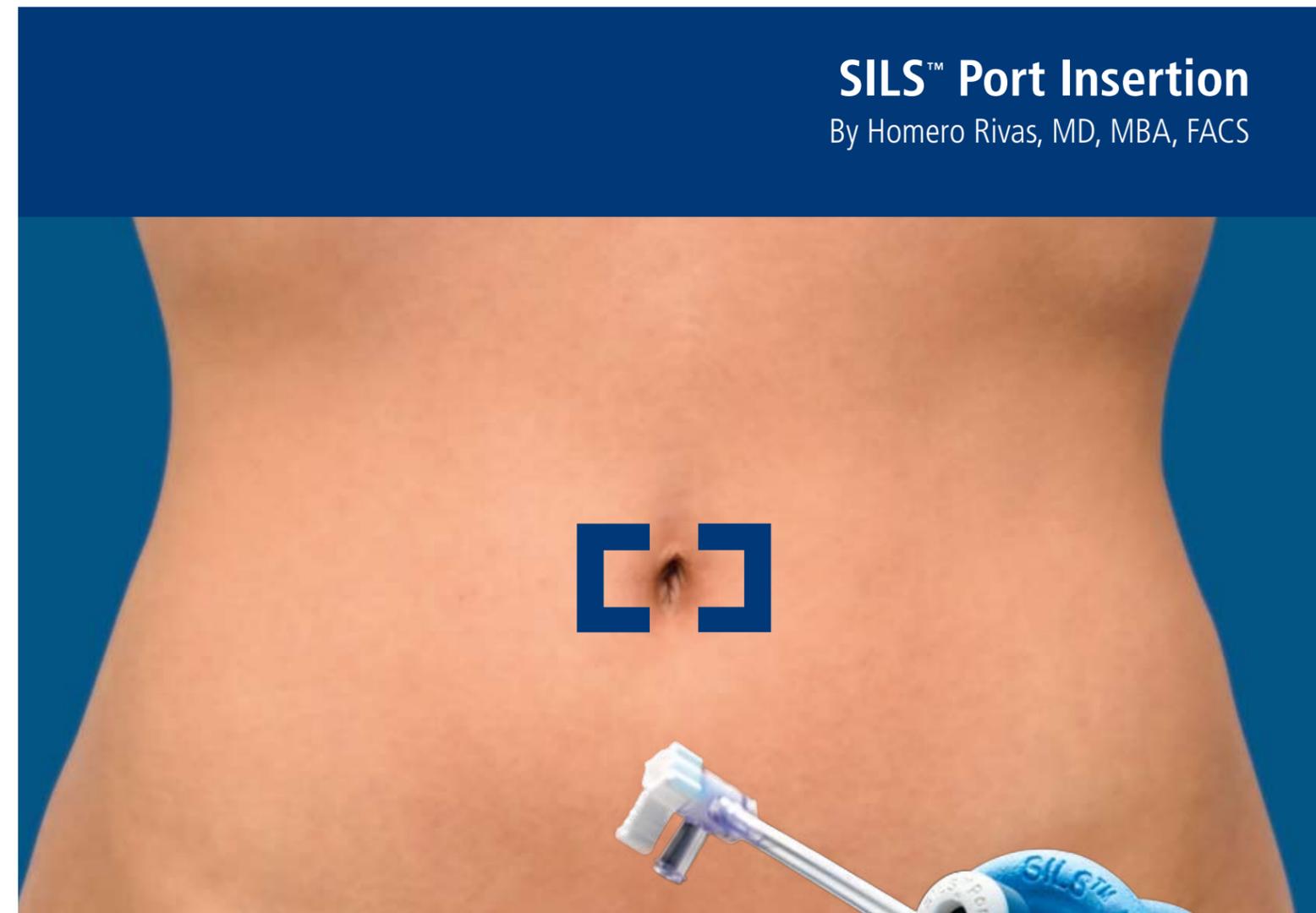


SILS™ Port Insertion

By Homero Rivas, MD, MBA, FACS



SILS™ is an advanced laparoscopic procedure for which specialty training is strongly recommended. Contact your local Covidien Surgical Device Specialist for training opportunities.

