

**TOTAL LAPAROSCOPIC HYSTERECTOMY USING ELECTROSURGERY
DURHAM REGIONAL HOSPITAL
DURHAM, SOUTH CAROLINA
September 20, 2007**

00:00:12

ANNOUNCER: This program was made possible by an educational grant from Covidien, formerly Valleylab. Welcome to this live webcast presentation of a panel discussion on a total laparoscopic hysterectomy. During the next hour, Dr. Craig Sobolewski and Dr. Jeffrey Wilkinson of the Duke University Health System will discuss the advantages of using the ForceTriad Energy Platform during a total laparoscopic hysterectomy. OR-Live makes it easy for you to learn more. Just click on the "request information" button on your webcast screen and open the door to informed medical care. Now let's go to the O.R.

00:00:58

CRAIG SOBOLEWSKI, MD: Good evening. My name's Dr. Craig Sobolewski. I'm an assistant professor and chief of the division of gynecologic specialties at Duke University. I'm very happy today that with me is my good friend and colleague, Jeff Wilkinson, who is a urogynecologist and assistant professor also at Duke.

00:01:13

JEFFREY PAUL WILKINSON, MD: Thanks, Craig.

00:01:14

CRAIG SOBOLEWSKI, MD: Good to have you here, Jeff. And together, Jeff and I codirect Duke's Center for Minimally Invasive Gynecologic Surgery. Today it's our pleasure to present our technique for performing a total laparoscopic hysterectomy using electrosurgical techniques. Before we get into the video of the surgical procedure, Jeff and I would like to go over some important principles that we think every physician should consider when setting out on this particular procedure. So, Jeff, why don't you go ahead and start us off?

00:01:47

JEFFREY PAUL WILKINSON, MD: So looking at hysterectomy data for the U.S., one can see that the majority of hysterectomies are performed by the abdominal route. A lesser percentage, or a little over 20, performed vaginally. And significantly less laparoscopically. So in thinking about ways of reducing the number of -- the percentage of abdominal hysterectomies, we can either increase the number of vaginal hysterectomies or increase the number of laparoscopic hysterectomies, and that'll be the focus of our discussion tonight. Some of the indications for a laparoscopic approach might include poor uterine descent, an enlarged uterus -- which is probably our main indication -- and suspected extra-uterine pathology -- a woman with a history of PID, perhaps endometriosis -- or some limited vaginal access because of the vaginal caliber or limited hip or knee flexion or some difficulty putting the patient into stirrups. Other indications for a laparoscopic approach could include adnexal pathology, both cancerous and non-cancerous, multiple previous surgeries. Some authors would suggest that two or more caesarian sections could be a risk factor for complication at the time of vaginal hysterectomy. Or if you're planning a surgery with your general surgery colleagues that might be relevant and

you could do a laparoscopic approach as well. Contraindications to a laparoscopic approach are noted here, and they're pretty self-evident, such as cardiopulmonary compromise, hemodynamic instability, diaphragmatic hernia. Bowel obstruction is one just because you're probably at increased risk of perforating the bowel on entry. Some relative contraindications can include bleeding abnormalities or morbid obesity can be one simply because it's difficult to ventilate patients sometimes who are morbidly obese and when they're in Trendelenburg position.

00:03:48

CRAIG SOBOLEWSKI, MD: All right, thanks, Jeff. So if we agree that it's important to somehow set about -- set upon reducing the percentage of hysterectomies done abdominally, there are some overriding principles that I think should guide us as we set on in that endeavor -- set out on that endeavor. Of course, the overriding principle of "first do no harm" should guide us in everything that we do, and in this particular instance, ways that we can ensure that that is indeed the case is to understand the technology, be certain that we have the necessary equipment available in our operating rooms, and Jeff and I both feel strongly that whenever possible when transitioning a procedure that's traditionally done during -- via an open abdominal approach to a laparoscopic approach, one should try to mimic and reproduce the steps of that open procedure exactly as done in the open approach when moving into a laparoscopic venue. So let's begin by taking a look at each of these points. Let's begin with the technology. I think that any surgeon has some experience with electrosurgery, but we're going to dive a little bit into what the true difference is as we move from the cut side of the electrosurgical unit to the coag and back once again. So what does it mean when we place our settings on the electrosurgical unit? Well, at some point, someone decided to name those buttons cutting and coag. But they could have just as easily named them the yellow button or the blue button. I think all of us have experience where we've used the coagulation button to separate tissues and therefore achieve essentially cutting. And perhaps there have been situations where even by accident we've noticed that when using the cut side of the Bovie unit that we've actually achieved some hemostasis. The true difference between these two modalities really lies in the voltage difference. And voltage is the pressure that forces the electrons into the tissue. Cut current is a low-voltage waveform that generates heat rapidly. The good news or the benefit of that rapid heat generation is that this results literally in the boiling of the water content within the cells, and that results in mini-explosions. Each of those cells explodes, and those explosions result in a tissue separation. What's fortunate is that because it's boiling water that generates the heat when those cells rupture, that heat escapes as steam and there's rapid reduction in heat. And this overall results in a lesser amount of lateral thermal spread. In contrast, coagulation current is a high-voltage current, high pressure forcing those electrons into the tissue, and has the potential in resulting in more lateral thermal spread. I think this next slide demonstrates well the clinical implications of this. This is an experiment using beef and standard electrosurgical pencils attached to a unit that pulled them through tissue at a constant rate and constant force. The wattage settings were the same for both cut and coagulation. I think what's readily apparent is that as anticipated, the cut side travels a further distance through the tissue and actually cuts deeper into the tissue when compared to coagulation. But equally evident should be the degree of thermal spread. One clearly sees that there's much less thermal artifact with the cutting side of the waveform as compared to the coag form. So Jeff and I both, you'll notice during the video demonstration, rely quite heavily on the cut side of the current, especially when dissecting the retroperitoneum, performing our bladder dissection, skeletonizing the uterine vessels, anytime we're near the ureter, because we really want to do everything we can to minimize that lateral thermal spread.

Clearly there are other things that can impact tissue effect, such as the size of the electrode, how long your electrode is in contact with the tissue, so you really don't allow our electrode to be in direct contact with the tissue for very long periods of time. So that's how we do our fine dissection. What we rely upon for control of our major vascular pedicles and tissue pedicles is the newer generation of bipolar energy, specifically the LigaSure system coupled with the Valleylab ForceTriad Electrosurgical Platform. And the way that this -- together these systems work is a combination of an appropriate amount of pressure applied across the tissue bundle and then the energy that is applied to the tissue is very unique. In fact, the LigaSure system is the only system that sense the impedance or resistance within the tissue, feeds that information back to the electrosurgical unit, and then the electrosurgical unit makes real-time adjustments to the power outage in response to that tissue reading so that in real time, the device is reading the resistance in the tissue, sending that information back to the unit, the unit makes an adjustment so that the output remains optimal throughout the entire cycle. The cycle ends when the tissue reaches a preset level of resistance so that there's really no guesswork involved with this device. The liga-- the ForceTriad system works also on the unipolar side of the device as well, so this isn't just -- the tissue effect sensing technology is available for both standard electrocautery as well as the bipolar LigaSure device. So now Jeff's going to talk about some of the steps early on that can really be important when beginning these procedures.

