Chapter 2

Surgical Preparation and Selection of Appropriate Candidates

"If you choose not to decide you still have made a choice.

-Rush "Tom Sawyer"

Success in any procedure is going to revolve around preparation which, for patient benefit, is preparing to perform a hysterectomy one of three ways: laparoscopic single port, laparoscopic multiport, or open laparotomy. Therefore, one can expect a serious and responsible surgeon to have a surgical card with a lot of instruments followed by the words "Hold - Do Not Open."

The patient should be prepped in the dorsal lithotomy position and, if possible, the arms should be tucked. Individual consideration should be given for each obese patient. If a patient is so obese as to not allow the tucking of the arms at the side, then consideration should be given for lateral sleds, if possible, to aid in the appropriate placement of the patient. I would argue against arms extended outward in all but the most obese of patients, secondary to the difficulty for the surgeon to access the appropriate anatomy. If you are in the circumstance where the patient is so obese that arms cannot be tucked, even with the use of, or because of the unavailability of lateral arm sleds, extra-special precautions must be taken.

Laparoscopy usually does not require or amend itself to taping or manipulation of the panus, but in the case where the patient is markedly obese, you will need to look at your operating field not only as an environment in which to perform the laparoscopic procedure, but also as a possible obstacle, should you need to quickly change to an open procedure.

Many of the taping and suspension devices utilized to perform laparoscopy can become time-consuming dangers when immediate laparotomy becomes necessary.

I will try to simplify the discussion as much as possible, with the understanding that every case must be customized based on the obesity of the patient as well as the equipment available in the particular operating room.

At a minimum, in the operating room cutting into an unprepped, or clearly contaminated patient, is unacceptable. Therefore, every laparoscopy must be planned as if immediate conversion to laparotomy is imminent. In some cases of morbidly obese patients or cases of deficient operating room supplies, entering the patient initially laparoscopically in the supine position, after having prepped and draped the patient for laparotomy if necessary, and then proceeding to dorsal lithotomy after pneumoperitoneum is obtained and observing that the intra-abdominal anatomy is amenable to laparoscopic hysetrectomy, is both reasonable and recommended by this author. Any other setup leads to a time delay when converting from the laparoscopic to the open approach, and this could be life-threatening for the patient, especially if the reason for conversion is uncontrolled hemorrhage.

This seems like the ideal time to discuss entry into the obese patient. I hold the very strong belief that, in almost all cases, the best entry into the abdominal cavity is through a natural umbilicus. I state “natural” because a neo-umbilicus, most commonly created by the plastic surgery practitioners, presents with a plethora of problems unique to its own genesis.

Thus, in patients with a neo-umbilicus, individual consideration must be given to the patient’s surgical history as well as personal consideration of acceptable cosmesis. (After all, the patient has already had plastic surgery on the abdomen at least once.) Based on this, in all cases of a neo-umbilicus, consideration of a left-upper-quadrant, or “walker point” entry is always reasonable. This is not to say that this is always required. Many neo-umbilicus procedures do not penetrate into the abdomen, and therefore in many cases intra-abdominal adhesions are not suspected. When in doubt, there is no substitute for obtaining previous operative reports.

Moving back to the "run-of-the-mill" obese patient, there is no higher level of safety or more preferred approach than the bottom of the umbilicus. As you push your finger to the bottom of the umbilicus of the anesthetized patient, you are literally holding your finger directly against the patient's fascia. This is true 100% of the time. With the exception of the case where you cannot reach the bottom of the umbilicus, either because of scar tissue, no umbilicus exists, or you simply don't have a long enough finger, identification of this plane should be considered the gold standard approach in all obese patients. One pearl that can be of use in the case of an extremely deep umbilicus is the use of a towel clamp.

Please do not mistake that I would suggest the use of a towel clamp to grasp the patient's fat and lift cephalad, as has been performed by many a well-meaning but disgustingly barbaric laparoscopic surgeon.

Rather, I suggest the towel-clamp because of its rounded head which, when plunged to the bottom of an obese patient's natural umbilicus, will often give a spectacular view of the bottom of the umbilicus, which will then enable you to make an incision with an 11 blade scalpel and subsequently enter with a Veress needle.

This technique, however, should be reserved for the most obese of obese patients. The majority of obese patients have umbilici that can be manipulated manually to reveal the bottom and, upon revealing, a one centimeter incision should be made. You should feel the incision with your finger as the Veress needle "pops" though, as your finger is directly up against the fascia. I would then recommend performing standard Veress needle testing.

Veress needle testing includes attaching a syringe to the Veress needle which is then used, in no particular order, to inject saline, attempt to withdraw fluid from the abdominal cavity, and then demonstrate that fluid will fall

through needle into the abdominal cavity when held plumb. If held perfectly plumb, when the lumen of the needle is filled with fluid the tendency of the fluid is to fall into the abdominal cavity, not to remain stagnant or to be pushed outward, secondary to the low pressure in the abdomen.

Conceivably, if your Veress needle is embedded in solid tissue (such as the uterus), fluid could not be injected. Alternatively, in an inappropriate hollow location, such as the bowels, bladder or vasculature, feculent, bloody or urinous fluid may be drawn back. Lastly, the "drop" test of fluid falling in the abdominal cavity is to guard against a pre or post peritoneal entry and, conceivably in the hands of a diligent and experienced surgeon, guard against the unwanted insufflation of the preperitoneal or retroperitoneal spaces. Clearly, insufflation of either of these areas would confuse planes and make effective laparoscopy difficult or impossible.