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**Single incision.
Single port. Simple choice.**





SILS™ Port Insertion

By Homero Rivas, MD, MBA, FACS

For the last 20 years, there has been a worldwide adoption of laparoscopic surgery. Most abdominal and thoracic surgical procedures have been safely reproduced and implemented via laparoscopy. Covidien has been an integral partner with the surgical community by creating innovative surgical solutions, which clearly have been fundamental to such breakthroughs in surgery. However, since the beginning of this laparoscopic era, very little has evolved to lessen the access needed for a given surgical procedure.

Most laparoscopic instrumentation has undergone only subtle changes, as the basics remain mostly the same. For the most part, efforts have been focused on creating more efficient and easily adopted platforms, more effective and safer surgical devices, more advanced imaging systems, etc. Along with these technical refinements, patients are now well aware of laparoscopy and its benefits, including but not limited to better clinical outcomes, less pain, improved aesthetics, etc. They are also demanding less invasive techniques. SILS™ procedures have been proposed as a way to revolutionize minimal access surgery.

For some, it may represent a link between laparoscopic surgery and natural orifice transluminal endoscopic surgery (NOTES). In essence, its concept lies in performing laparoscopic surgery through a small single incision, hidden in a site like the umbilicus; therefore resulting in no visible scar, and theoretically reducing postoperative pain, in addition to other potential wound related complications from multiple operative sites.

Like many other surgical techniques, there are several methods to access the abdominal wall and perform SILS™ procedures. In the next few pages, I will describe the use of the SILS™ Port as a simple and reproducible technique. The SILS™ Port is a unique device, especially designed by Covidien to enable single incision laparoscopic surgery. It consists of a blue flexible soft-foam port, with access channels for three cannulae. The 5mm cannula may be interchanged at any time during the procedure with a 5mm to 12mm cannula. The SILS™ Port will adapt its configuration to the size of the cannulae and maintains pneumoperitoneum. A transumbilical insertion is ideal to prevent any visible scar.



Following basic surgical principles, first inject some local anesthetic in the umbilical and periumbilical areas. Then, identify the deepest point of the umbilical scar (inner ring), and evert the umbilicus from its normal position, by lifting that area with pick-ups or atraumatic graspers (figure 1-2).

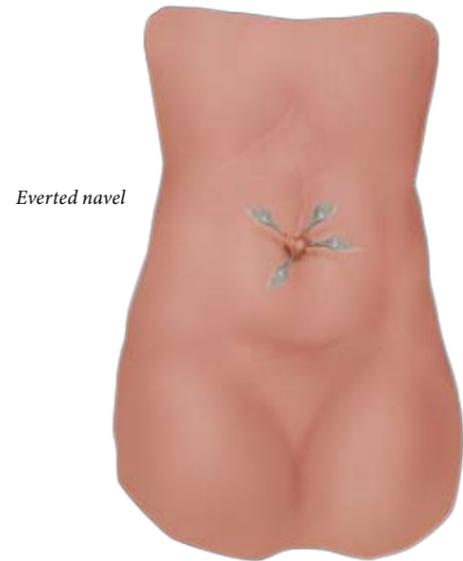


figure 1

To facilitate this, while pulling the umbilicus up, apply subtle counter pressure on the abdominal wall. This will tent up the umbilical scar, and show the whole extent of the umbilicus. In order to obtain better cosmetic results and optimally demonstrate this technique, proceed to mark the