00:09:29

JEFFREY PAUL WILKINSON, MD: Yeah, we think you should really set yourself up for success early on, and that means getting good port placement, choosing an appropriate laparoscope, and choosing the right instruments to accomplish the goals of the surgery. In regards to port placement, it's very important to identify your inferior epigastric vessels first, prior to placing the ports. And then try to place your ports above and lateral to the fundus of the uterus. So looking at this schematic here, you have a very small uterus, and so it's acceptable to put the ports very low on the abdominal wall, but really the reasons why we're doing a lot of these laparoscopic hysterectomies is because of an enlarged uterus, mostly related to fibroids. And so you can see in the schematic again, placing the ports where they previously were would make it pretty difficult to get your pedicles. So we often will either put it immediately supraumbilical or higher with the telescope and then the other ports slightly lower and lateral in order to be able to divide the pedicles from above. In regards to the laparoscope choice, we will typically choose a five millimeter telescope and a 30 degree lens, and that allows us to best see around the uterus both anterior, posterior, and lateral. The different equipment that we use, and you'll see in the video, the uterine manipulators are key. We'll use -- we use a RUMI manipulator in the vagina with a KOH cup. And also what a lot of people may not think of is to use a strong and agile laparoscopic manipulator. And we usually will choose a five millimeter or a ten millimeter tenaculum. The other device we will have available, atraumatic and dissecting graspers, a variety of needle drivers, and a knot pusher. This schematic demonstrates the use of the KOH cup and the -- with the manipulator. You can see on the right, the KOH cup is pushing up into the vaginal fornices, allowing the ureters to drop off lateral. And delineating the fornices very well, so allowing division of the uterine vessels as well as ultimately making the colpotomies easier.

00:11:53

CRAIG SOBOLEWSKI, MD: That's right. I really think that Jeff and I would agree that one of the most important instruments that we use is that vaginal manipulator. The cup around the cervix really is quite helpful in terms of delineating the place for our colpotomy and keeping us safe down in there near the ureters. So finally we're going

to talk about what I'd mentioned about the importance of reproducing the steps of the open procedure. And when one reflects upon those steps, although you may choose to do your steps in a slightly different order than these, I would argue that this is a pretty complete list of what one does when we perform an open abdominal hysterectomy. And we would suggest that when switching to a total laparoscopic hysterectomy, those steps are identical. For those in the audience who are currently performing laparoscopically assisted vaginal hysterectomies or laparoscopically performed supracervical hysterectomies, you're already performing several of these steps. There's really only a handful of steps that differentiate a TLH from the procedures that you may already be performing. And those steps are highlighted here. Obviously, since the entire procedure is done from above laparoscopically, it's critical to adequately and safely develop the bladder flap. One needs to skeletonize perhaps, certainly in the larger uteruses where pathology may interfere with normal anatomy, some skeletonization is probably critical. So one needs to skeletonize the vessels, secure and transect them, make your colpotomy incisions, and ultimately close the vaginal cuff. So now what I'd like to do is briefly introduce you to the patient who will be the highlight of the surgical video. This is a 42-year-old para 2 female whose primary symptom is severe unremitting dysmenorrhea. She had a prior history of menorrhagia, and for this she underwent an endometrial ablation, which initially did successfully treat her bleeding but unfortunately resulted in this cyclical severe cramping. She was ultimately diagnosed with a hematometria and cervical stenosis. She therefore underwent cervical dilatation, and this unfortunately was unsuccessful, so she was deemed appropriate to proceed for a definitive procedure. We can actually go ahead and start rolling some of the video. The patient, as you'll notice perhaps, has some scarring around the bladder reflection because her two deliveries were both delivered via caesarian section. She had limited to no vaginal or uterine descent and a narrow pubic angle or pubic arch. We always start our procedures by a general anatomic surveillance, looking for a coexisting pathology and optimize the surgical field first. We identify the course of the ureters early on in the course of our procedure. My first assistant during this operation is Dr. Barrett Gunter, and this is actually Dr. Gunter's patient. Dr. Gunter is in private practice at Durham Regional Hospital. And our second assistant is Dr. Eric Foreman, who is a second-year resident at Duke. So with that, we're going to go to the live audio from the procedure. Please feel free to e-mail any questions that you may have.

00:15:10

CRAIG SOBOLEWSKI, MD (ON TAPE): Okay, so we're going to start with the uterus anteverted, so Eric, go ahead and hold the uterus like that. We're going to put the corniwon (sp?) stretch here. And you know, everybody has their own spin on how they do a hysterectomy abdominally, and as we began to develop our approach for doing a total hysterectomy laparoscopically -- let's go ahead and get the LigaSure first. Could we have the 10-millimeter LigaSure? So what we're going to do is go ahead and reproduce the steps that we use in an open case laparoscopically. So we're going to start by using the Valleylab LigaSure system to seal and then transect our round ligament. I know a lot of folks like to start with the adnexa here and just go ahead and seal and transect the adnexa; I've always in open cases started with the round ligament.

00:15:59

CRAIG SOBOLEWSKI, MD: So what you're going to notice here as we begin to separate the round ligament and we bring the LigaSure device in is a point that you don't want to be too medial on the round ligament. And although on initial view, it looks like we might be in a good position here, when we transect the round, you'll notice that we're very close to the venous plexus that is invariably present within the

misosalpinx. And one thing that can be very frustrating is to get bleeding at the onset of the case. So we recognize that this first attempt was too medial and we very quickly repositioned our transection slightly more laterally. So let's go back to the live audio and we'll demonstrate this further.

