

## MASTER CLASS

## Size Doesn't Have to Count

Despite a trend toward minimally invasive gynecologic surgery, nearly 75% of hysterectomies in the United States are still performed via open laparotomy. The most common reason an open approach is selected by the gynecologic surgeon is concern about uterine size.

As editor of the Master Class columns on gynecologic surgery, I have enlisted Dr.



BY CHARLES E. MILLER, M.D.

Michael Moen to discuss the technique enabling removal of the larger uterus via a vaginal route.

Dr. Moen directs the division of urogynecology at Advocate Lutheran General Hospital in Park Ridge, Ill.

He is also affiliated with the department of ob.gyn. at the University of Illinois at Chicago, and is a cofounder of Illinois Urogynecology Ltd. Dr. Moen is a fellow of both the American College of Obstetricians and Gynecologists and the American College of Surgeons, and is a member of the American Urogynecologic Society, the International Urogynecological Association, the Society of Gynecologic Surgeons, and the American Association of Gynecologic Laparoscopists.

While at the Mayo Clinic in Rochester, Minn., Dr. Moen was the lead author of an article on vaginal hysterectomy in patients with benign uterine enlargement for the *Journal of Pelvic Surgery*, along with his mentor, Dr. Raymond Lee. ■

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### Key Points: Vaginal Morcellation

- ▶ Ensure uterine mobility.
- ▶ Control uterine vessels.
- ▶ Proceed with morcellation of uterus.

#### Option 1: Wedge Technique

Divide cervix in anteroposterior plane to lower uterine segment. Excise wedge-shaped portions of uterus.

#### Option 2: Lash Technique (Intramyometrial Coring)

Make successive circular incisions in myometrium to core it out.

Source: Dr. Miller

## Vaginal Hysterectomy Is Underused

Hysterectomy remains the most common major gynecologic procedure in the United States, and it should be performed—whenever possible—with a minimally invasive procedure that results in the least morbidity, the fewest complications, and the speediest recovery for our patients.

Prior to the introduction of laparoscopic assistance, vaginal hysterectomy (VH) was the only minimally invasive option for removing the uterus, and for decades studies have shown that vaginal hysterectomy results in significantly less morbidity than does abdominal hysterectomy. Most recently, investigators who reviewed randomized, controlled trials of hysterectomy for the international Cochrane Collaboration concluded that traditional vaginal hysterectomies should be performed “whenever technically feasible”—even in a world of increasingly popular laparoscopic approaches.

In recent years, technologic advances have resulted in innovative approaches for hysterectomy, including laparoscopically assisted vaginal hysterectomy (LAVH), laparoscopic supracervical hysterectomy (LSH), and total laparoscopic hysterectomy. Despite multiple options for minimally invasive hysterectomy and the evidence suggesting that vaginal hysterectomy should be performed whenever feasible, the majority of hysterectomies in the United States are performed abdominally, and the overall rate of vaginal hysterectomy has held steady.

Comfort level is a major determinant of the type of hysterectomy performed. Many surgeons have not performed sufficient laparoscopic surgeries during residency and do not have the opportunity to receive the appropriate additional training needed to perform laparoscopic techniques requiring advanced skills. Moreover, gynecologic surgeons who have been trained in residency to perform basic vaginal hysterectomy too often dismiss this option because of uterine enlargement or other factors, such as nulliparity, endometriosis, or prior pelvic surgery. In the end, too many patients are denied an attempt at a minimally invasive approach and undergo abdominal hysterectomy.

In many of these cases, a traditional, minimally invasive vaginal approach is achievable. By thoroughly evaluating uterine mobility—ideally, in the operating room—and by more frequently using the relatively simple technique of morcellation to remove the large uterus (which is common among patients needing hysterectomies), we can markedly reduce the rate of abdominal hysterectomy and its ensuing morbidities.

Because it is a relatively straightforward, natural extension of a core procedure for many gynecologists, morcellation can be more quickly and universally

applied in practice than are the advanced laparoscopic techniques that many of us strive to learn.

