

Vessel sealers fuse the wall of the blood vessels, leaving less foreign material and dead tissue behind than suturing does.

ILLUSTRATION: KIMBERLY MARTENS FOR OBG MANAGEMENT



VAGINAL HYSTERECTOMY

A few innovative tools can greatly ease the operative experience for both surgeon and patient



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We've come a long way since Conrad Langebeck performed the first vaginal hysterectomy in 1813. For the inaugural surgery, Langebeck used no anesthesia, gloves, or other sterilization strategies, and he held the suture in his teeth at one point during the operation! (The patient survived.)¹

Despite our dramatic progress since then, too many of us still perform benign hysterectomy by an approach other than vaginal. And too many of us still perform vaginal hysterectomy the way it was taught in the 1950s—frequently a backbreaking, frustrating undertaking.

That approach is unnecessary. In recent years, the technological world has developed many useful tools for minimally invasive gynecologic surgery, some of which greatly facilitate vaginal hysterectomy. In this Update, I focus on 3 of them:

- vessel-sealing devices
- a unique visualization system
- a lighted suction irrigator.

It is my hope that you will incorporate these tools into your vaginal hysterectomy cases and gain some of the significant benefits they have to offer. The revival of vaginal hysterectomy and vaginal surgery in general is all about using the best tools that we have available and using them well, cost-effectively, and thoughtfully to improve the experience of both surgeon and patient.

Why you should default to vaginal hysterectomy

Not only is vaginal hysterectomy more cosmetically pleasing but it also has a lower complication rate than laparoscopic, robot-assisted, or laparotomic hysterectomy, requiring no incisions through the abdominal wall. The original natural orifice transluminal endoscopic surgery (NOTES) procedure also is less expensive than laparoscopic or robot-assisted hysterectomy. Vaginal hysterectomy has so much to recommend it, in fact, that the biggest barrier to widespread use may simply be the lack of industry support.

According to the latest committee opinion from the American College of Obstetricians and Gynecologists (ACOG), “When choosing the route and method of hysterectomy, the physician should take into consideration how the procedure may be performed most safely and cost-effectively to fulfill the medical needs of the patient. Most literature supports the opinion that, when feasible, vaginal hysterectomy is the safest and most cost-effective route by which to remove the uterus.”²

A 2009 Cochrane review of surgical approaches to hysterectomy found that vaginal hysterectomy should be performed in preference to abdominal hysterectomy whenever possible.³ Yet data from 2008 indicate that almost 50% of all hysterectomies were still being performed using an open

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abdominal approach, and laparoscopic hysterectomy made up almost another 25%.⁴

To address the disparity between the evidence and practice, ACOG has joined forces with the AAGL and the Society for Gynecologic Surgeons (SGS) to present an

online master course on vaginal hysterectomy, available at <http://www.aagl.org/vaghyst> webinar. This course features videos and live demonstrations on cadaveric models and is free to physicians, with continuing medical education (CME) credits available.

Vessel sealing offers real benefits over suturing

In any surgery, the need to achieve reliable hemostasis is critical. In vaginal hysterectomy, this goal traditionally has been attained by clamping and suturing of the vessels. In many respects, vaginal surgeons seem to have gotten trapped in the mindset that we need to suture during vaginal surgery—and train residents to suture, too. When it comes to laparoscopic surgery, however, the reverse is true. In that setting, vessel-sealing devices are used to seal blood vessels with “supraphysiologic burst pressure equal to that of previously used surgical clips or ligatures.”⁵

Why is vessel sealing necessarily better than suturing?

It’s safer, for one thing, eliminating the need to pass needles back and forth. It also frees the scrub technician to become the surgical assistant because there are no needles to load and unload. In order for suture to hold around a pedicle, it is necessary to have tissue adjacent to it. The surgeon ties and cuts but must have something beyond the suture or the suture won’t hold. That something is dead, devascularized tissue. Before healing can occur, all this tissue must be absorbed by the body. That is not the case with vessel sealing, which fuses the walls of the blood vessels, leaving less foreign material and dead tissue behind.

What the data show

The literature offers several randomized comparisons of bipolar vessel sealing and suturing during vaginal hysterectomy, and all

of them find increased benefits for the vessel-sealing approach.

For example, in 2003, I published a randomized comparison looking specifically at blood loss and operative time.⁶ Sixty women in a single surgical practice were randomly allocated to vessel sealing or sutures for hemostasis during vaginal hysterectomy. In the vessel-sealing group, the mean operative time was 39.1 minutes (range, 22–93), compared with 53.6 minutes in the suturing group (range, 37–160; $P = .003$). Mean estimated blood loss also was significantly lower with vessel sealing, at 68.9 mL (range, 20–200) versus 126.7 mL for suturing (range, 25–600; $P = .005$). Complication rates and length of stay were similar between groups.⁶

In another randomized trial of vessel sealing versus suturing involving 68 women undergoing vaginal hysterectomy, pain was markedly reduced in the vessel-sealing group (median score, 4 vs 6; $P < .0001$). Operative time again was shorter with vessel sealing than with suturing (median of 32 vs 40 minutes; $P = .003$), but there were no differences in blood loss and hospitalization.⁷

Silva-Filho and colleagues randomly allocated 90 women to bipolar vessel sealing or suturing during vaginal hysterectomy.⁸ Vessel sealing provided reduced postoperative pain (pain score [SD] of 1.6 [0.4] vs 3.6 [0.4]; $P < .001$), shorter operative time (mean of 29.2 [2.1] vs 75.2 [5] minutes; $P < .001$), less blood loss (mean of 84 [5.9] vs 136.4 [89.1] mL; $P = .001$), and a shorter hospital stay (mean of 25.6 [0.9] vs 33.2 [1.7] hours; $P < .001$).⁸

FAST TRACK

Data from 2008 indicate that almost 50% of all hysterectomies were still being performed using an open abdominal approach

>> Coming soon...

