



RESEARCH ARTICLE

Single-incision laparoscopic surgery in gynecologic surgery: a single-institutional experience from Saudi Arabia [version 1; referees: 2 approved]

Kareemah Salamah¹, Mohammed Abuzaid¹, Ahmed Abu-Zaid ^{2,3}

¹Department of Obstetrics and Gynecology, Women’s Specialized Hospital, King Fahad Medical City, Riyadh, Saudi Arabia

²College of Graduate Health Sciences, University of Tennessee Health Science Center, Memphis, Tennessee, USA

³College of Medicine, Alfaisal University, Riyadh, Saudi Arabia

v1 First published: 07 Sep 2017, 6:1657 (doi: [10.12688/f1000research.12545.1](https://doi.org/10.12688/f1000research.12545.1))
 Latest published: 07 Sep 2017, 6:1657 (doi: [10.12688/f1000research.12545.1](https://doi.org/10.12688/f1000research.12545.1))

Abstract

Background: Laparoscopy is rapidly replacing laparotomy in the field of gynecologic surgery. Generally, there are limited data concerning the utility of single-incision laparoscopic surgery (SILS) in gynecologic surgery. Specifically, in Saudi Arabia, a third-world country, data are further limited; only one related study has been conducted so far. The purpose of this study is to retrospectively report our single-institutional experience of SILS in terms of feasibility, safety and perioperative outcomes in the management of various gynecologic conditions.



Methods: The study took place at the Women’s Specialized Hospital, King Fahad Medical City, Riyadh, Saudi Arabia. From January 2012 to May 2016, all gynecologic patients who underwent SILS procedures were analyzed for pre-, intra- and post-operative details. SILS was performed using a single multi-port trocar and standard laparoscopic instruments.

Results: A total of 54 patients underwent 66 SILS procedures. The median age and body mass index (BMI) were 36 years and 28.2 kg/m², respectively. Fourteen patients (26%) had ≥ 1 previous abdominal and/or pelvic surgeries. Twenty-four patients (44.4%) were nulliparous. The three most commonly performed SILS procedures were unilateral salpingo-oophorectomy (45.5%) and unilateral ovarian cystectomy (27.3%) and adhesiolysis (6.1%). The median operative time, estimated blood loss and hospital stay were 74 min, 50 ml and 1 day, respectively. Three patients required conversion to laparotomy, as follows: unidentified non-stopping bleeding source (n=1) and endometriosis stage IV resulting in difficult dissection (n=2). One patient developed post-operative incisional hernia that was treated surgically. The median patients’ post-operative pain (according to Wong-Baker FACES Foundation pain rating scale) within 4 hours was 2. At 4-week post-operatively, the median wound scar length (measured at outpatient clinic) was 2 cm.

Conclusions: SILS is feasible, safe and associated with acceptable clinical and surgical outcomes.

Open Peer Review

Referee Status:  

	Invited Referees	
	1	2
version 1 published 07 Sep 2017	 report	 report

- 1 **Ahmed Nazer**, McGill University, Canada
- 2 **Sarfraz Ahmad**, Florida Hospital Medical Center, USA

Discuss this article

Comments (0)

Corresponding author: Ahmed Abu-Zaid (aabuzaid@live.com)

Author roles: **Salamah K:** Conceptualization, Data Curation, Methodology, Supervision, Validation, Visualization, Writing – Original Draft Preparation; **Abuzaid M:** Conceptualization, Data Curation, Formal Analysis, Methodology, Validation, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing; **Abu-Zaid A:** Conceptualization, Data Curation, Formal Analysis, Methodology, Supervision, Validation, Visualization, Writing – Original Draft Preparation, Writing – Review & Editing

Competing interests: Authors declare no competing interests.

How to cite this article: Salamah K, Abuzaid M and Abu-Zaid A. **Single-incision laparoscopic surgery in gynecologic surgery: a single-institutional experience from Saudi Arabia [version 1; referees: 2 approved]** *F1000Research* 2017, **6**:1657 (doi: [10.12688/f1000research.12545.1](https://doi.org/10.12688/f1000research.12545.1))

Copyright: © 2017 Salamah K *et al.* This is an open access article distributed under the terms of the [Creative Commons Attribution Licence](#), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. Data associated with the article are available under the terms of the [Creative Commons Zero "No rights reserved" data waiver](#) (CC0 1.0 Public domain dedication).