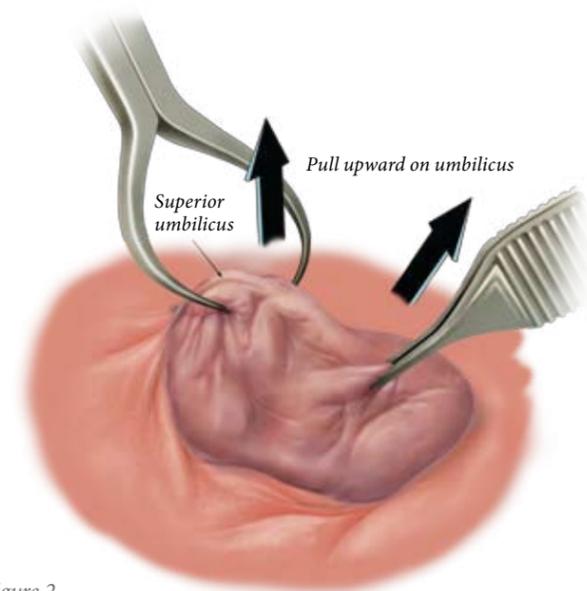


figure 2

outer limits of the umbilical folds. Also, mark the length of the incision not to pass points such as the outer folds of the umbilicus. By limiting the transumbilical incision to this area, the final scar will always be confined and properly hidden within the natural umbilical scar. Following this, one must carefully incise the skin and subcutaneous within the confines of the umbilical folds tissues, keeping in mind that

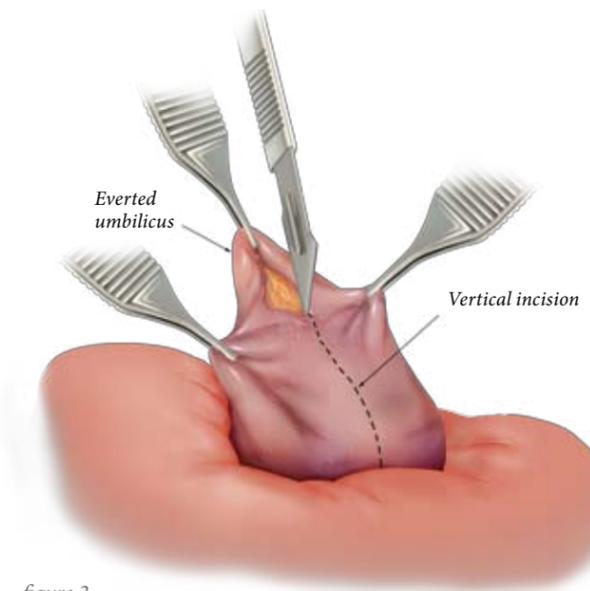


figure 3

opening the umbilical stalk will give you direct access into the abdomen. My preference is to create a vertical transumbilical skin incision. Conversely, the incision may be done horizontally depending on the surgeon's choice (figure 3-4). Incisions above or below the umbilicus also give excellent aesthetic results, and the decision where to incise is at the discretion of the surgeon.

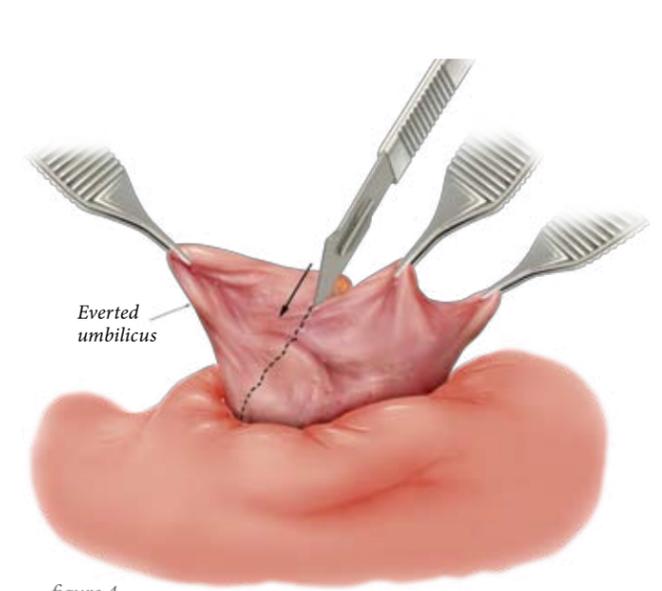


figure 4

This open technique allows you to extend the skin and fascia opening to an ideal length of 2 centimeters. Most times, such length should be sufficient to accommodate the SILS™ Port. One must be careful not to create a much larger incision, especially at the fascia, otherwise the port may be too loose, resulting in an inadequate pneumoperitoneum due to gas leak around the blue flexible port.