00:16:45

CRAIG SOBOLEWSKI, MD (ON TAPE): -- is getting into this venous plexus that is invariably present in the misosalpinx here. So if you try to seal here and cut, you're more likely to get into bleeding from these -- this bed of veins in here than if you stay a little more lateral. So I always just sort of eyeball where those vessels are, so you can see this sort of bag of worms here in the misosalpinx, and we're just going to make sure that we stay just a little bit lateral. And what you can see here already is another beauty. You can switch to the scissors. Another beauty of laparoscopy is that the carbon dioxide is our friend. So the CO2 is flowing into that space that we've created and already starting to do some of our dissection. So we are -- as I mentioned, we use the LigaSure system from Valleylab, and we have the LigaSure system with the new ForceTriad electrosurgical platform, and what the ForceTriad does is essentially virtually in real time, it provides tissue feedback from the handpiece to the electrosurgical unit and back to the handpiece. And in real time, adjusts the power outage to ensure an optimal tissue effect. And the -- if anyone has had experience with the former LigaSure system, what I think you'll appreciate as we go along is the difference in speed. So the new ForceTriad system is incredibly fast. That tissue-sense technology, that feedback loop occurs at blazing speed with this -- with this new system, and so you'll see how quickly the seal is formed and how little smoke is generated when we do it. So now what we've done is we've transected our round ligament, and we're starting to open up the anterior leaf of the broad. Go ahead and just -- why don't you electrocoagulate that small little bleeder there. Perfect. Great. So we did that with the uterus anteverted, because that helps to open that space. But now we're going to begin to create our anterior bladder flap and get into our vesicovaginal space here, vesicouterine space. And so to do that, we're going to retrovert the uterus and push all the way into her body in a cephalad direction. So Eric, just like that, all the way up into her -- up into her body. That's great. So I'm going to take our 30-degree scope and I'm going to rotate my can-- my light post so that now I am peering 30 degrees down. So I am looking over the top of the uterus. Now here's another tip that we have found to be helpful. So this is the bulge of that blue colpotomy cup that we placed inside the vagina around her cervix. You can kind of see her bladder peritoneal reflection here, and that's probably where we'll be aiming is somewhere in this general vicinity. But one thing that is helpful is to have your assistant grasp the peritoneal reflection laterally and have your scissors operate underneath the grasper in that space. Now I'm going to demonstrate for you the difference in grasping laterally and grasping medially. If you grasp medially, to a certain degree, it closes that space. Grasping laterally further opens the space and just provides a little bit better view to assist with this dissection. So we're going to go ahead and use our laparoscopic scissors and unipolar cautery. Because of that tissue-sense technology, we have found that we can get the same tissue effect with about 20 watts less of a setting on our electrosurgical unit. So we're currently using settings of 50 watts of cutting current and 30 watts of coagulation current, whereas we would go up about 20 -- 20 watts in each direction if we were using a standard electrosurgical generator. So let's go ahead -- I'm going to -- so here's another common sort of mistake here. Sue, can we get one of those smoke evacuators, please? So I'm going to be lifting up the peritoneum here, so this is a common, common occurrence during laparoscopy is you'll ask your assistants "would you grasp here and lift up?" And there is this natural phenomenon of drift that occurs with laparoscopy, and that's a result of the

fulcrum effect at the abdominal wall. So when you lift up naturally, the tip of the instrument lifts up and goes away from the camera, towards the patient's feet. And so there's a -- if you concentrate on making sure that your assistant is lifting anterior and towards the camera, anterior and cephalad, that will keep the peritoneum a further distance away from the bladder as you continue this dissection. So, Barrett, I think we can be a lot lower down there, I think. Yep, right about in there. That's great. Maybe even a little lower, probably. Yeah, that looks like a good spot. We're using cut.

00:22:05

BARRETT GUNTER, MD: We're using cut.

00:22:06

CRAIG SOBOLEWSKI, MD (ON TAPE): Perfect. So we are using cutting current, which was a good comment to make there. I think that in general, people don't appreciate the difference between utilizing either the blue pedal or the yellow pedal or the cutting or the coagulation current. So again, I'm lifting anterior and towards the patient's head here, and that's just elevating this peritoneal flap here for us and helping to delineate -- yep, that looks great.

00:22:35

BARRETT GUNTER, MD: Got those few little adhesions from her prior c-section there.

00:22:42

CRAIG SOBOLEWSKI, MD (ON TAPE): So the way that cutting current works is much more akin to a electrical scalpel than is coagulation current. Cutting current works -- first of all, this is electrosurgery and not electrocautery. Why don't we take those adhesions out there. So electrocautery, to cauterize something is basically like using a branding iron on cattle. You heat something and use that heat to cauterize tissue. Although heat is an important component of electrosurgery, the difference is it's the electrons that are doing the work here, so the electrons are actually flowing through the tissue to provide the effect that's necessary. That looks excellent. So what the difference between cutting and coagulation current here is that cutting current causes the heat inside the cell to rise much more rapidly than coagulation current does. And while on initial pass, you would say, "well, that's not a good thing," it's actually a great thing because what happens is -- a little coagulation there. What happens is that the heat inside the cell rise so rapidly that the water content inside the cell literally explodes, and that's what causes the tissues to separate, those small explosions of each individual cell. And that's why you get the separation of tissue so efficiently with cutting current. Because the heat generates so rapidly, causes the water inside the cell to literally boil and then rupture, the heat escapes just as rapidly as it generates. So the heat with cutting current escapes as steam. And so the benefit of a cutting current down here by the bladder is that you get less thermal spread than you would if you were using a coagulation current. So with cutting, you'll get more tissue separation than with coagulation current, although you can certainly separate tissue with either. But you'll do so with less thermal spread. And I think this is going to be really important when we get down to the time when we're about to make our colpotomy incisions. All right, so as we're doing this bladder dissection, we're concentrating for the most part at this point of staying in the midline because out laterally is where our bladder pillars are, and that's where you can get into some bleeding. And your assistant, again, becomes very important. So the trick is to elevate and pull toward the patient's head. And what you can see, see how what that -- that small maneuver does if I don't do it first, you can get an idea of where the bladder is, but where -- but where to continue your dissection is not very clear. By elevating the peritoneum and pulling towards the head, it accentuates those small vertical connective tissue bands. That's it right there, those. And that's what you want to use your current to separate. So you use a little current to separate, that's

great, and then with that areolar tissue is you just use the back of your scissor and gently push that areolar tissue over the top of the cervix and over the top of the vagina. And what goes away easily is areolar connective tissue, and that's not going to have vessels. If it doesn't go away easily, there may be a vessel in there, and that is a hint that perhaps you want to use electro-- a little electrosurgery to assist you with that dissection. Eric, could you push in a little bit harder? That's great. That's great. So let's see, so here's uterus. And this is pubocervical fascia right there, the white shiny material is pubocervical fascia, and this is the edge of the cup. So we can palpate that edge, we can feel it laparoscopically through the vagina, so this is where we're going to be making our colpotomy. The edge of the bladder, at least centrally, is here, so we've got a good centimeter and a half or so of distance between the edge of our bladder at least centrally and -- and where we're going to be making our colpotomy. So I think that, you know, even though initially it looked like the bladder might give us some trouble, so far, I hate to jinx myself, but so far we're doing pretty well. So what we're going to do now is move on to our adnexa, and to do so, we're going to antevert the uterus again. So, Eric, if you would be so kind as to antevert that uterus one more time. So again, by -- simply by clicking that trigger and turning the handle, we'll get 90 degrees of anteversion. I've gone ahead and changed the orientation of my 30-degree laparoscopes, and now I'm viewing the uterus from underneath. And what we have found to be -- take the -- here it is, this. So what we have found to be useful when sparing the adnexa is to start this dissection from the contralateral side. And we're going to demonstrate why I think that that's helpful here in just a moment. So again, by having the two 11-millimeter ports, that permits us to use the 10-millimeter LigaSure Atlas device. So, Barrett, if you would just grasp a grasper there, let's see if you can get the uteroovarian ligament just close to the ovary there. Right. So again, I think as -- whenever possible, if you can come across major vascular pedicles perpendicular to the vessel, you get a much better result than if you're coming down those same vessels parallel. So if I was trying to get my adnexa, I'd be coming across the uteroovarian ligament parallel to the uterus and a little more parallel to the vessels than I am by coming across the contralateral side. So we'll usually start our separation of the adnexa when the adnexa is remaining from the contralateral side.