Tune in next month for Dr. Levy’s vaginal hysterectomy surgical technique
[See more on page 42](#)

A systematic review and meta-analysis by Kroft and Selk found that vessel sealing reduced: operative time by a mean of 17.2 minutes (95% confidence interval [CI], 7.5-27.0); blood loss by a mean of 47.7 mL (95% CI, 15.5-79.9); and hospital stay by a mean of 0.25 days (95% CI, 0.13-0.37) during vaginal hysterectomy.⁹

And in a randomized controlled trial from the Netherlands, women undergoing vaginal hysterectomy reported significantly less pain the evening after surgery in the vessel-sealing group, compared with the suturing group (pain score of 4.5 vs 5.7 on a scale of 1 to 10; $P = .03$).¹⁰ They also had a shorter operative time than women in the suturing group (60 vs 71 minutes; $P = .05$). Blood loss and hospital stays did not differ between groups, and there were no major differences in cost.

A reduction in pain is an especially important indicator of surgical success. In

an interesting twist, Candiani and colleagues compared laparoscopic and vaginal hysterectomy for a number of variables, including pain, for benign pathology.¹¹ They found less postoperative pain the day of surgery and a reduced number of days of analgesic request in the *laparoscopic* group, compared with vaginal hysterectomy. One reason: Hemostasis was achieved via vessel sealing in the laparoscopic group, compared with clamping and suturing in the vaginal group.¹¹

How to choose a vessel sealer

When selecting a vessel-sealing device for vaginal hysterectomy, keep in mind a number of factors:

- size of the vessels that will need to be controlled. Most devices on the market today control vessels 7 mm in size or smaller.
- amount of steam it releases, which can damage adjacent tissue

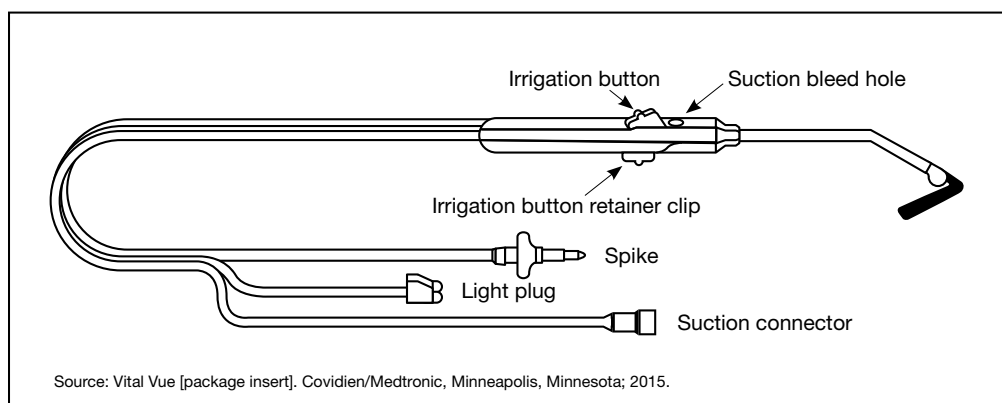
Lighted suction irrigator facilitates visualization “around corners”

Many years ago, I conducted some informal studies for industry that showed—as one might guess intuitively—that the ability to see well during surgery cuts operative time. We all know that light is good. One useful lighting aid I’ve adopted is the Vital Vue (Covidien/Medtronic) suction irrigator. It has a disposable tip like all suction devices, but it includes 3 channels:

one for a fiber optic cord, another for fluid, and the third for suction (**FIGURE 1**). It plugs into a regular suction machine, with a reusable box that provides the fiber optic light.

Because the suction tip is curved, the device makes it possible to illuminate the surgical field “around corners” if need be. Any bleeding can be irrigated to clear the field.

FIGURE 1 Vital Vue device



FAST TRACK

Most vessel-sealing devices on the market today control vessels 7 mm in size or smaller



- overall size of the device
- size of the pedicles that will need to be controlled
- overall space required for use
- cost of the device.

In other words, to choose an appropriate device, you will need to think in advance about the specifics of the case you are

planning, as not all hysterectomies are alike. The type of vessel sealer best for the surgery will vary with these details.

Both bipolar electro-surgical and ultrasonic devices now provide consistent hemostasis, increased functionality, and greater efficiency. What's more, they cause minimal to no damage to surrounding tissue.

External scope offers visualization of vaginal procedures to entire OR

Designed for open surgeries, the VITOM system (Karl Storz) is an innovative tool for displaying procedures in which surgical access is limited. It's an external telescope, or "exoscope," with a 90° lens. It clips onto the table, providing visualization for the entire operative team (**FIGURE 2**).

As we all know, the advent of the camera made an enormous difference in laparoscopic procedures and in teaching because it enabled the assistant to see what the surgeon was doing and anticipate his or her needs.

This device offers the same advantages for vaginal hysterectomy. In my opinion, it's a game changer.

The VITOM system provides outstanding image quality and depth of view. It is placed at a distance of 25 cm to 75 cm from the surgical field and thus does not impinge on the surgeon's workspace. Because it is compact, it facilitates the use of long instruments, if necessary. In addition, because it can be sterilized, the VITOM system can be manipulated directly by the surgeon or assistant. 📌



The VITOM system can be manipulated directly by the surgeon or assistant

FIGURE 2 VITOM system



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