Grant information: The author(s) declared that no grants were involved in supporting this work.

First published: 07 Sep 2017, **6**:1657 (doi: [10.12688/f1000research.12545.1](https://doi.org/10.12688/f1000research.12545.1))

Introduction

Minimally invasive surgery (laparoscopy) is rapidly replacing laparotomy in the field of gynecologic surgery¹. As opposed to laparotomy, laparoscopy provides plentiful benefits. Such benefits comprise: reduced postoperative pain, faster recovery to previous performance status, shorter hospital stay, better cosmesis, lower cost, reduced morbidity/mortality and overall improved surgical outcomes²⁻⁴.

One of the most notable advances in laparoscopy is the introduction of single-incision laparoscopic surgery (SILS). In contrast to the conventional laparoscopy that is regularly executed by using a total of three to five small incisions (5–20 mm each), SILS is performed by using a single small incision of the umbilicus to completely accomplish the laparoscopic surgical procedures¹. SILS has been demonstrated in retrospective and prospective studies to be feasible, safe and reproducible in managing various gynecologic conditions ranging from simple procedures (for example, adnexectomy)^{1,3,5-9} to highly complicated ones (for example, hysterectomy, complex pelvic masses and lymphadenectomy)¹⁰⁻²⁰.

Generally, there are limited data concerning the utility of SILS in gynecologic surgery²¹. Specifically, in Saudi Arabia, a third-world country, data are further limited; only one study about SILS in gynecologic surgery has been conducted so far²².

The purpose of this study is to retrospectively report our single-institutional experience of SILS (feasibility, safety, and clinical/surgical outcomes) in the management of various gynecologic conditions.

Methods

Ethical approval

The study protocol was approved by the Institutional Review Board (IRB) of King Fahad Medical City [ID: 15-477].

Setting and design

This was a retrospective study from January 2012 to May 2016 which took place at the Women's Specialized Hospital, King Fahad Medical City, Riyadh, Saudi Arabia — a tertiary health-care institution. At our institution, as of January 2012, SILS has been the standard management option for gynecologic patients who met the inclusion criteria, namely: age less than 90 years, body mass index (BMI) less than 50.0 kg/m², acceptable preoperative performance status and laboratory profile, technically resectable early stage adnexal or endometrial lesions, and signed written informed consent by patients after being well-informed about the risks/benefits of SILS.

Patients

From January 2012 to May 2016, the medical records of all gynecologic patients who underwent SILS procedures for gynecologic conditions were retrospectively analyzed for pre-, intra- and post-operative details. Pre-operative details comprised: age, BMI, previous abdominal and/or pelvic surgeries, concomitant co-morbidities and parity. Intra-operative details comprised: type of procedures performed, conversion to conventional laparotomy, operative time (OT), estimated blood loss (EBL), lesion size and intra-operative

morbidity/mortality. OT was defined as the interval from the initial umbilical skin incision to its closure. Post-operative details comprised: lesion pathology, patients' self-reported recommendation (yes/no) of SILS to others, hospital stay, and post-SILS wound size, morbidity, mortality and pain. The post-SILS wound size was measured at 4 weeks at the outpatient clinic. Post-SILS morbidity/mortality were defined as any surgery-related complications/death up to 24 weeks postoperatively. The self-reported scores for post-operative pain were documented within 4 hours postoperatively by the operating surgeon/ward nurse using the Wong-Baker FACES Foundation pain rating scale.

