

Single Incision Laparoscopic Surgery

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'The reasonable man adapts himself to the world; the unreasonable one persists in trying to adapt the world to himself. Therefore all progress depends on the unreasonable man'

George Bernard Shaw

One of the greatest transformations within the history of surgery has been the paradigmatic shift away from open surgery into the realm of laparoscopic surgery; an approach that truly captured all that what could be expected from minimally invasive surgery. Over two decades ago, the surgical fields saw a change that has since then, established itself as the gold standard. Conventional multi-port surgery came out as a safe, easy, patient-friendly, and cost-effective approach and was endorsed by surgeons from all over the world and across specialties. It gave the patient an experience that proved to be less painful, less scarring and traumatic, reduced hospital stay, and early return to family and work. The success of the technique has been due mainly to patient aspirations, which has contributed to quantum leap in the number of laparoscopic procedures performed. Today, a majority of cholecystectomies are performed laparoscopically, and the approach has been adapted successfully for other benign and cancer surgeries of the abdomen, thorax, and pelvis.

Having said this, it is also well known, both from observation and experience, that medicine is an ever-changing field and this is more true for surgical sciences than any other specialty. Reduction of surgical trauma is considered a vital end-point. All this has aspired surgeons to move towards newer technologies and higher standards. Surgeons once again moved ahead in their endeavor to better the achievements made so far. The surgeons were now well-equipped with ergonomically designed, articulating instruments with better range of motion and wide variety of tips; factors which became the main driver for the refinement, popularity, and proliferation of minimal access surgery.

All this saw the advent of a new technique that aspired to meet the needs of the patient and the stiff goals set by the surgeon- Natural Orifice Trans-lumina 1 Endoscopic Surgery (NOTES) and Single Incision Laparoscopic Surgery (SILS). NOTES had the distinction that it left no skin scars, but requires entry into the peritoneal cavity with the use of flexible endoscopes by perforation of a hollow viscus, the stomach, esophagus, colon, vagina or the bladder. With NOTES the surgeon had to make and maintain a viscus perforation for the duration of the procedure and find a way to close this hole at the end and to many this was not ethically acceptable.

On the other hand the outstanding feature and the major leap with Single-Incision Laparoscopic Surgery (SILS) was that it came ahead to better what was already being done by multi-port minimal access surgery, through a single incision made through the umbilicus. All this was once again seen as a quantum jump towards the high standards of reducing surgical trauma and scarring while safeguarding the internal environment of the patients' organs. Thus, SILS could be labeled as the next generation minimal access surgery that was also in sync with the surgeon's outlook towards the technological advance.

All this is confirmed by the rapid spread of SILS worldwide in a short span of time. There has been surge in the number of surgeons who advocate SILS and a similar trend is now emerging in the real-life scenario where there has been an increase in the number of surgeons using the technique. The published experience has also confirmed and documented the safety and efficacy of the SILS approach. Not to be left behind, the instrument industry has also come out with all its innovations to give a strong thrust to increase the safety and evolution of the technology for SILS. SILS has been performed in the full spectrum of all abdominal surgeries, gallbladder, appendix, colon, spleen, adrenals, and kidney, with results comparable to multi-port MAS.

Having extolled the virtues of significant progress and acceptance of SILS by surgeons, one must also mention that there are a number of important issues which need to be addressed before we can confirm with good evidence that this variant laparoscopic approach does indeed benefit the patient. As of today, the SILS approach imposes restrictions on instrument

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manipulation, retraction and limits triangulation even with the best available instrumentation.

Standing at the cross-roads and as a privileged witness to the tremendous technological advances where one thing can be seen for sure is that the future belongs to this variant approach and may only be realized to the fullest capacity by the adoption of robotic master slave manipulators, some of which are currently being used successfully and undergoing further evaluation.

Till that time, the jury is still out on whether SILS does indeed reduce postoperative pain and adhesion formation apart from the cosmetic aspect of reductions in visible scarring. The torch-bearers have to define the contraindications to SILS and shed light on other potential areas of concern such as an increased risk

of incisional periumbilical hernia formation. While, only time and experience with the procedure in well designed research will established its worthiness, one thing the humble surgeon must remember-

'In the performance of our duty one feeling should direct us; the case we should consider as our own, and we should ask ourselves, whether, placed under similar circumstances, we should choose to submit to the pain and danger we are about to inflict.'

Sir Astley Paston Cooper