#### Assessing Uterine Mobility

For successful vaginal hysterectomy with morcellation, the lower uterine segment

must be mobile enough to allow control of the uterine arteries and entry into the anterior and posterior cul-de-sacs. These are the essential prerequisites for morcellation; once the cul-de-sacs are entered and the uterine vessels are controlled, we will be able to complete the majority of cases regardless of uterine size.

We should assess uterine mobility in every patient, regardless of the presence or absence of presumptive risk factors such as nulliparity, endometriosis, or pelvic adhesions. In general, mobility is sufficient if we are able to pull the cervix down to the lower third of the vagina.

We can assess the patient's uterine mobility during the office visit to have some assurance of the likelihood of being able to perform vaginal hysterectomy. In general, however, mobility will be notably greater once the patient is under anesthesia, and we really should assess it in the operating room in any case. In a broader sense, performing an examination under anesthesia of uterine mobility, vaginal anatomy, and support to the cervix affords us the opportunity to individualize the hysterectomy and deter-

a discussion with the patient about the various options, about the goal of performing an appropriate procedure with the least morbidity, and about her preferences on whether her cervix should stay in or not. In essence, we want to be able to involve the patient beforehand and then tell her that “no matter what, when you're in the recovery room, we will have completed the hysterectomy that is best for you.” Often, we will find that vaginal hysterectomy with morcellation is a viable option when we evaluate the patient under anesthesia.

#### Performing Morcellation

There are two basic types of morcellation: the wedge technique, and the intramyometrial-coring (also known as the Lash) technique.

In the wedge technique, the cervix is bivalved in the anteroposterior plane to the level of the lower uterine segment. Occasionally, this step alone will result in sufficient mobility to allow delivery of the uterine fundus. Once the cervix is bisected, use a clamp—I prefer a Lahey goiter clamp—to grasp the anterior or posterior uterine wall from endometrium to serosa, and excise a wedge-shaped portion of the uterine wall.

Continue this process until the uterine fundus can be delivered and the remaining pedicles clamped and cut to allow removal of the uterus. Typically, you will encounter individual myomas and can remove these separately.

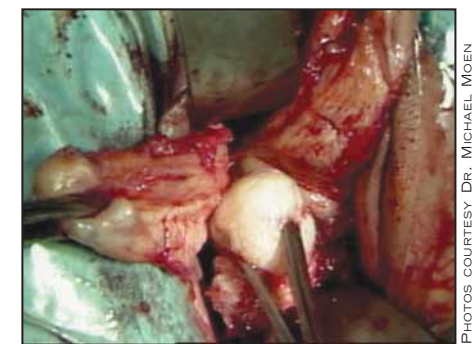
The Lash technique—or intramyometrial coring—involves a circular incision in the myometrium at the level of the up-



BY MICHAEL MOEN, M.D.



On the left, a wedge is excised from the posterior uterus. On the right, individual myomas are removed as they are encountered during morcellation.



mine the best approach for the patient, rather than pigeonhole the patient into any one particular procedure.

In the patient with uterine enlargement, we should aim to be prepared to perform vaginal hysterectomy with morcellation whenever feasible. If uterine support is normal and vaginal hysterectomy is not technically feasible, laparoscopic assistance should be considered. Although there are no studies directly comparing vaginal hysterectomy and LSH, these two procedures may be the best options for the patient with uterine enlargement. The determining factor between these two approaches should be the presence or absence of uterine mobility, and this should be assessed intraoperatively.

This valuable course of intraoperative decision making begins, of course, with

per cervix. Make successive circumferential incisions, and you will essentially core out the myometrium while the integrity of the endometrial cavity is maintained.

Because the coring technique allows the removal of an intact endometrium, it may be an advantage if you are concerned about unexpected endometrial pathology. With office biopsies and modern imaging techniques, the chance of an unexpected finding of significant pathology should be minimal. Overall, I believe, the wedge technique is technically easier.

In either case, morcellation follows entry into both the anterior and posterior cul-de-sacs and control of the uterine vessels. Generally, I attempt anterior entry first, which allows me to palpate the ureters prior to clamping and cutting the

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pedicles. Other surgeons advocate entering the posterior cul-de-sac first, because the inability to enter posteriorly is generally considered an indication to abandon the vaginal approach. Regardless of order, both cul-de-sacs must be entered and the uterine vasculature pedicles controlled before proceeding with morcellation.

