

## BroadcastMed | THUNDERBEAT Procedural Technique in Gynecology: LESS TLH

K. ANTHONY SHIBLEY, MD: Hi, this is Dr. Tony Shibley. I would like to present the LESS total laparoscopic hysterectomy with the THUNDERBEAT. The THUNDERBEAT is a multifunctional surgical device combining ultrasonic and advanced bipolar energy into one single instrument. I use the THUNDERBEAT as the only energy device for the entire procedure because it has the capability to provide effective cutting coupled with reliable vessel-sealing simultaneously. By having one instrument, I am able to reduce the number of instrument exchanges overall and therefore reduce my operative time. It is important for me to point out to those of you currently performing multi-port TLH procedures that you may notice some subtle differences in the instrument position and viewing angles. However, utilization of the THUNDERBEAT on the pedicles and culpotomy will be the same. Unless we use an articulating laparoscope. The visualization is excellent, and the angular nation is superior to straight scopes. However, you will see more steam in the footage then you would with straight multi-port procedures. If you are performing multi-port procedures and you use the THUNDERBEAT, you will not notice the steam to this degree. After making a U-shaped incision within the folds of the umbilicus and placing the Olympus TriPort, the abdomen is insufflated. The grasping instrument is placed on the Fallopian tube and ovary, deviating them medially and anteriorly. The THUNDERBEAT is then oriented, and the infundibulopelvic vascular pedicle is grasped. The Bipolar button is activated and a distal vessel seal is performed. Medially, a vessel seal can also be used to reduce back-bleeding. The pedicle is then cut by depressing the Seal & Cut button. The ability to go back and forth using bipolar alone or bipolar followed by ultrasonic cutting illustrates the versatility of this device. Any time I encounter a small bleeding vessel, I use the bipolar to quickly obtain hemostasis. When using the THUNDERBEAT you want to have the tissue entirely contained within the jaws and ensure that the jaw is completely closed before activating it. I maneuver the tissue with the grasper and uterine manipulator to obtain the optimal attack angle. Position the device prior to activation, and when activating the THUNDERBEAT, it's important not to apply traction or twist the device. On thicker tissues such as the round ligament, I will perform a couple of bipolar seals prior to cutting. Of course, on thinner tissue like the broad ligament, you can manage this with Seal and Cut mode alone. The THUNDERBEAT is a great dissector, and on thin tissue I place just a slight amount of upward tension on the device when activating it. This allows the tissue to fall away after it is cut. This is often not necessary in larger pedicles as the tissue will fall away spontaneously. Stop activation after the cutting is complete to avoid damage to the small Teflon pad located within the jaws. After the broad ligament has been transected and the bladder peritoneum is incised, upper traction with the uterine manipulator is quite helpful during this step in the procedure. Attention is then turned to the patient's left side, where the steps are repeated. Again, I use Seal & Cut mode on thin pedicles and additional bipolar when vessels are encountered. The advanced bipolar on the THUNDERBEAT is unique in its minimal lateral thermal spread, and I therefore feel quite comfortable using it liberally. It's important to notice that the tissue manipulation and traction is occurring prior to activation of the THUNDERBEAT. The instrument jaw has infinite rotation, and this makes it quite easy to position it prior to activation. It is not necessary to twist or apply excessive traction to the device during activation, and in fact, in some instances this may cause damage to the instrument. The THUNDERBEAT is an excellent dissector and vessel sealer, but it is not a retractor. I do not recommend using heavy lateral tension or torsional forces during activation. As I work through the broad ligament on the left side, I am using the uterine manipulator and grasper to align the uterus and the target tissue in the proper orientation for the best dissection. I often use the probe on the lower jaw as a dissector and to gauge the tissue thickness. With gentle tenting, the tissue falls away from the jaws after activation is complete. The probe is again used to dissect the bladder peritoneum. The pneumoperitoneum will assist in dissection and development of the tissue planes. I utilize significant upward traction on the uterine manipulator during the bladder dissection. Serial activation of the combined bipolar and ultrasonic cutting of the THUNDERBEAT can make the jaw hot, and you may notice that I periodically touch the jaw to the uterus to dissipate the excess heat. It is important when using the THUNDERBEAT as a blunt dissector on sensitive structures such as the bladder to have a cool instrument jaw. On the cardinal ligaments, I use a distal coagulation before I cut more medially. I have also found it useful to coagulate and not cut the first side. I then proceed to the opposite side and perform a distal seal and a medial cut. I have found that this technique reduces back-bleeding and therefore improves my visualization. You do not need to overfill the jaw, and it's important to ensure that it is completely closed before activation. I approach the cardinal ligaments from the same angle as I would in an abdominal hysterectomy. As the pedicles are cut, they fall away laterally and this gives extra protection to the ureters. It also better defines the cup ridge in preparation for a culpotomy. Proceeding with the culpotomy, the jaw of the THUNDERBEAT has the capability to rotate 180 degrees freely. This allows the best orientation of the probe. For the culpotomy I use the Seal & Cut exclusively. I use the technique of drilling the probe i the vaginal tissue to find the cup ridge. I then elevate the probe, following the ridge as I cut. I make deliberate activations without twisting the instrument. In this case, as I find the cup in the midline, I'll enter it here. I try to expose the cup well and get a good feel for its entire borders. I then work lateral to medial, both anteriorly and posteriorly. This technique may vary depending on whether you're doing LESS procedures or multi-port procedures. Individual anatomical variations may also affect your approach. Regardless, the steps for successful THUNDERBEAT culpotomy are the same-- orient the jaw, drill to the cup, elevate the mucosa, and cut. Remember not to activate the jaw when it is empty to avoid damaging the Teflon pad within it. You may notice some melting of the VCare cup due to the ultrasonic activation. I have not found this to cause any pieces of the cup to shear off. I elevate the mucosa off the cup to reduce the amount of melting. Once the culpotomy is completed, the uterus is delivered vaginally. This can be accomplished in most cases without morcellation. The vaginal cuff can then be closed laparoscopically or vaginally. Allow me to summarize the highlights and tips for effectively using the THUNDERBEAT at hysterectomy and culpotomy. You must maintain visibility of the jaws at all times. Maintain a small amount of attention to allow the tissue to fall away after being cut, but do not twist or apply leveraging force to the THUNDERBEAT during activation. Stop activation immediately after transection to ensure the integrity of the Teflon pad. I have found the THUNDERBEAT to be the most versatile and effective energy device that I have ever used. It is an amazing dissector with powerful vessel-sealing capabilities. It delivers time after time with minimal lateral thermal spread. It has been a great addition to my minimally invasive armamentarium.