

## Single incision total extraperitoneal (one SITE) laparoscopic inguinal hernia repair using a single access port device

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To the Editors,

Performing laparoscopic operations through one single skin incision has recently emerged as a possible alternative to conventional laparoscopy in a variety of surgical cases. To date, however, other than cosmesis, there is no evidence yet to suggest any significant patient advantages for single-incision laparoscopic surgery. Nonetheless, single-incision cases were reported as early as in 1998 [1, 2], and, recently, the term “single incision laparoscopic surgery” (SILS™) has been described for a large number of urologic, gynecologic, bariatric, and general surgical procedures, and its use seems to be rapidly growing.

Annually in the United States, there are about 800,000 inguinal hernias performed, of which approximately 140,000 are performed laparoscopically by either the transabdominal (TAPP) or total extraperitoneal (TEP) approaches. While the indications and contraindications have yet to be described, the use of SILS™ techniques to perform laparoscopic inguinal hernia repairs is already being described [3].

SILS™ techniques are currently being performed using one of two entry methods. On the one hand, a single skin incision can be made, followed by the insertion of multiple trocars through separate points of the fascia. Alternatively, through a single skin and fascial incision, a single-port access device can be inserted and multiple trocars can be inserted through these devices. We began using single-incision techniques for TEP hernia repairs in December of 2008, and we would like to report our group’s initial experience with SILS™ inguinal hernia repairs using a single-access port device.

The technical steps of a single incision TEP inguinal hernia are very similar to that of a traditional laparoscopic TEP inguinal hernia, and no special instruments are required. We begin by making an infraumbilical skin incision measuring 25 mm in length. The incision is made partially over the midline and is extended to over the anterior fascia of the left rectus muscle. The anterior fascia is held with two stay sutures and divided longitudinally for approximately 25 mm. The current size of the available single-incision port devices mandate this size incision. The posterior fascia at this level is identified and the rectus muscle is retracted laterally, allowing us to create a plane deep to the rectus muscle down to the level of the pubic bone using a dilating balloon trocar. The balloon dilator is then removed and replaced with a single-access port device (Covidien, Norwalk, CT, USA). Through this device, we insert a 12-mm trocar and two 5-mm trocars. Using a 45° 10-mm laparoscope, we then performed a routine TEP inguinal hernia repair. Standard laparoscopic instruments and mesh are then utilized for the operation.

We have completed a total SILS™ inguinal hernia repair using this single-port access device in three patients. In our first case, a direct inguinal and a femoral defect were discovered on the right. When the left groin was explored, a small direct defect was found. A 4 × 6-in polypropylene mesh was inserted through the 12-mm port and secured on each side using four to five spiral tacks, as is our routine. The operation was straightforward and took 73 min. The patient was discharged home the same day and the postoperative course was uneventful. At the 2-week follow-up appointment, there was no evidence of recurrence and no obvious wound complications, including no evidence of an incisional hernia.

The next two cases were performed in males with bilateral indirect inguinal hernias. One of these patients had

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significant obesity and a recurrence on the right, as well as a new indirect hernia on the left. Given this, this case was completed in 110 min. At 1-month follow-up, he had no evidence of complications and, more importantly, his single incision had no seroma, hematoma, or evidence of a hernia. The third case was in a nonobese male with bilateral inguinal hernias. Again, the case was straightforward and was completed in 55 min. At his follow-up visit, he too had no complications and no evidence of an incisional hernia. He just completed his 3-month follow-up visit and has no evidence of groin or incisional complications.

To the best of our knowledge, this is the first series of a single-incision totally extraperitoneal (TEP) inguinal hernia repair using a single-access port device. We found that, compared to our traditional technique for a TEP repair, changing to a single incision with an access device was feasible and straightforward. We expected to find restriction of movement, but discovered that this was not a major issue, and, in fact, we were able to achieve adequate instrument triangulation during the cases. We attributed this finding to the flexibility of the port device that we were using. Additionally, we did not need to use any new laparoscopic instruments to perform these SILS™ inguinal hernia repairs in contrast to what is occasionally required for other SILS™ operations, such as cholecystectomy. Instead, we were able to use our routine laparoscopic instruments.

One potential disadvantage we noticed was that the size of the incision in the skin and fascia were longer than what we might normally create for TEP repairs. This raises the question of whether an incisional hernia rate might emerge post-operatively. We do not suspect this to become a significant

issue, as this incision is routinely made in a rectus-muscle- and posterior-fascia-sparing fashion. As a result, as we have not seen a significant hernia rate at this site in the past, we do not anticipate an incisional hernia rate moving forward. Incidentally, if the patients have an umbilical hernia at the time of the TEP repair, we do recommend repairing that hernia at the same time. Further studies that specifically address this issue are, of course, needed. Additionally, future modifications to the size of the current access port devices might help keep the single incision smaller.

Whether or not there are any benefits of SILS™ for inguinal hernia repair in comparison to the traditional laparoscopic approach certainly remains debatable. While further scientific studies will be required, the SILS™ hernia repair using an access port device is feasible and may offer patients a novel method to have their inguinal hernias repaired. In the absence of prospective data, we suggest that single incision TEP laparoscopic inguinal hernia repairs remain an option only for surgeons who are very experienced with the laparoscopic TEP technique in their practice.

## References

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