Surgical technique

All SILS procedures were primarily performed by a single surgeon from Section of Gynecologic Oncology, Department of Obstetrics and Gynecology. Procedures were performed under general anesthesia. Patients were placed in supine/lithotomy position, prepped and draped according to the hospital protocol. A 15 mm transverse intra-umbilical incision was made and skin edges were grabbed with Allis clamps. Afterwards blunt dissection was performed to create a 15 mm opening into the peritoneum. Then, Medtronic SILS™ device (Medtronic, Minnesota, USA) was introduced into the peritoneal cavity using packing forceps. The device has one gas inlet and 3-access ports (two 5-mm ports and one 12-mm port). Then, pneumoperitoneum was accomplished using carbon dioxide (CO₂) through the gas inlet valve. Various laparoscopic instruments (rigid 0-degree and prebent) were used as deemed appropriate by the operating surgeon to avoid instrumental clashing and improve the operation field. The resected specimens were removed using the 12-mm port and endobag to allow for intact removal of the surgical specimen. The rectus sheath was closed with number 0 maxon sutures and skin closed with 3-0 vicryl sutures. In case of failure of SILS, the procedure was converted to either conventional laparoscopy or laparotomy.

Follow-up

All patients were followed up for at least 6 months post-operatively at the outpatient clinic.

Analysis

The descriptive raw data are reported in [Dataset 1](#). Data were analyzed with Microsoft Excel 2013. Whenever possible, data were presented as percentages, median ± standard deviation (SD) and range values.

Dataset 1. Descriptive Raw Data

<http://dx.doi.org/10.5256/f1000research.12545.d176453>

Pre-operative, intra-operative and post-operative details

Results

A total of 54 patients underwent SILS procedures. Characteristics of the patients are depicted in [Table 1](#). The median age ± SD was 36 ± 16.9 years (range: 15–88) whereas the median BMI ± SD was 28.2 ± 6.1 kg/m² (range: 18.9–44.1). A total of 14 patients (26%) had ≥ 1 previous abdominal and/or pelvic surgeries. Regarding parity, 24 (44%), 2 (4%) and 28 (52%) patients were nulliparous

Table 1. Characteristics of SILS patients (pre-operative details).

Patients (n=54)	
Median age \pm standard deviation, (range)	36 \pm 16.9 years (15–88)
Median body mass index \pm standard deviation, (range)	28.2 \pm 6.1 kg/m ² (18.9–44.1)
Previous abdominal and/or pelvic surgeries	
None	40 (74.1%)
1 surgery	8 (14.8%)
2 surgeries	5 (9.3%)
3 surgeries	1 (1.9%)
Type of surgery	
Laparoscopy	3 (14.3%)
Laparotomy	18 (85.7%)
Concomitant co-morbidities	
None	32 (59.3%)
1	10 (18.5%)
2	8 (14.8%)
3 and more	4 (7.4%)
Parity	
None (para 0)	24 (44.4%)
1 (para 1)	2 (3.7%)
2 and more (para 2+)	28 (51.9%)

(para 0), primiparous (para 1) and multiparous (para 2+), respectively.

The intra-operative details of SILS are portrayed in **Table 2**. A sum of 66 SILS procedures were carried out. A total of three patients required conversion to laparotomy. The three most frequently performed SILS procedures were unilateral ovarian salpingo-oophorectomy (45.5%), unilateral ovarian cystectomy (n=27.3%) and adhesiolysis (n=6.1%). The median size of resected lesions \pm SD was 12 \pm 8.6 cm (range: 1.3–50). The median OT and EBL \pm SD were 74 \pm 39.4 min (range: 40–200) and 50 \pm 271.7 ml (range: 20–2000), respectively. None of the patients experienced intra-operative death.

The post-operative details of SILS are shown in **Table 3**. There were 44 (81.5%) and 10 (18.5%) benign and malignant lesions, respectively. The median patients' self-reported scores for postoperative pain was 2 \pm 1.5 (range: 0–6). The median hospital stay was 1 \pm 0.7 days (range: 1–4). At 4-week post-operatively, the median length of the wound scar (measured at the outpatient clinic) was 2 \pm 0.4 cm (range: 1.5–2.5). During 6-month follow-up, one patient developed postoperative complication (incisional hernia) that was managed surgically.

Table 2. Intra-operative details of SILS procedures.