00:29:13

So the way that the LigaSure works, LigaSure, unlike our scissors, is a bipolar instrument. And as gynecologists, I think certainly more so than general surgeons, we're very familiar with and comfortable with utilizing bipolar instrumentation. But what's very different about the LigaSure device and conventional bipolar is that the configuration of this device actually changes the nature of the tissue. So as you can see, if we sort of pan in and look at that seal, it actually looks and if you were to feel this in your hand, almost like plastic. Because the device literally remodels the collagen and elastin inside the vessels and changes the nature of that tissue. Whereas a standard Klepinger style bipolar instrument -- now we can switch back -- a standard Klepinger style bipolar instrument actually relies on the formation of a clot in the proximal vessel. It requires the formation of a coagulum inside the vessel to provide hemostasis. So now, Barrett, we're just going to get this last little bit here from your side. Great. So we just start with the first couple of bites from the contralateral side, and because we don't want to extend out too far laterally, then we'll move back to the ipsilateral side as we continue to separate these tissues.

Probably need to be --

00:31:01

BARRETT GUNTER, MD: A little more lateral?

00:31:02

CRAIG SOBOLEWSKI, MD (ON TAPE): Yeah, so let's go ahead and get all that. Right. Good. So the LigaSure Atlas, the 10-millimeter LigaSure Atlas is a hand-activated instrument. Originally, it had a foot pedal that you had to use, but now it's all hand-activated, as are all of the LigaSure instruments. Yeah, just that last bit there. And you can see, again, with the new ForceTriad system, you can see how quickly the tissue is sealed, you get that audible tone that tells us when we're finished, and then there's a trigger that we pull, and that trigger activates a blade that comes down the center of the instrument and separates the tissue so that there is an equal amount of seal on either side of the tissue separation. It's a very efficient and reliable instrument. Now that we've separated our adnexa, we're getting down to the real meat of the matter here. So again, I can palpate -- I can both palpate with my instrument and actually use visual cues to determine the location of that ring around her cervix. So here's this KOH colpotomy cup right here, and so that's where we want to be aiming and that's where we're going to be making our colpotomy incision, so as we seal these vessels, we want to make sure that we're not straying too terribly far lateral from the edge of that colpotomy cup. So as we begin to acquire hemostasis and secure these uterine vessels, we want to always keep in mind where we think the lateral edge of that cup is because right now we're right at the vaginal fornix, hugging the cervix, and we know we have about a two centimeter safety zone before we get to the portion where the ureter dives underneath the uterine vessels, so this is a segment of the surgery where you want to remain, relatively speaking, close to the -- close to the cervix and uterus. So let's go ahead and come right down about there. And we're going to do that, that's perfect. Great. So I'm going to, again, use my 30-degree scope, look a little anterior there first. Good. Posterior here. And let's go ahead and seal and transect that one there. Excellent. So the other thing, too, Barrett, with the -- with this larger device that I like, with the Atlas, is that you really don't need to double cauter-- double seal. You really I think can rely fairly comfortably on the -- the technology. So -- Eric, kind of into her body and torque to the side like that -- which I think is also safer. I think that if you're doing double -- double seals or double burns or double electrocoagulations, you're going to just simply get more and more lateral thermal spread and artifact, which we don't want. Yep, so that's it. You're palpating where that cup is and you're going to go ahead and seal that vessel. That's great. Perfect.

00:34:28

BARRETT GUNTER, MD: So the Atlas has better, you think, grasping power?

00:34:30

CRAIG SOBOLEWSKI, MD (ON TAPE): I think it probably does. You know, the LigaSure system for laparoscopic instrumentation does have a five millimeter device which, if I'm doing an oophorectomy or, you know, endometriosis case where we need to use bipolar sealing technologies, I'll oftentimes use the five-millimeter device in those situations. So let's just do one slightly lateral there and seal it but don't cut. But for these large vessels like this and large tissue bundles that we're grasping, I love this -- this Atlas device. That's great. So we've transected the bulk of the uterines, I think, and just for good measure there, we did one seal slightly lateral to where we did that last transection. And the one subtle thing that you didn't notice there is that as Dr. Gunter was grasping the tissue, Dr. Foreman, Eric here, was letting the -- the uterus fall out of the vagina just a little bit. So we have it on tension while we're grasping the tissue so we know that we're not near the ureter. So as we place the device -- so go ahead like as if you're going to seal the vessel there. So as we position our device, we have the uterus on tension like that, and then as he closes the jaws, we let the uterus fall out just a little bit like that. Go ahead and seal that. And -- and that takes those vessels off a tension, which I think results in a better seal. We're going to start with the round ligament here, so you

can see in her very nicely this clear space within the broad; that's where we're going to sort of be aiming. I don't want to be too close to the vessels over here by the adnexa, so I'm going to go ahead and grasp that and seal it and transect it. So one thing that may have escaped your attention -- go ahead and grasp that medial round there if you would, the proximal round. Yep. One thing that may have escaped your attention is that at one point, Sue had given us a smoke evacuator. Striker makes a small section of tubing with a filter at the end that allows for passive smoke evacuation, and while it's not too critical for these portions of the procedure, we really don't want too much smoke to accumulate in there. As you'll notice when we make the colpotomy incisions, we do generate a fair amount of smoke and we want to make sure that we are -- have excellent visualization for those components, so all that the smoke evacuator does is screws on to one of the unused Luer-Lock ports, stop cocks of your trochar, and again, allows for smoke-filled gases to passively --

00:37:29
CRAIG SOBOLEWSKI, MD: All right, well, as we continue to watch the video of the dissection of the second side of the uterus, we've had several e-mail questions, and I thought this might be a good time to answer some of those. One question relates to the development of the bladder reflection, and it says: can't you just use the LigaSure device to open the bladder flap? And you know, I think that the LigaSure device certainly could be used to separate the peritoneum here instead of using cut current and unipolar cautery. One could easily come down the peritoneum using the LigaSure device, certainly. I'd be a little concerned about clamping across the connective tissue attachments near the pubocervical fascia just because you don't know for sure where that distal tip of your device is. LigaSure makes a five-millimeter instrument that comes to a nice tapered point, so the five-millimeter device might be nice for doing that degree of bladder dissection if you wanted to, but you know, when doing that fine dissection down around the pubocervical fascia, we've just found that we can do a much more meticulous dissection, a careful dissection using a standard unipolar cautery.

