

## **Chapter 12**

### **Meaningful Vaginal Closure**

*“You don’t need closure. You just need to give yourself permission to move on.”*

*–Steve Harvey*

## Laparoscopic Single Port Hysterectomy

Following the removal of the uterus, whether or not there needs to be any manipulation of the uterus to remove it, I'm a firm believer that the best next course of action is to close the vagina from the vaginal perspective. There are several reasons I hold this belief. Initially, there was some data to show that vaginal closures were more successful than abdominal closures and there was a lower rate of vaginal dehiscence.<sup>50,51,52</sup>

Recent data has called into question whether this is true for all levels of surgical experience.<sup>53</sup> Nonetheless, closure from the vaginal approach has several large advantages.

First of all, for the majority of women who had a vaginal delivery, closing the vagina from the vaginal approach is very fast and easy. One simply needs to grasp any aspect of the vaginal cuff that can easily be palpated in a Kocher clamp. From there, a quick running locked suture, preferably with 0 vicryl or larger on a CT needle, is all that is required and can easily be performed through a speculum. In rare cases and more difficult circumstances, assistance with vaginal retractors can be helpful. Following completion of the vaginal suturing, you should immediately test the suture by gently pushing up either with your fingers or a vaginal sponge stick. A successful vaginal closure need not be airtight (although it would be nice), but it should be successful to the point where a sponge stick when inserted in the vaginal approach cannot be visualized in the abdominal cavity at time of returning to laparoscopy. No part of the white sponge should be seen from the abdominal approach.

Some difficult cases may not be able to be closed vaginally and, in this case, multiple authors have published techniques including novel practices such as barbed sutures that do not require tying and closing the peritoneum without closing the vaginal cuff at all.<sup>54,55</sup> In the event that

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vaginal closure of the vaginal cuff is not possible, I recommend the best closure possible from the abdominal perspective using whichever instruments the surgeon is most comfortable using. If it happens to me, I fall back on my EndoStich™ device with 2.0 PolySorb™ to complete the closure from the laparoscopic perspective. If, after “failing” to close the vaginal cuff from the vaginal perspective, the vaginal cuff cannot be closed abdominally, I recommend closing the peritoneum abdominally and putting in some sutures vaginally as well.

Following closure of the vaginal cuff, I would recommend the surgeon completely change his or her gown and gloves, as removal of the uterus and sewing of the vaginal Vault are going to make it almost impossible to keep the surgical gown sterile. I have seen some surgeons simply change their gloves at this point of the technique, but I think it is most appropriate to completely change the gown and gloves and scrub back into the procedure. At this point the surgeon should resume the abdominal aspect of the procedure and turn the insufflation back on. The abdominal cavity should again be visualized. The vaginal cuff should be visualized by gently pushing a sponge stick in the vagina under direct laparoscopic visualization. This check has two purposes. First, you must be sure that no part of the sponge on the sponge stick in the vagina is visual in the abdominal cavity and, if it is seen, consideration should be given for placing additional stitches from the vaginal perspective. Alternatively, one could place additional sutures from the abdominal perspective if thought feasible. ***(Please be sure to remove the sponge stick first to avoid sewing it permanently into the patient’s vagina.)*** As previously stated above, it is not necessary for the vaginal closure to be airtight, but it is critical that none of the sponge be visualized from the abdominal cavity. A second reason for testing the vaginal vault with the sponge stick,

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while visualizing laparoscopically, is to be sure that none of the bowels are attached to the suture line.

Generally, an intrusion into the bowels with suture is not a large problem, after all suture (of smaller caliber) is commonly used on the bowels for anastomosis and over-sewing when necessary. Therefore, when invasion into the bowels of the vaginal suture line is detected, further interventions are likely unnecessary. All that is required is to carefully cut the suture from the vaginal perspective and re-suture the vaginal cuff while being careful that the offending bowel is no longer in the operating field. Following inspection of the vaginal cuff, if the surgeon is satisfied with the integrity of the newly sutured vaginal cuff, attention can be turned to the adnexa.

Clearly, discussions regarding retaining or removing the ovaries must be performed as part of reasonable counseling for any hysterectomy. While ovarian preservation will always be a controversial topic outside the scope of this text, it is difficult to imagine any circumstances where any Fallopian tube tissue should be retained at time of hysterectomy. Following the advent of Committee Opinion #620, there is really no excuse for leaving the tubes, barring one possible exception.<sup>56</sup> That exception will be the occasional Fallopian tube that is so deformed that it is clearly plastered on the lateral side wall. In this case, removing this tube could require extensive dissection of the retroperitoneum, and you're probably better off leaving behind some Fallopian tube tissue than to dive into the patient's retroperitoneum in order to make a dissection in close proximity to the ureter.