Patients (n=54), Procedures (n=66)	
Total procedures performed	
Unilateral salpingo-oophorectomy	30 (45.5%)
Bilateral salpingo-oophorectomy	3 (4.5%)
Unilateral ovarian cystectomy	18 (27.3%)
Bilateral ovarian cystectomy	2 (3%)
De-torsion	1 (1.5%)
Adhesiolysis	4 (6.1%)
Contralateral ovarian cyst aspiration	3 (4.5%)
Laparoscopic-assisted vaginal hysterectomy	3 (4.5%)
Total laparoscopic hysterectomy	3 (4.5%)
Intra-operative conversion to laparotomy	3 (5.6%)
Intra-operative mortality	0
Median size (greatest dimension) of resected lesions \pm SD (range)	12 \pm 8.6 cm (1.3–50)
Median operative time \pm SD, (range)	74 \pm 39.4 min (40–200)
Estimated blood loss \pm SD, (range)	50 \pm 271.7 ml (20–2000)

Table 3. Post-operative details of SILS procedures.

Lesion pathology	
Benign	44 (81.5%)
Malignant	10 (18.5%)
Median hospital stay \pm standard deviation, (range)	1 \pm 0.7 days (1–4)
4-week post-operative wound size \pm standard deviation, (range)	2 \pm 0.4 cm (1.5–2.5)
6-month major post-operative complications	1 (1.8%)
6-month SILS-related mortality	0
Median patients' post-operative pain \pm SD, (range)*	2 \pm 1.5 (0–6)
Patients' recommendation of SILS to others	53 (98.1%)

*Wong-Baker FACES Foundation pain rating scale

Discussion

SILS is one of the cutting-edge developments in the field of minimally invasive surgery¹. However, there are insufficient data concerning the feasibility, safety and perioperative outcomes of SILS in gynecologic surgery in Saudi Arabia.

To the best of our knowledge, this is the second ever study in Saudi Arabia to report the single-institutional experience of SILS in gynecologic surgery. Moreover, it is among the first studies originating

from third-world countries that examined the efficacy of SILS in gynecologic surgery. Our study demonstrated that SILS is feasible, safe and associated with acceptable clinical and surgical outcomes. Nearly all patients (98.1%) agreed to recommend SILS to other patients.

The only study of SILS in Saudi Arabia was reported by Al-Badawi *et al.*²². They reported their single-center experience of SILS in the management of benign salpingo-ovarian pathologies. They had 80 patients and a total of 104 performed procedures. They concluded that SILS in the management of benign salpingo-ovarian conditions was generally feasible, potentially safe, and associated with satisfactory operative and postoperative outcomes. As opposed to the Al-Badawi *et al.* study that included only adnexectomy procedures²², our study included far more complex (non-adnexectomy) procedures, such as: SILS laparoscopic-assisted vaginal hysterectomy (LAVH, n=3), and SILS total laparoscopic hysterectomy (TLH, n=3). Several studies showed that SILS approach can be used to successfully perform both TLH and LAVH procedures^{10–20}.

In our study, 3 patients required conversion to laparotomy for several reasons: unidentified non-stopping bleeding source (n=1) and endometriosis stage IV resulting in difficult dissection (n=2). Patient safety should never be recklessly put in danger at any given time. Therefore, conversion from SILS to laparotomy—when ever at the best interests of patients—is more significant than mere cosmetic concerns. Also, such conversion from SILS to laparotomy should not be prematurely judged as a surgical failure or an incompetence of the operating surgeon to perform SILS procedures.

Patients with high BMI are regarded as a challenging group for SILS procedures due to the anticipated high intraperitoneal fat contents which can cause port access difficulties and garble the field visualization²³. It has been recommended that patients with BMI less than 28 kg/m² are regarded as suitable patients for SILS²⁴. In our study, more than 50% of patients had BMI of more than 28 kg/m² and none experienced eventful surgical courses.

Moreover, patients with previous abdominal and/or pelvic surgeries are regarded as a challenging group for SILS procedures due to the anticipated dense surgery-related adhesions and difficult dissection²³. In our study, around 11.1% of patients had 2 or more previous surgeries; however, none of them required conversion to laparotomy.