00:38:50

JEFFREY PAUL WILKINSON, MD: And often if we're doing a supracervical hysterectomy and a less extensive bladder dissection is necessary, that might even be a perfect time that we would just use the LigaSure five for instance to do part of the bladder dissection.

00:39:07

CRAIG SOBOLEWSKI, MD: That's right. It looks like this is a question from a patient, it says: can a patient go immediately into menopause after having a hysterectomy. And the answer to that question of course has to do with whether or not the ovaries are left in the patient or if the ovaries are removed at the time of hysterectomy. So hysterectomy when doctors talk about hysterectomy refers to what we do to the uterus. So if we remove the entire uterus, then that's a total hysterectomy, regardless of what we do with the ovaries. If we do a total hysterectomy with removal of both tubes and ovaries, although patients commonly refer to that as a complete hysterectomy, doctors, it really only has to do with the uterus. So if we take the entire uterus out but leave the ovaries in, then those ovaries continue to do their job until they would be naturally programmed or destined to stop making their hormones when that woman naturally transitions into menopause.

00:40:08

JEFFREY PAUL WILKINSON, MD: And why don't we go back to the audio on the video now.

00:40:12

CRAIG SOBOLEWSKI, MD (ON TAPE): Our adnexal dissection from the contralateral side, again, because that allows his instrument to come across these vessels

perpendicular to them. That's great. Look what I did. I made her bleed a little there. We may want to redo that, let's see. Good.

00:40:33

BARRETT GUNTER, MD: Looks okay.

00:40:34

CRAIG SOBOLEWSKI, MD (ON TAPE): It does. So we take the fallopian tube and the uteroovarian ligaments separately. You know, if it was a really thin skinny tube, you might be able to do it all in one pedicle, but I just think it makes a little more sense to do the two of them separately initially. That's perfect. Now if we were taking the ovaries, what we would do since we've opened up the leaves of our broad is make an incision, a parallel incision, within the posterior leaf of the broad ligament here. So we'd open up this posterior leaf a little bit so that we could isolate the vessels of the inferior -- of the infundibular pelvic ligament. And again, that's a step that we do pretty routinely not because it's necessary every single time you do the case but it's great practice. And so if you practice getting into that retroperitoneal space on every hysterectomy that you do, especially on the easy ones, when you get to the difficult ones, you're going to have those skills necessary to help you to do what it is that you need to do.

00:41:43

BARRETT GUNTER, MD: You can see the external iliac sitting right there.

00:41:45

CRAIG SOBOLEWSKI, MD (ON TAPE): Right. She's had -- she's -- this was an excellent case that you chose, Dr. Gunter. This is -- she's got great anatomy for us. All right, so with the uterus still anteverted and on slight rotation, we're just going to come down along side the parametria now -- if you just want to gently grasp that proximal cornu there, there you go. Great. So what we're going to do here is start to come down the parametria. Now because this is a normal-sized uterus, I think that it's very safe and simple for us to do this. If this was a really enlarged uterus, I might want to separate the leaves of the broad here as well and open up that posterior leaf along the back of the uterus as one more step to allow the ureter to fall away laterally at maximal distance. But with her, it's really unnecessary because of how well demonstrated her anatomy is. So we're just going to start with the ascending branches of the uterines here and seal and transect those. And you can just see how efficiently and rapidly and effectively this device works. So like Dr. Gunter back in the day, you know, our instrumentation of choice was standard bipolar Klepinger style forceps and scissors with unipolar cautery. So you'd come in, you'd coagulate, you'd do two or three seals on the vessels and take out your Klepinger instrument, put in a laparoscopic shear, and transect it. And you ended up utilizing a lot more electrical energy to accomplish what we can accomplish very effectively and efficiently with this one device and with far less lateral thermal spread. I mean, you can see, it's just, you know, millimeters of lateral thermal spread on either side of our seal.

00:43:51

BARRETT GUNTER, MD: Yeah, because we would open up, like you said, the peritoneum and almost dissect out the uterine artery so we could see it a little bit better.

00:43:59

CRAIG SOBOLEWSKI, MD (ON TAPE): Right, for fear of -- of the ureter.

00:44:03

BARRETT GUNTER, MD: We didn't have as much confidence in our instruments.

00:44:06

CRAIG SOBOLEWSKI, MD (ON TAPE): Right. Right. So now even though we'll notice that the uterus is going to blanch and take on a bluish hue here momentarily, we're

still going to be fairly respectful of these uterines before we finally transect them when we're making our colpotomies. All right, so, Eric, if you would just let the uterus fall out of her vagina just a little bit, that's great, just like that. So as you can see, that last step there, because those vessels are stretched so tightly across the colpotomy cup, they're splayed across that cup, sometimes I don't think we are grasping them as well as we think we are and so that one little maneuver of just -- so it's just like a piston. So, Eric, you're going to push in first, we're going to identify where we want to place our -- our LigaSure device. Once I have it where I want it, you're going to let it fall out of her vagina just a little bit, and that just lets us grasp that tissue bundle a little more securely than if we -- if we had it on stretch when we were trying to do that. As I said that -- so one more time. So we're getting close to the point where we're going to be ready to make our colpotomies. And to do so, we have to remember to fill up our pneumo-occluder balloon that's sitting inside the vagina. And then we're going to use unipolar electrosurgery to separate the vagina. So to do that, there is -- in fact, just a month or two ago there was an article out of McGee...

00:46:02

JEFFREY PAUL WILKINSON, MD: Okay, we're back again. There were a couple more e-mails coming in, and one of them was: do you intentionally visualize the ureter prior to transection of the infundibular pelvic ligament and what instrument do you use for the dissection of the retroperitoneal space? Yes, we always identify the ureter. That was accomplished -- this was pre-recorded and edited somewhat. We identify that on every patient beforehand, and in this case, we're not actually removing the ovaries, those are staying, and therefore the ovarian vessels aren't divided. And for dissection of the retroperitoneal space, we'll use -- usually use a blunt instrument or the scissors, obviously without electrocautery.