While at the Mayo Clinic a decade ago, my colleagues and I reviewed the hysterectomies performed over a 2-year period in patients with a uterine weight of 200-600 g. Patients with adnexal masses and malignancy were excluded.

Of 298 patients who were evaluated in the operating room, nearly half (48%) of those with a uterine weight of 200-400 g were deemed to be candidates for vaginal hysterectomy, based on the presence of sufficient uterine mobility. Even in the group with uterine weights of 400-600 g, 11% of patients had sufficient mobility to allow a vaginal approach. This included nulliparous patients and those with previous pelvic surgery and endometriosis.

Vaginal hysterectomy was successful in 97% of these patients, and its complication rate was significantly lower than that of abdominal hysterectomy, regardless of uterine weight. Morcellation, we found, was required in approximately 70%.

The study showed that although uterine size limits its use, the most important factor in deciding to perform vaginal hysterectomy was the presence of uterine mobility and accessibility. It also showed that because some patients with nulliparity, previous pelvic surgery, and endometriosis will still have sufficient mobility, these factors should not be considered as contraindications to the vaginal approach.

#### Incorporating Laparoscopy

Over the past decade, rates of LAVH have risen significantly, while the overall rate of vaginal hysterectomy has remained stable. This is concerning because, undoubtedly, many of these patients are candidates for traditional vaginal hysterectomy. Numerous studies, including the recent Cochrane Collaboration review, have shown that LAVH does not improve morbidity over traditional vaginal hysterectomy, and is more time consuming and costly.

Ideally, the use of the laparoscope should allow abdominal hysterectomy to be converted to a minimally invasive procedure. As I see it, the laparoscope can be used to address situations that result in uterine immobility, such as nulliparity, adhesions, and endometriosis, thus allowing conversion of these cases to LAVH.

Additionally, we can use laparoscopy to ensure ovarian removal at the time of vaginal hysterectomy, although some would suggest proceeding with traditional vaginal hysterectomy first and only employing laparoscopy if you're having technical difficulty removing the ovaries vaginally. Multiple studies report more than 90% success in removing ovaries at the time of vaginal hysterectomy, suggesting that laparoscopic assistance for ovarian removal should be required in less than 10% of cases.

My own experience with ovarian removal is similar to these studies, so I prefer to attempt vaginal removal first and reserve the use of the laparoscope for the few patients in whom I find it necessary.

#### Total vs. Supracervical Hysterectomy

The recent introduction of the laparoscopic morcellator allows removal of an enlarged uterus with a laparoscopic approach and has resulted in an increased use of LSH for patients with uterine enlargement.

Although some surgeons counsel patients that keeping their cervix will result in improved pelvic support and sexual function, studies comparing total hysterectomy with supracervical hysterectomy have shown no difference in bladder function and sexual function and support the premise that it's the anatomy of the vagina, and not the presence of the cervix, that is important. (We still need well-designed

randomized, controlled trials that compare the morbidities and outcomes of LSH with LAVH and vaginal hysterectomy.)

In patients who already have normal pelvic support, LSH utilizing the laparoscopic morcellator may offer the best option for removal of the enlarged uterus, whereas those patients with uterine mobility are best treated by vaginal hysterectomy with traditional morcellation.

Ideally, we should be in a position to offer both approaches to the patient and should decide which to use based on examination under anesthesia in the operating room. If neither can be achieved, the patient may require abdominal hys-

terectomy, but at least we will have made an appropriate attempt at a less invasive procedure.

Until we have data pointing us elsewhere, we should embrace the minimally invasive gold standard of vaginal hysterectomy, employing morcellation for the larger uterus more often and turning to laparoscopy when necessary. Hysterectomies are most commonly done in reproductive-age women with fibroids or bleeding, a significant number of whom have enlarged uteri, so our ability to reduce the rate of abdominal hysterectomy—and increase the rate of the less morbid vaginal approach—is significant. ■

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