

MR-guided ultrasound and robotic surgery expand options for women with abnormal uterine bleeding



Abnormal uterine bleeding is usually due to hormonal imbalances, benign fibroids or polyps. Treatment is not always necessary, but some patients choose surgical intervention to relieve symptoms. For these women, UCLA’s multidisciplinary team of gynecologists and radiologists collaborate to offer a range of treatment options unlike any other center in the western United States.

Magnetic resonance guided focused ultrasound surgery

UCLA is the only center in California to offer magnetic resonance guided focused ultrasound surgery (MRgFUS), an innovative, non-invasive procedure combining magnetic resonance imaging (MRI) and ultrasound technologies to precisely target and destroy uterine fibroids without incisions, needles or catheters.

Using MRI, physicians precisely visualize the patient’s uterine anatomy, map the fibroids to be treated and monitor uterine tissue temperature. By steering a high intensity focused ultrasound beam, small sections of tissue are sequentially ablated until the entire fibroid is treated, without affecting surrounding tissues.

Patient preference key to procedure selection

The cause of abnormal uterine bleeding, including the size, number and location of fibroids or polyps, plays a major role in determining the appropriate treatment. The most important factor in procedure selection, however, is the patient. “These days, there are many options for women with abnormal uterine bleeding,” explains Michael Johnson, M.D., vice chair of the Department of Obstetrics and Gynecology at UCLA “We recognize that all women are different, and each woman will have individual needs and preferences that will influence her treatment decision.”

At UCLA, women are offered comprehensive options including minimally invasive robot-assisted laparoscopic surgery, non-invasive MRgFUS and UAE. Benefits of non-invasive and minimally invasive surgery include faster recovery, less pain, little or no scarring, trauma and blood loss, fewer complications and reduced risk of infection. Minimally invasive surgery is usually performed as an outpatient procedure.

MRgFUS decreases fibroid volume by 30 to 50 percent and significantly reduces symptoms. Because precise targeting limits the effect on other uterine tissue, MRgFUS may not impact fertility. An upcoming clinical trial will compare MRgFUS to myomectomy in women planning future pregnancies.

Patients not appropriate for MRgFUS include women:

- unable to undergo MRI
- with fibroids that are large, multiple, hanging off the uterus (pedunculated) or located behind the small or large intestines
- who have previously undergone uterine artery embolization

Robot-assisted laparoscopic surgery

Robotic technology represents a major advance in gynecological surgery. During robot-assisted procedures, the surgeon manipulates controls in a special console that provides a magnified, three-dimensional view of anatomical structures, including small blood vessels and nerves. The robot duplicates the surgeon's movements, but with more flexibility and precision. The surgeon operates through three to four small openings, rather than one large abdominal incision.

UCLA is a leader in offering robot-assisted laparoscopic surgery to treat abnormal uterine bleeding. Procedures include laparoscopic myomectomy to remove fibroids located inside the uterine lining (intramural) or on the outer uterine wall (subserosal), laparoscopic supracervical hysterectomy to remove the uterus but preserve the cervix and ovaries and laparoscopic total hysterectomy.

Other minimally invasive techniques

Hysteroscopy, which uses a resectoscope inserted through the vagina to break up fibroids or polyps while preserving fertility, is indicated for treatment of small growths inside the uterus with a component located within the uterine wall (submucosal). At UCLA, more than 80 percent of hysteroscopic procedures significantly reduce symptoms for appropriately selected patients.

Endometrial ablation, indicated for treatment of small fibroids and abnormal bleeding of unknown cause in women not planning future pregnancies. Ultrasonic energy permanently destroys the uterine lining, reducing or eliminating uterine blood flow. This technique is successful in more than 85 percent of UCLA patients.

Uterine artery embolization (UAE) addresses abnormal bleeding caused by large or multiple intramural or subserosal fibroids. Small particles are introduced into the uterus via a catheter, blocking the blood supply and causing fibroids to shrink and die. UAE decreases fibroid size by 40 to 60 percent, significantly reducing bleeding, pressure and pain in most patients. UAE is contraindicated in women planning future pregnancies. UCLA radiologists, who pioneered the technique, report one of the highest UAE success rates in the U.S.

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