00:46:51

CRAIG SOBOLEWSKI, MD: That's right, and if necessary, and if you do require some electrocautery in the retroperitoneal space, again, I think it would be critical to, if possible, refrain from using extensive use of coagulation current to avoid that extensive lateral thermal spread. So as we go back momentarily to the live audio, what we're demonstrating here is the start of the anterior colpotomy, and along the lines of minimizing the coagulation current that we use, we started by using some coag current just very lightly and superficially across the superficial vessels within the pubocervical fascia. And when we actually open up the vagina, we're utilizing cut current. Because again, we really want to minimize how much thermal artifact there is on the vaginal tissue. There's been some concern about an increased risk for vaginal cuff dehiscence, and many physicians who perform these procedures surmise that that might be related to over-desiccation of the vagina, and so you can avoid that by stay-- concentrating on using the cut side of current. So let's go ahead back to the live audio for this case.

00:48:05

CRAIG SOBOLEWSKI, MD (ON TAPE): -- by keeping your camera a little closer to where we're working. So even though it looked like we got the bulk of her uterines, I can tell out here laterally she still has some ascending vaginal branches, that's right. So let's go ahead and do this side here and we'll stop similarly in an area -- we have the small colpotomy cup on her as well, so that too is going to be important to keep in mind. So the arc of our cup is going to be very acute. Just a little cutting now, and maybe just a half a centimeter or so is probably all that we'll need. So there's really only a few steps about a --

00:48:58

BARRETT GUNTER, MD: A little bleeder.

00:48:59

CRAIG SOBOLEWSKI, MD (ON TAPE): Yeah, right up here, that's a small vaginal perforator right there. Yep. Okay. All right, let's antevert the uterus. The only differences between an LAVH and a total laparoscopic hyst are the degree of bladder dissection that you have to do. So you have to do more bladder dissection from above because -- because you're not doing anything from below, you have to secure the uterine arteries laparoscopically, so you have to rely upon some method or technology. So really antevert -- so for this, Eric, you kind of have to put your finger on the top of the handle. That way if you do get a small perforating vaginal branch, you can control it as soon as you see it because you've taken these tissues down in layers. So that's a perfect example there. So excellent. That's great. That's beautiful. I think we'll go just about to that point and stop right there. All right, let's see what we've got on your side. Maybe just a little bit there that we can take down on your side. So again, you can't see my suction irrigator, but I'm doing small bursts of suction just to keep our field of vision clear.

00:50:38

BARRETT GUNTER, MD: Needs a little cut on that, I think.

00:50:40

CRAIG SOBOLEWSKI, MD (ON TAPE): Uh-huh. Perfect. That's great. So we've -- again, we're just being cautious and meticulous. I think that, you know, hopefully as you can see here, electro-surgery can be a fairly elegant way to do surgery. We're not just -- see if you can manipulate that uterus some. So now that we've -- that's the way. Let's see where -- that's it, just hold that up like that. Got it? Good. So, you know, the RUMI can literally position the uterus infinitely because you can use the trigger to antevert and retrovert the uterus. LigaSure. And use the -- the fulcrum at the vagina to further antevert or retrovert the uterus. So it's a combination of how much you've anteverted or retroverted the uterus with the -- the tip of the instrument by using that trigger and the handle but also by upward displacement of the uterus and twisting or torquing action. You know, by turning the instrument from side to side. So you can really position the uterus wherever it needs to be in order to accomplish what it is that you're setting out to try to accomplish.

00:52:20

BARRETT GUNTER, MD: I really like the idea of getting the posterior and anterior colpotomy, which really sort of defines that residual tissue in between, because it sort of just loosens it up so you can really grasp it. Otherwise, you wouldn't have anything to grasp.

00:52:35

CRAIG SOBOLEWSKI, MD (ON TAPE): Yeah, I agree, it -- it's oftentimes surprising. You know, you can -- our uterus here was not very blanched, but you know, you can have a uterus that looks completely devoid of a vascular supply and you get down here to do this step and you're surprised by how much tissue you've still got at those lateral pedicles. So just a little coagulation current that we're going to advance with here first, please, Barrett. That's good. And cutting now. Great. Little cutting -- coag, I'm sorry. Good. All right, so we don't have too much left. We're just going to do one more LigaSure. I saw a small hint there of a vaginal branch that is remaining somewhere. So we've got our eye on it. We're not going to let it get the better of us. All right, one last thing. Let's see if we reposition this uterus if that helps us at all. Just like that, there you go. Hold it like that, you got it? Want to use that tenaculum grasper maybe.

00:54:15

BARRETT GUNTER, MD: Let's see. Sure.

00:54:20

CRAIG SOBOLEWSKI, MD (ON TAPE): That's great. So we've got this last little lateral pedicle here that we're going to get, and then we'll finish our colpotomies and we'll

be ready to complete the surgery. That's good. So there's our colpotomy anteriorly there, we've got this tissue pedicle left here. Uh-huh. All right. All right. That's where it's trying to go from. Okay. Scissors, please. Scissors? There they are. All right, so some coagulation current here again. That's good. And cut now. Great. All right. And so I don't know how well this is going to show up on the video here, but I'm going to go ahead and drop the suture in here and just ask, Barrett, if you would just grab the suture just above where I have it. Great. And then spin your needle. So now by Dr. Gunter simply pronating or supinating his wrist, you can see that he can change the orientation of the needle. Whoops, one more. Just a little bit back. There you go. Whoop, almost. A little back towards me. That's excellent.

00:56:27

BARRETT GUNTER, MD: Are these self-righting?

00:56:29

CRAIG SOBOLEWSKI, MD (ON TAPE): No, no. Okay. So now I've got my suture loaded for a backhanded throw, and I'm going to do the posterior portion of the angle on the ipsilateral side of this patient, so I'm going to do the posterior side of her right vaginal cuff. If you would just grasp the vagina in the midline there, Barrett, that would be the best. So again, one of the nice features of these needle drivers is their dual function. All right, so now I'm going to go underneath the peritoneum here, want to just make sure I get a little bit of the peritoneum, and then by pushing and turning, so to suture laparoscopically, it's a combination of rotating the needle driver around the arc of the instrument but also using the levering action or fulcrum effect in order to push the instrument through tissue. So now for -- when there's two of us who can suture like this, what we do is we take turns. So I've started with the posterior aspect of my portion of the cuff angle, and I did it in a backhanded fashion from -- from posterior to anterior. Now Dr. Gunter's going to do the anterior portion -- pull it back just a little bit there. He's going to do the anterior portion, and he's going to do a forward-handed throw from his side. There we go. That's excellent. So now I'm going to come down with him -- Sue, could you move that -- that light out of our way there?

00:58:06

BARRETT GUNTER, MD: This light?

00:58:07

CRAIG SOBOLEWSKI, MD (ON TAPE): Yeah, one of them is --

00:58:10

BARRETT GUNTER, MD: And that light, too, probably.