By using an open technique, either supra, infra or transumbilically, one must identify the central confluence of the linea alba, and the umbilical stalk (figure 5-6). As previously stated, we prefer a transumbilical approach. Continuous retraction of the fascial edges facilitates this process. Some surgeons advise placement of fascial sutures. This may be quite helpful, especially at the end of the case,

by facilitating easy identification of the fascial edges, just before closure of the abdomen. Once the preperitoneal fat has been identified, a blunt surgical instrument can be introduced into the peritoneal cavity under direct vision (figure 7). This will confirm adequate entry into the abdomen, and can facilitate lengthening of the fascial opening with up to a length of 1.5 to two centimeters.

Next, the flexible SILS™ Port is folded at its lower edge (contralateral to the insufflation system), and with the use of a proper surgical instrument (i.e., Péan clamp) is advanced under direct vision into the abdomen (figure 8).

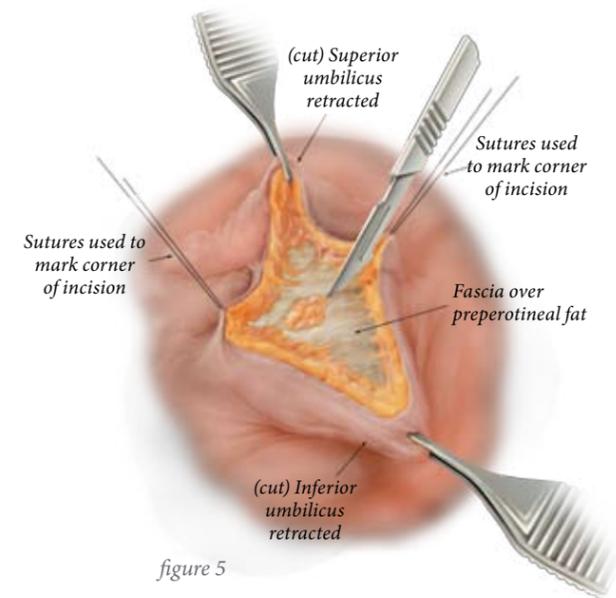


figure 5

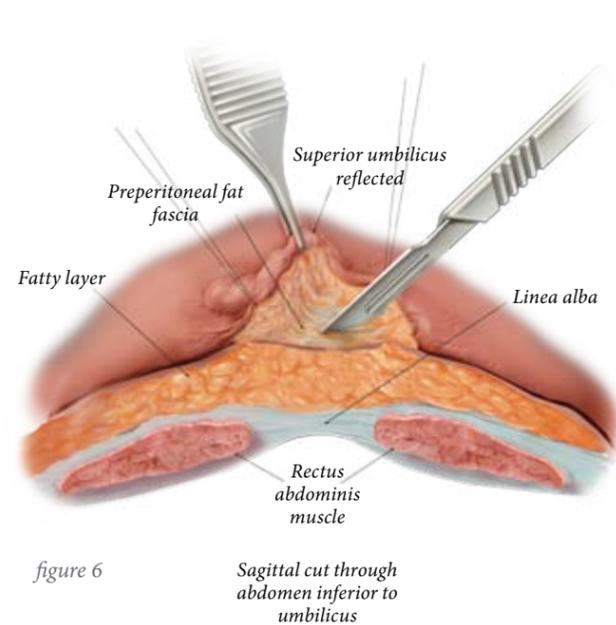


figure 6

Sagittal cut through abdomen inferior to umbilicus

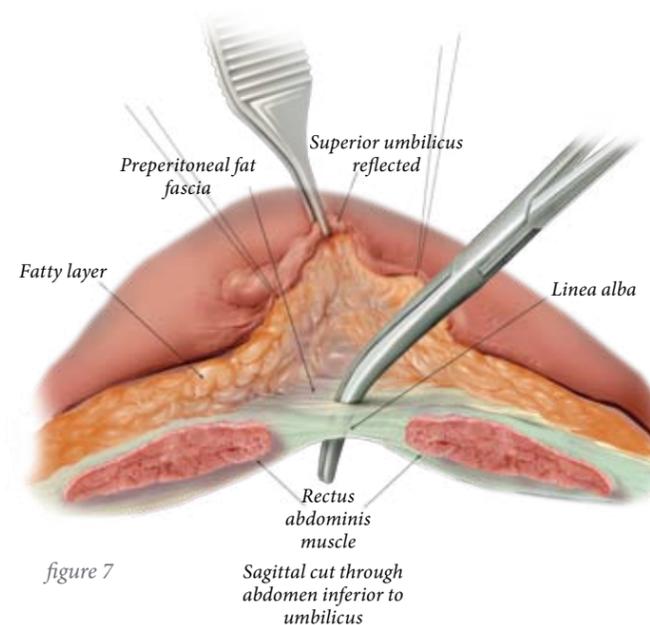


figure 7

Sagittal cut through abdomen inferior to umbilicus

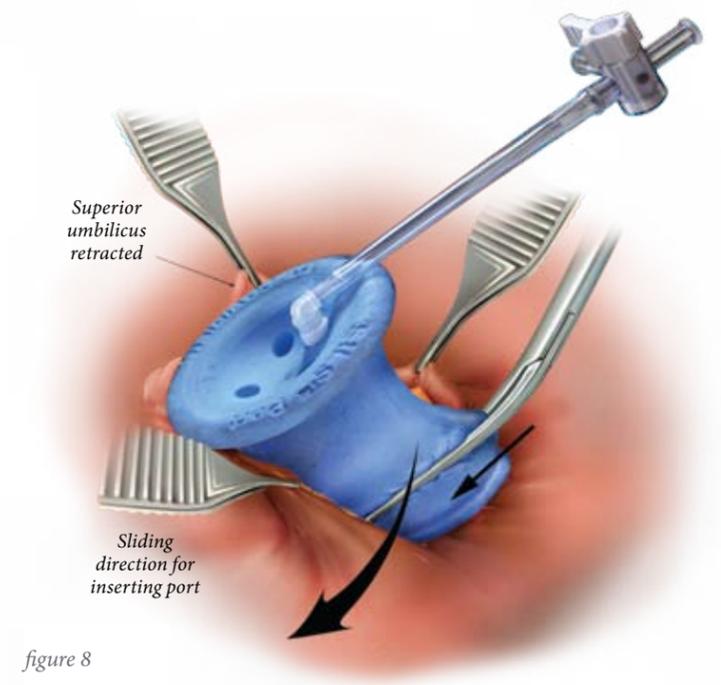


figure 8

Only the bottom half of the port is introduced, making sure that the complete lower edge is inside the abdomen (figure 9).