Furthermore, port-site metastasis in malignant gynecologic oncology is sometimes worrisome to both patients and laparoscopists. However, the frequency of port-site metastasis following laparoscopic procedures in women with malignant gynecologic pathology is very low (less than 1%)²⁵. Numerous studies showed feasibility, safety and reproducibility of the SILS for management of precancerous pathologies and select early-stage ovarian and uterine malignancies^{10,11,13}. Thus, it can be concluded that SILS should not be avoided in the management of patients with early-stage gynecologic malignancy. In our study, 10 patients had malignant pathologies and successfully underwent SILS procedures without proof of port-site metastasis at a median follow up of 29 months (range: 23–37).

In brief, apposite selection of patients for SILS is of great significance. According to our study, our recommendations for patients who may be eligible candidates for SILS procedures comprise: BMI less than 40 kg/m², less than 3 previous surgeries (irrespective of laparoscopic and/or laparotomic), presence of native umbilicus and early-stage gynecologic malignancy.

SILS is not without its technical challenges which are well-documented in literature. Such challenges generally comprise: the limited triangulation and retraction capacities as well as the camera/laparoscopic instruments conflict that can distort proper surgical field exposure²⁶. Measures to prevail these downsides are continuously in progress and comprise the introduction of flexible and prebent laparoscopic instruments of different lengths²².

Similar to conventional laparoscopy, SILS is a surgical procedure that necessitates a great deal of fine-motor hand dexterity. Two studies documented that around 10 to 15 procedures were required to perform SILS adroitly which was reflected on reduced operating time^{10,27}. Many measures have been advocated to improve the learning curve, for example: watching live/recorded procedures, virtual simulation and hands-on practice on animals^{26,28}. There are serious ongoing efforts to implement the above-mentioned measures at our institution.

Our future research directions include: 1) the learning curve of SILS at our institution, and 2) comparison between SILS and conventional laparoscopy with regard to management of various gynecologic pathologies.

Our study has several limitations and comprise: retrospective study design, lack of control group (conventional laparoscopic), relatively small sample size, single-institutional experience and patients subjective self-reported scores for postoperative pain.

Conclusion

This is the second single-institutional experience of SILS in gynecologic surgery from Saudi Arabia. Our study demonstrated that SILS is feasible, safe and associated with acceptable clinical and surgical outcomes. SILS is an operator-dependent procedure and requires advanced surgical training.

Data availability

Descriptive Raw Data- Pre-operative, intra-operative and post-operative details

[10.5256/f1000research.12545.d176453](https://doi.org/10.5256/f1000research.12545.d176453)²⁹

Competing interests

Authors declare no competing interests.

Grant information

The author(s) declared that no grants were involved in supporting this work.

