Bookwalter® Magrina

Optimizing exposure in vaginal hysterectomy procedures

Globally, hysterectomy is one of the most frequently performed major surgeries. In the United States, more than 600,000 hysterectomies are performed each year.[1] Routes of hysterectomy include abdominal, vaginal, laparoscopic, and robotic. Selecting the route of hysterectomy is influenced by many factors such as surgical indication, pathology, anatomical condition, size, and shape of the uterus; surgeon training and experience; available hospital technology, devices, and support; whether the procedure is scheduled or emergent; and preference of the informed patient.

Minimally invasive approaches such as laparoscopic, robotic, and vaginal procedures do not require a large abdominal incision. They are associated with shorter hospital stays and postoperative recovery times than those associated with abdominal hysterectomy. Nonetheless, abdominal hysterectomy continues to be the most utilized route. Statistics show that vaginal hysterectomy is declining while robotic hysterectomy is on a sharp rise. These statistics contradict The American College of Obstetricians and Gynecologists' ("AAOG") recommendation that vaginal hysterectomy should be the approach of choice whenever feasible.[2]

Regardless of the hysterectomy route selected, exposure and visualization of the uterus are paramount. A famous general surgeon and inventor, Dr. John Bookwalter MD, summed it up best when he proclaimed that "Good exposure is the key to good surgery."[3] The need for adequate exposure in general surgery led Dr. Bookwalter to invent the abdominal retractor that bears his name.

As in general surgery, the ability to obtain exposure is vital to successful outcomes in gynecological surgery. It is difficult to achieve adequate exposure when performing vaginal surgeries, including vaginal hysterectomies. Javier F. Magrina MD, Professor of Obstetrics and Gynecology and Gynecologic Oncologist at Mayo Clinic, Phoenix, Arizona is a gifted surgeon and pioneer in the development and implementation of minimally invasive gynecological surgery in the United States and Europe. He is well-known for his innovative surgical techniques and his development of the Bookwalter® Magrina for vaginal surgery. Dr. Magrina explains that developing the Bookwalter® Magrina in the early 1980s was very intuitive for him.

Although he successfully utilized the original Bookwalter® retractor for exposure and visualization in abdominal surgeries, he experienced difficulty with the exposure and various levels of pressure from assistants holding retractors for his vaginal hysterectomy procedures. He asked himself: "How can I make this easier?" He envisioned a self-retaining retractor for vaginal surgery with the optimal exposure that he achieved in abdominal surgery. He collaborated with Dr. Bookwalter regarding ideas for making his vision a reality: the transformation of the traditional Bookwalter ring and blades to conform to the unique vaginal anatomy and enhancing the challenging exposure of the uterus and anatomy began. Once a vaginal Bookwalter prototype became available, Dr. Magrina successfully performed vaginal hysterectomy procedures in a much more clinically effective and efficient manner. This original prototype served Dr. Magrina in his practice for many years and eventually Bookwalter® Magrina became available worldwide.

Megan Wasson DO, Senior Associate Consultant and Assistant Professor at Mayo Clinic, Arizona, chooses the Bookwalter® Magrina because it provides the outstanding exposure which she believes to be the key to success in vaginal surgery. She finds that the exposure provided by Dr. Magrina's innovation offers more stable and uniform exposure due to the stability and control offered to the surgeon in placing the self-retaining retractor versus the variable retraction and tension provided by assistants holding retractors. Fatigue, lack of visibility to the operative site, and a plethora of ergonomic challenges plague assistants while they are holding retractors during vaginal surgeries, with the result being limited and impaired exposure and increased procedure time and complication.

Despite the ability of the Bookwalter® Magrina to improve exposure and visibility while reducing ergonomic stress, challenges to utilizing the vaginal approach to hysterectomy persist. Dr. Magrina and Dr. Wasson believe that the learning curve for the various routes of hysterectomy and gynecological surgery is a factor. They hypothesize that declining rates of vaginal hysterectomy can be attributed to the fact that vaginal surgery is difficult to perform and requires a high level of skill.

Another barrier may occur during surgical residency. Residents have a limited amount of time to learn all methods of OB/GYN procedures such as hysteroscopy; C-section; hysterectomy: open abdominal, vaginal, laparoscopy, and robotic; myomectomy; endometriosis treatment surgery; and many others.

A vaginal hysterectomy requires both skill and good visualization and the surgeon must be very familiar with the location of the anatomy. When the Bookwalter® Magrina is not part of the training process, assistants may not hold retractors steady, which limits exposure and increases difficulty in completing the procedure. The ability to acquire the skill needed to perform this advantageous route may be adversely impacted without the Bookwalter® Magrina.

The learning curve for routes of hysterectomy varies for many reasons. Fortunately, the Bookwalter® Magrina can enhance the learning curve for vaginal hysterectomy and other vaginal procedures. Although all surgeons become proficient in abdominal surgery during their early training and the abdominal route is easy to learn, the potential risks of this method such as longer recovery time, large incision, greater blood loss make this route the least likely choice unless there is pathology to support its use. Robotics, the costliest method, is the easiest to learn but is not available in all facilities. Laparoscopy, which is associated with ergonomic challenges for the surgeon, is very challenging to learn and it is difficult to perfect without significant practice.

Patients always believe that cutting edge technology is advantageous, and there is a perception that robotic or laparoscopy is more advanced and, therefore, better. This perception regarding robotic and laparoscopic techniques influences patient choices. Laparoscopic instrumentation and equipment are available in most facilities, but robots are not always available, this may explain why laparoscopic procedures outnumber robotic procedures. In reality, as the AAOG recommends, vaginal hysterectomy is the approach of choice whenever feasible due to evidence that demonstrates that it is associated with better outcomes when compared to other approaches to hysterectomy procedures.[5]

There is a current trend toward the vaginal approach to gynecological surgery with single-port transvaginal surgeries also getting positive reviews and transvaginal cholecystectomies have also been successfully performed. Given this new emerging trend, optimal visualization in vaginal surgery will continue to be needed.

Another factor that may positively impact vaginal surgery is the demographics of the surgeon population. As the surgeons performing these procedures age, a growing number of them report ergonomic difficulties, such as hand fatigue and pain as a result of excessive laparoscopic surgery.

In summary, vaginal hysterectomy continues to provide the best outcome and cost advantage over the other routes and will continue to thrive. Utilizing the Bookwalter® Magrina to provide optimal exposure and visualization is an effective way to perform a vaginal hysterectomy and other vaginal procedures successfully.

References Available Upon Request.

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