00:58:11

CRAIG SOBOLEWSKI, MD (ON TAPE): Great. And again, you'll notice that we're grasping in the midline of the vaginal epithelium because you don't want to be crossing -- you don't want to be playing chopsticks too much with one another. And the other thing is -- Barrett, if you just come out for one second. The other thing you'll notice is Dr. Gunter has the tip of his needle oriented anteriorly, so -- so really all he literally has to do is hook the tissue. So you know -- right, so traditionally, you know, and Eric can probably attest to this, when we're teaching one another how to -- how to place a suture, you're taught to place it perpendicular to the tissue. Well, you don't really want to do that with this because of the closed space that you're operating within, so we're just going to place the needle there, and he's going to start to drive it through, and once he's got a position there -- he's already gotten it through -- I'm going to let go of the vagina and push the bladder away just to make sure that we're not hooking anything that we don't want to, and then he can leave that needle there and go and finish his arc. So that was excellent. So just as I would do in an open case, we're going to do separate sutures at the angle, at the angles bilaterally, and then we're going to close whatever space is left centrally, all with

interrupted sutures. So again, just like when we put it in, to remove it, you have to grasp the suture, not the needle, grasp the suture about an inch or so away from this wedged-down end, simple interrupted throws and push the knots -- push the knots down through, pull the knots in. So the first two throws are going to go in the same direction. You want to do a purposeful granny knot. And then we're going to go in opposite directions thereafter. And you can see how rapidly and efficiently and quickly you can tie these knots with this closed-end knot pusher in this system. And I like making it a two-person job. Having your assistant hold the hemostat just frees up your hands to, again, very rapidly and efficiently throw these -- throw these knots. Now, the other thing is that it's called a knot pusher, but as you'll notice, I'm actually -- my instrument is in front of the knot, so I'm actually pulling the knot down just like you would do if you were using your finger and doing a two-handed throw. So -- so just like that, we've gotten all of our knots down. You can take the hemostat off, Sue, and I'll hand this to you and you can go ahead and get our next one ready. Thank you very much.

01:00:40

CRAIG SOBOLEWSKI, MD: Okay, well, that concludes the video portion of today's presentation. At the completion of the case, so again, just to reiterate, we do two separate angle sutures, one on each side, and then we close the remaining portion of the vaginal cuff with interrupted figure-of-eight sutures, all tied down extracorporally using that closed-end knot pusher. Once we've completed that portion of the procedure, we decrease the intra-abdominal pressure and do a low-pressure look to confirm adequate hemostasis. Again, because the laparoscope magnifies, things always look a little bit more impressive than they are. The final estimated blood loss in this case was 100 ml's. The patient goes to the recovery room, from there to the general gynecology floor and is discharged by lunchtime the following day. So again, we thank you for your attention, and there are several questions that came in through the latter part of the presentation there, so we're going to go ahead and try to do our best to get several of these answered.

01:01:38

JEFFREY PAUL WILKINSON, MD: Yeah. So one of the questions came in, a number of good ones: is your colpotomy cup metal or plastic and is it safe to use electro-surgical current with a metal cup? There seems to be a lot of arcing to the cup.

01:01:54

CRAIG SOBOLEWSKI, MD: Yeah, so the KOH device does give you the option of either a metal cup or a plastic polymer, and we choose to use the plastic polymer because we're using electro-surgical energy. The metal cup really is primarily indicated for the use with laser if you were going to use a CO2 laser to perform the colpotomy incisions. What you occasionally see as a bright lights is actually some vaporization of the carbon that's on the cup. So it's actually not arcing, there's not actually sparking to the cup since it's a plastic polymer, it's just some heat generated within the carbon deposits that are on there. So again, it's just a -- will only occur when that -- when that cup is exposed, and that heat is not going to be transmitted or arc is not going to go from that cup to anywhere because it's not metal, it's a plastic polymer. So another question here is: do you ever use the morcellator and when might you consider using that?

01:03:03

JEFFREY PAUL WILKINSON, MD: Yes, we'll use the morcellator when we perform laparoscopic supracervical hysterectomies or when we encounter a uterus doing a total laparoscopic hysterectomy that is too large to remove through the vagina. An alternative method that way is also to morcellate through the vagina as well. It's a -- it's a cheaper alternative and very effective as well. Easier to do than morcellating a uterus that's still attached vaginally. And we'll go to the next question: please

describe the pros and cons of the LigaSure device versus the other energy devices used for laparoscopic hysterectomy.

01:03:44

CRAIG SOBOLEWSKI, MD: Right, so there are a variety of options available, certainly, ranging from, again, the old-fashioned Klepinger bipolar forceps to some of the other newer-generation bipolar devices as well as Harmonic technology. Again, just to reiterate some of the points that we think make the LigaSure device unique really relates to coupling that device to the -- to the ForceTriad Electrosurgical platform, or the new generator. And that is that it's the only device that actually responds to the information that the tissue is feeding back to it. That real-time closed-loop sensing of the tissue allows the power to remain within a very tight safety envelope, and this ultimately results in a reproducible, reliable, and safe way to achieve hemostasis. Moreover, it does so in a way that is very much not dependent upon surgeon technique. Some of the other devices require the surgeon to choose the setting of the device, to decide how long to keep his or her hand on the foot pedal or the hand-activation device. With the LigaSure, it will shut off when time is done, regardless of whether you're still pushing the pedal. And with the Harmonic especially, I do think that there's a fairly significantly steeper learning curve because the amount of tension that's applied across the pedicle as well as with your -- both with your hand but also whether you're twisting the device or torquing the device will also have some affect on whether or not you're sealing or cutting or coagulating, desiccating the tissue. So although I think there are lots of options available, and some of which you might feel comfortable with, I really do believe that the new ForceTriad platform combined with the LigaSure provides some fairly distinct advantages. Right, so what else do we have there, Jeff?

01:05:58

JEFFREY PAUL WILKINSON, MD: We've got a couple good ones come in here. A couple we're going to answer in a few slides we have coming up, but: what's the benefit of closing laparoscopically as opposed to vaginally? And I think for the reason that you choose to do the total laparoscopic hysterectomy being -- poor uterine descent being one of them, it can make the closure of the vagina somewhat difficult to do vaginally, and this certainly is an easy way to do I once you get accustomed to suturing. And another question was dealt with: intracorporeal versus extracorporeal knot-ties. Craig, why don't you see what you say about that.