As the uterus has been removed, the medial aspect of the Fallopian tubes should be fairly easy to identify, in most cases, because of the burns. Removal of the Fallopian tubes on each side should be undertaken separately from removal of the ovaries, in order to minimize the amount of

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retroperitoneal tissue taken in each bite. A secondary grasper is generally not necessary, as this technique recommends placing only the bipolar energy device behind the Fallopian tube, and the Fallopian tube should be gently pulled medially in the abdominal cavity. You should have the jaws of the bipolar device snug against the Fallopian tube without any unnecessary tissue in the jaws. Multiple bites should be taken in sequence until the Fallopian tube is free from the abdominal side wall.

All of this dissection should take place in the middle of the abdominal cavity, far from the lateral side walls, in order to prevent any unnecessary spread of electricity to structures in the retroperitoneum.

Following removal of the Fallopian tubes, removal of any ovaries that the patient wants removed should occur. The bipolar energy device should be placed behind the ovary and the ovary should be held as medial as possible, prior to activating the Ligasure™ device and cutting the ovarian ligaments. Pressure should be held medially with special care not to tear the ligaments. Pressure should be essentially as much as can be reasonably applied without fear of ripping the infundibular pelvic ligament.

This technique of keeping snug against the ovaries has been criticized by several authors because of its risk of ovarian remnant syndrome.<sup>57</sup> While this risk does exist, the risk of ovarian remnant syndrome and subsequent morbidity is quite small compared to the risk of ureteral injury, which is a devastating complication of hysterectomy. Therefore, I would recommend that only in select cases should surgeons abandon the technique of “snug” removal of the ovaries, perhaps in some chronic pain patients. The rationale is that, while dissection with the bipolar “snug” against the ovary does have the potential of leaving microscopic amounts of ovarian tissue, it is extremely valuable in avoiding injury in the adnexa.

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In an abdomen with severe adhesive disease, this precaution becomes doubly important. Following the separation of the ovaries and the Fallopian tubes from the adnexa, they should be removed from the abdominal cavity, either in an endocatch bag or whole if possible. Removal of instruments in the opening of the abdominal Port will generally provide enough room to remove these tissues without any morcellation. “In-bag morcellation” can be utilized when appropriate and necessary to remove larger ovaries. The technique simply refers to exteriorizing the mouth of the bag and using ring forceps to remove pieces of the tissue until the bag can be withdrawn.

Clearly, careful attention must be paid to not damage the bag in any way, as this could cause contents to leak back into the abdominal cavity. I have previously used this technique to remove a very large ovarian tumor and then completed the staging laparoscopically with the assistance of a gynecologic oncologist.<sup>58</sup>

Following the removal of the adnexa, the abdomen and pelvis should again be surveyed, and special attention should be paid to the vaginal cuff. For this technique I recommend placing one unit of powdered coagulant on the vaginal cuff to aid with hemostasis (Arista™ or Surgicel Powder™). I prefer this technique as opposed to closely watching the vaginal cuff while simultaneously decreasing the pressure of the pneumoperitoneum.

I believe the technique of placing a hemostatic agent is generally successful in stopping small areas of bleeding of the vaginal cuff, which will prevent hematoma and subsequent abscesses. One important precaution I will give is to guard against the use of Surgicel™ or any other “sheet” shaped coagulant agents on the vaginal cuff.<sup>59</sup> Patients often present to emergency rooms following hysterectomy, and when a patient presents with one of these objects, invariably containing air, is it extremely

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likely the emergency room staff will believe that the patient has an abscess.

Following this, it is unfortunately quite common for surgeons who are unfamiliar with the primary surgery to perform a repeat laparoscopy or laparotomy in search of the suspected abscess. Therefore, I would recommend only powdered coagulant agents at time of hysterectomy.

Lastly, we finish our anesthetic efforts by injecting 20 cc's of one half percent marcaine directly into the abdominal cavity, in all patients except those with extremely small body mass index.<sup>60</sup> The thought process behind this injection is that it can be easily soaked in by all pedicles and will help with the post-operative pain. While my evidence for this is largely anecdotal, I will gladly state that no patient has ever woken up from a hysterectomy and said that, while they had no pain in their abdomen or pelvis, they had severe pain from the tiny incisions on their skin. Therefore, with this reported from thousands of my laparoscopy patients, I would not suggest numbing the incisions in the skin but instead suggest using the marcaine in the abdominal cavity where it can do the most good.

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