I have seen many insufflation devices at work and must claim complete ignorance as to their internal workings or function. To be completely honest, I have no idea whether some or all systems are controlled by an internal computer or if it is a "pump until you reach 15mm then stop" system, as simple as the thermostat in my home.

Nevertheless, my stupidity in regard to the function of these machines has not, as in the case of most fools, prevented me from forming a strong opinion. In the topic of insufflation machines I see far better performance stemming from those machines labeled Pneumosure™ and an inferior ability to correctly function on those labeled Highflow 40L™. I have limited, subjective data to support these observations.[8]

So why a Veress needle in the first place? Why not direct entry or Hasson? The answer is deep consideration.

All three entry techniques rely on a single, final step where one penetrates into the unknown layer. The

difference with a Veress needle entry is that, in the absence of the true "double skewering" through bowel lumen, the Veress needle entry ***should*** allow the surgeon to know that he has penetrated somewhere he shouldn't have, i.e. the return of feculent fluid or frank blood should clue the surgeon as to what error has occurred. In the case of a bowel injury, a second attempt at laparoscopy can be made through a second site at this point and conceivable the small, usually 9 gauge, Veress needle injury can be repaired without conversion to laparotomy.

In the case of a Hasson or direct entry, this injury will likely need laparotomy and colectomy.[9] In the case of injury to major vasculature, a Veress needle's small caliber will prevent rapid blood loss, giving the surgeon time to convert the setting to a large laparotomy and mend the vessel. An injury to a large vessel from a trocar, even a 5mm trocar, or directly from a Hasson entry, will result in exsanguination in seconds, likely before any surgeon can achieve a laparotomy size-worthy for operative exploration. In medical parlance, we call this a "dire consequence."

As for selection of the appropriate candidate, there are very few characteristics that I would say rule out the possibility of a laparoscopic hysterectomy.[10] Clearly, one excluding factor could be size of the uterus. As many of you know, I have previously used a power morcellator to remove seven pounds of uterus in an 8 hour Guinness World Record™ setting hysterectomy.[11] While this was an interesting surgery, I would not have performed this feat were the surgery planned today. This is not to say that either the FDA black box warning,[12] or the considerable naysayers have at all scared me into believing that leiomyosarcoma occurs with any considerable frequency more than other cancers, or that power morcellation considerably worsens the outcome.[13] Patients who suffer from leiomyosarcoma have an average life span in the

range of fifteen months by any data,[14] and the massive number of life threatening complications that have been avoided over the years secondary to morcellation- based techniques avoiding laparotomy is incalculably more valuable.

The real reason, however, that I would not use a laparoscopic power morcellator if I performed the procedure today is the incredible ease and speed at which vaginal morcellation can be performed. Vaginal morcellation is an incredibly valuable, under-taught skill which can enable almost any gynecologic surgeon to remove large masses vaginally. I would highly recommend mastery of vaginal morcellation to all gynecologic surgeons. For those that have this skill, size of uterus is not, in itself, a limiting factor.[15]

While size may not be a limiting factor, features of any individual uterus very well may. **A uterus that will not move when pushed with a vaginal ultrasound probe is trouble.** A uterus that seems to extend to the pelvic sidewall in each direction may make for a difficult hysterectomy. A uterus that is close to spherical in shape will make access to the paracervical pedicles extremely difficult, no matter where trocars are placed. Patients with extensive surgical histories will have scar tissue that will certainly limit surgical access. If that scar tissue has obliterated the posterior cul-de-sac, it can be even more difficult to perform the procedure.

Of all of these, my only true unbeatable enemy is the frozen pelvis. For any that don't know, a frozen pelvis is a state of adhesive disease so advanced that no single significant cavity within the abdomen can be insufflated, and thus, there is really nowhere to begin working from with regards to laparoscopy. This will be evident upon entry into the abdominal cavity, where even with the tip of the trocar clearly in the abdominal cavity, no cavity opens.

In a case like this, there is no other recourse than to slowly withdraw your entry and examine carefully for bowel or vascular injury, and consider whether a second attempt can be made. Traditionally, a left upper quadrant entry can be attempted in a case such as this, after adequate decompression of the stomach using a nasogastric tube. From my experiences, this is usually just a confirmation to prove what you already know from your original entry - laparoscopic technique is impossible in this scenario. I would encourage less experienced surgeons to attempt the left upper quadrant entry in your first few encounters, in order to be sure what you thought you saw in the umbilicus was the whole story. There is the possibility of expanding omental adhesions in the area of the umbilicus, which can rarely give the convincing illusion of a frozen pelvis in an abdomen otherwise amenable to laparoscopic surgery. A true frozen pelvis however, even in the hands of an expert surgeon, forces the hysterectomy to the vaginal or open approach.

Counseling any patient with any of the above features should differ from your “norm,” with explanations given as to why the particular circumstance of the procedure raises the possibility to conversion. As discussed in the next chapter, however, with the exception of patients that refuse a particular modality for personal preference, the decision of abandoning laparoscopic single port for laparoscopic multiport, or abandoning multiport for laparotomy, should only be made at the time of surgery, and specifically at the time of first visualization of the abdominal cavity through the umbilical port.

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