01:06:39

CRAIG SOBOLEWSKI, MD: Right, you know, I think that an intracorporeal knot certainly requires, again, a steeper learning curve and is necessary when putting too much tension across whatever it is that you're trying to reapproximate is potentially deleterious. Fortunately, the vagina is a very elastic and strong organ and one that is quite forgiving and I think lends itself quite nicely to an extracorporeal knot. We choose to use standard curved needles in laparoscopic technique. There are a variety of laparoscopic suturing assist devices, such as EndoStitch, for example, which I think could also be quite apropos for this indication. However, you know, there's nothing like a curved needle and falling back on what you know best to get yourself out of trouble, so should you find yourself in any laparoscopic case faced with a adverse complication that would lend itself or require suturing, for example, a cystotomy or a enterotomy, oftentimes that's best-served by closing that defect with a curved needle. So practicing that by closing the vagina just we find to hone our skills and keep them -- keep them up to date. All right, so with that, I think that we've covered most of the topics, the questions. I think these were all great questions, and we certainly appreciate the participation of the audience. We're going to wrap things up with just a couple more slides to emphasize some of the points that were described during the surgical demonstration. So if we could go back to our

PowerPoint, we left with these sort of steps that delineate laparoscopic hysterectomy from a LAVH or an LSH, and I just want to remind you of some of the sort of tips and tricks that we've learned over the years to help to do these steps in a safe and rapid fashion. So first, developing the bladder flap, this is oftentimes one of the early somewhat nerve-wracking parts of the operation. Using that uterine manipulator to retrovert the uterus and having your assistant really push the uterus up toward the patient's head in a cephalad direction is helpful. That really helps to delineate the edge of the colpotomy cup, and as you do your anterior bladder leaf dissection, you want to aim right toward that edge that will keep you from going too far caudal towards the bladder. We demonstrated, I think, the benefits of having the surgical assistant hold the peritoneum laterally and working underneath that grasper. It just opens up the space more nicely and helps to identify where you need to be continuing your dissection. Begin your dissection over the pubocervical fascia in the midline first. Remember, most of the vascular supply lie within the bladder pillars, and those are out lateral, so get into the space where it's safer, which is in the midline, at the onset. When you elevate the anterior peritoneum, have your assistant pull that up toward the patient's head a little bit. It creates that cave, it demarcates those vertical connective tissue bands quite nicely so you know where bladder edge is and where pubocervical fascia is so that you know exactly where to continue your dissection.

01:10:15

JEFFREY PAUL WILKINSON, MD: Obstacles two and three is skeletonizing and transecting the uterine vessels. We will begin the division of the uterine vessels with the ascending branches of the uterines and then make the anterior and posterior colpotomies, full well knowing that there's going to be some residual uterine branches left. And when we subsequently seal and divide those remaining uterine branches, it's very key to have your assistant operating the vaginal uterine manipulator to relax the tissue when you're clamping down and sealing the vessels.

01:10:59

CRAIG SOBOLEWSKI, MD: Obstacle number four deals with the performance of the anterior and posterior colpotomies. As we mentioned, Jeff and I both really feel strongly that you need to try to limit how much coagulation current you use in this step of the procedure and how much direct contact there is with your electrode during this step. Nonetheless, there is inevitably some perforating vessels encountered in this area, so you can begin to limit some of that bleeding by a very light touch quickly sort of dancing across the surface of the pubocervical fascia on the coag side, and then as soon as you complete that portion, switch over to the cutting current to actually perform the tissue separation. Use the cut side of the waveform when creating the actual colpotomy. And then the final obstacle, Jeff.

01:11:47

JEFFREY PAUL WILKINSON, MD: Yeah, the final obstacle -- final obstacle number five, closing the vaginal cuff, this can be the most daunting task in performing the total laparoscopic hysterectomy for those who are just starting it. And it requires some practice outside of the operating room on some laparoscopic simulators or you can even make one of these at home. And we will suture it closed typically using a free needle and a laparoscopic needle driver. And then also using a closed knot pusher. And as far as -- one of the questions that came in actually is answered in this slide. For the pneumoperitoneum maintenance, you have a lot of different options. We will use anything we can, really.

01:12:29

CRAIG SOBOLEWSKI, MD: That's right.

01:12:30

JEFFREY PAUL WILKINSON, MD: We'll use the uterus if it's small enough to conveniently fit in there. sometimes we'll use the pneumo-occluder device that we had used during the procedure. If -- if these aren't working or the uterus was too big, you can even use a moist green or blue towel. And we've even used a bulb syringe in the past, a small bulb syringe to put in, so...

01:12:52

CRAIG SOBOLEWSKI, MD: All right, well, hopefully, you'll see and believe as we do that it's important to try to ultimately decrease the percentage of abdominal hysterectomies performed in the United States and that a total laparoscopic hysterectomy is a viable option. I feel like a news reporter; we've been handed a couple of last-minute breaking news questions here, so quickly, one question was: can you use ultrasonic technology with the KOH plastic cup? And the answer there is no. The Harmonic device will actually melt right through the plastic cup if you choose to use that one, so you have to use the metal cup if you're going to use Harmonic to perform your colpotomies. You have to be careful there as well because the vibrations of the metal piece of the Harmonic can actually break if it comes in contact with the metal cup, so it just takes some practice and you just have to be aware of some of the difficulties that might be encountered if you choose to use the Harmonic device to perform your colpotomies.

01:13:52

JEFFREY PAUL WILKINSON, MD: The next question coming in: do you do a uterosacral vault suspension when doing a total laparoscopic hysterectomy? And is there a benefit? We routinely assess the patient preoperatively for uterine descent, and certainly if there's sufficient uterine descent and a small uterus, we might not be doing a laparoscopic procedure, we might be doing a vaginal procedure. But we often do incorporate a uterosacral suspension. In fact, probably over the last year, Craig, wouldn't you say about maybe 15-20% of our total laparoscopic hysterectomies we're doing some sort of uterosacral suspension at that time.

01:14:30

CRAIG SOBOLEWSKI, MD: All right, and then the final question, which is actually a two-parter, is: why do you use a 30-degree scope? And for this case, it might not have been necessary, but we use it routinely, so again, our assistants are used to using it. It's critical when using it on a large uterus. If you have a large fibroid uterus, which 40% of hysterectomies are done for that indication, it's clearly one of the more common reasons that we revert to a TLH, in order to be able to effectively see over an anterior myoma or a posterior myoma, you really benefit from having that angled view that will allow you to essentially peek around the corners. And the final one is: how do you code? And for a TLH today, there is not a code, but I -- one of my other hats actually is I sit as the AAGL liaison to ACOG's coding committee, and I'm happy to report that in next year's CPT Coding Manual, there will be codes for TLH specifically, and those codes will follow the same granular pattern that the existing laparoscopic codes do, namely a separate code for with or without the removal of the tubes and ovaries and separated by that 250-gram size limit. So again, on behalf of my colleague Jeff here, we certainly appreciate you staying with us this evening and we enjoyed being here. Thank you very much.

01:15:58

ANNOUNCER: Thank you for watching this total laparoscopic hysterectomy from Durham Regional Hospital with Dr. Craig Sobolewski and Dr. Jeffrey Wilkinson of the Duke University Health System. OR-Live makes it easy for you to learn more. Just click on the "request information" button on your webcast screen and open the door to informed medical care. This program was made possible by an educational grant from Covidien, formerly Valleylab.

01:16:56

[end of webcast]