynecologic organs and tissues through a large incision in the abdomen (similar to a cesarean section). Women must usually stay in the hospital for three nights following surgery and then recover four to six weeks at home. Although infrequent, possible risks and side effects include heavy blood loss, bowel or bladder injuries, pain, scarring, infection and problems with wound healing.

Vaginal hysterectomy is a less invasive method in which the surgeon removes the uterus through a vaginal incision. Recovery usually includes one night or less in the hospital and one to two weeks at home. While it is the most popular choice among women because it is associated with faster recovery and fewer complications (less blood loss, scarring and pain, and reduced chance of infection), patients with extremely large fibroids and those who require further evaluation of the abdomen or gynecologic organs for additional problems, such as the spread of cancer to the lymph nodes, are not candidates for vaginal hysterectomy.

Laparoscopic hysterectomy is a preferred alternative to abdominal hysterectomy for women who are unable to undergo vaginal hysterectomy. Using a laparoscopic approach, surgeons can view and access the abdomen through a few, small (one- to two-centimeter) incisions, and subsequently remove the uterus through the vagina. In cases in which the uterus is large or in partial hysterectomies, the surgeon can use an endoscopic morcellator to cut the uterus into small pieces and then remove it and other tissues through the abdomen. The procedure is associated with faster recovery and fewer complications compared to abdominal hysterectomy. Patients with extensive inflammation, infection or abdominal scarring from previous surgeries may not be appropriate candidates for laparoscopic hysterectomy.

Robotics improves surgeons' ability to see, move instruments

Robotic technology has expanded the limits of gynecologic surgery by enabling surgeons to better visualize and more precisely perform highly technical laparoscopic procedures than would otherwise be possible. Robotic technology in association with the laparoscope allows surgeons to view anatomical structures – including small blood vessels, nerves and nearby organs – from a magnified, three-dimensional perspective. Robotics significantly enhances depth perception and range of motion, which enables surgeons to safely perform complex operations by remotely manipulating robotic arms while sitting at a console similar to a pilot's cockpit. Robotic technology adds no risks beyond those associated with laparoscopic hysterectomy.

While the use of robotics in the field of gynecology is increasing, it is estimated that only 2 percent of hysterectomies currently performed in the U.S. employ this technology. UCLA is one of only a few centers in Southern California with the technology and surgical expertise to offer robotic laparoscopic hysterectomy as an alternative for women who might otherwise face the increased risk of complications associated with open abdominal hysterectomy.

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