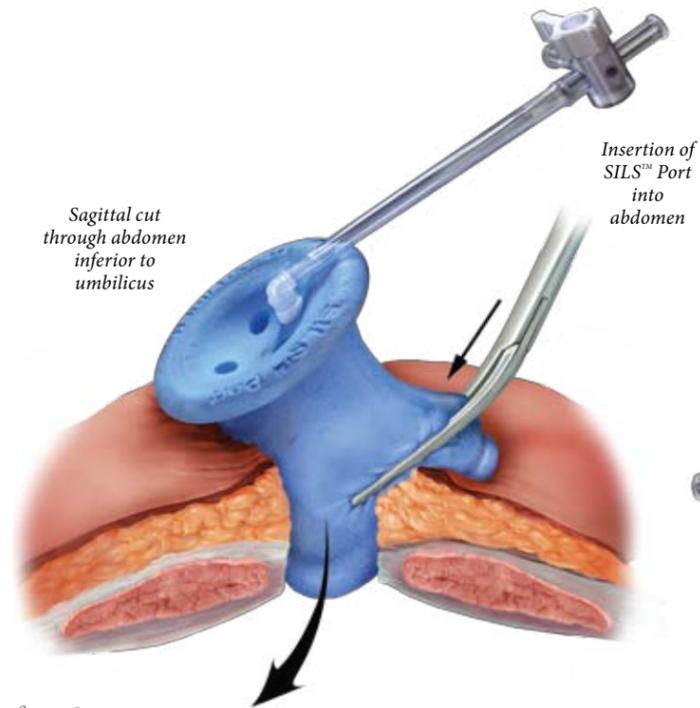


figure 9

Once the bottom part of the port is inside the abdomen, the port is released from our surgical instrument (figure 10).

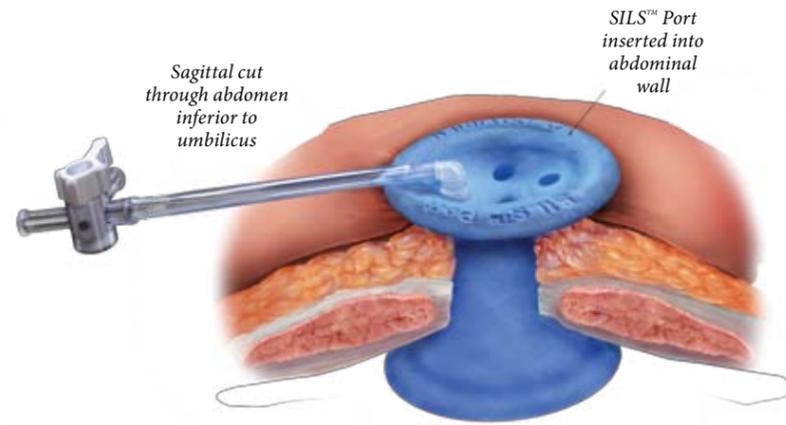


figure 10

Following this, the SILS™ Port cannulae are introduced through the access channels (figures 11-12). Pneumoperitoneum may not be initiated until the three cannulae are



figure 11

placed inside the SILS™ Port. A 5mm cannula may be exchanged as needed with a 5mm to 12mm cannula. The SILS™ Port adapts to either size, and continues to maintain pneumoperitoneum.



figure 12



figure 13

Single incision laparoscopic surgery is proving to be the next evolution in minimal access surgery. More and more, surgeons are adopting and patients are requesting SILS™ procedures. These include SILS™ cholecystectomies, appendectomies, hysterectomies, etc. More advanced SILS™ procedures are implemented every day in nearly all surgical fields (bariatric surgery, urology, gynecology, pediatric surgery, etc). It would not be surprising if, in a few years, single incision laparoscopic surgery becomes the universal surgical access choice.



Homero Rivas, MD, MBA, FACS

Dr. Rivas is an Assistant Professor of Surgery, and Co-Director of the Minimally Invasive Surgery Fellowship Program at the University of Texas Southwestern Medical Center in Dallas, TX. Also, he is a Visiting Surgeon at the Hospital de la Paz in Durango, Mexico. Dr. Rivas is a pioneer and leader in single incision laparoscopic surgery and in other novel surgical techniques including natural orifice transluminal endoscopic surgery. He has been involved in minimal access surgery in the United States, Mexico, Europe and Australia; as a surgeon-in-training, a practicing surgeon and also as teacher of other surgeons. Presently he has one of the largest series of SILS™ cases, and with Covidien and the University of Texas Southwestern has already taught his SILS™ technique to numerous surgeons in America, Europe and Asia. He truly believes that SILS™ will revolutionize the way laparoscopic surgery is performed.