References

1. Bradford LS, Boruta DM: **Laparoendoscopic single-site surgery in gynecology: a review of the literature, tools, and techniques.** *Obstet Gynecol Surv.* 2013; **68**(4): 295–304.
[PubMed Abstract](#) | [Publisher Full Text](#)
2. Medeiros LR, Rosa DD, Bozzetti MC, *et al.*: **Laparoscopy versus laparotomy for benign ovarian tumour.** *Cochrane Database Syst Rev.* 2009; (2): Cd004751.
[PubMed Abstract](#) | [Publisher Full Text](#)
3. Jung YW, Kim SW, Kim YT: **Recent advances of robotic surgery and single port laparoscopy in gynecologic oncology.** *J Gynecol Oncol.* 2009; **20**(3): 137–144.
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
4. Lee IO, Yoon JW, Chung D, *et al.*: **A comparison of clinical and surgical outcomes between laparo-endoscopic single-site surgery and traditional multiport laparoscopic surgery for adnexal tumors.** *Obstet Gynecol Sci.* 2014; **57**(5): 386–392.
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
5. Fader AN, Cohen S, Escobar PF, *et al.*: **Laparoendoscopic single-site surgery in gynecology.** *Curr Opin Obstet Gynecol.* 2010; **22**(4): 331–338.
[PubMed Abstract](#)
6. Yoon BS, Park H, Seong SJ, *et al.*: **Single-port laparoscopic salpingectomy for the surgical treatment of ectopic pregnancy.** *J Minim Invasive Gynecol.* 2010; **17**(1): 26–29.
[PubMed Abstract](#) | [Publisher Full Text](#)
7. Fagotti A, Fanfani F, Marocco F, *et al.*: **Laparoendoscopic single-site surgery (LESS) for ovarian cyst enucleation: report of first 3 cases.** *Fertil Steril.* 2009; **92**(3): 1168.e13–6.
[PubMed Abstract](#) | [Publisher Full Text](#)
8. Kim TJ, Lee YY, Kim MJ, *et al.*: **Single port access laparoscopic adnexal surgery.** *J Minim Invasive Gynecol.* 2009; **16**(5): 612–615.
[PubMed Abstract](#) | [Publisher Full Text](#)
9. Mereu L, Angioni S, Melis GB, *et al.*: **Single access laparoscopy for adnexal pathologies using a novel reusable port and curved instruments.** *Int J Gynaecol Obstet.* 2010; **109**(1): 78–80.
[PubMed Abstract](#) | [Publisher Full Text](#)
10. Fader AN, Rojas-Espaillet L, Ibeanu O, *et al.*: **Laparoendoscopic single-site surgery (LESS) in gynecology: a multi-institutional evaluation.** *Am J Obstet Gynecol.* 2010; **203**(5): 501.e1–6.
[PubMed Abstract](#) | [Publisher Full Text](#)
11. Fader AN, Escobar PF: **Laparoendoscopic single-site surgery (LESS) in gynecologic oncology: technique and initial report.** *Gynecol Oncol.* 2009; **114**(2): 157–161.
[PubMed Abstract](#) | [Publisher Full Text](#)
12. Lee YY, Kim TJ, Kim CJ, *et al.*: **Single-port access laparoscopic-assisted vaginal hysterectomy: a novel method with a wound retractor and a glove.** *J Minim Invasive Gynecol.* 2009; **16**(4): 450–453.
[PubMed Abstract](#) | [Publisher Full Text](#)
13. Yim GW, Jung YW, Paek J, *et al.*: **Transumbilical single-port access versus conventional total laparoscopic hysterectomy: surgical outcomes.** *Am J Obstet Gynecol.* 2010; **203**(1): 26.e1–6.
[PubMed Abstract](#) | [Publisher Full Text](#)
14. Fanfani F, Fagotti A, Scambia G: **Laparoendoscopic single-site surgery for total hysterectomy.** *Int J Gynaecol Obstet.* 2010; **109**(1): 76–77.
[PubMed Abstract](#) | [Publisher Full Text](#)
15. Jung YW, Kim YT, Lee DW, *et al.*: **The feasibility of scarless single-port transumbilical total laparoscopic hysterectomy: initial clinical experience.** *Surg Endosc.* 2010; **24**(7): 1686–1692.
[PubMed Abstract](#) | [Publisher Full Text](#)
16. Langebrekke A, Qvigstad E: **Total laparoscopic hysterectomy with single-port access without vaginal surgery.** *J Minim Invasive Gynecol.* 2009; **16**(5): 609–611.
[PubMed Abstract](#) | [Publisher Full Text](#)
17. Yoon G, Kim TJ, Lee YY, *et al.*: **Single-port access subtotal hysterectomy with transcervical morcellation: a pilot study.** *J Minim Invasive Gynecol.* 2010; **17**(1): 78–81.
[PubMed Abstract](#) | [Publisher Full Text](#)
18. Escobar PF, Fader AN, Rasool N, *et al.*: **Single-port laparoscopic pelvic and para-aortic lymph node sampling or lymphadenectomy: development of a technique and instrumentation.** *Int J Gynecol Cancer.* 2010; **20**(7): 1268–1273.
[PubMed Abstract](#) | [Publisher Full Text](#)
19. Kim TJ, Lee YY, Cha HH, *et al.*: **Single-port-access laparoscopic-assisted vaginal hysterectomy versus conventional laparoscopic-assisted vaginal hysterectomy: a comparison of perioperative outcomes.** *Surg Endosc.* 2010; **24**(9): 2248–2252.
[PubMed Abstract](#) | [Publisher Full Text](#)
20. Chen YJ, Wang PH, Ocampo EJ, *et al.*: **Single-port compared with conventional laparoscopic-assisted vaginal hysterectomy: a randomized controlled trial.** *Obstet Gynecol.* 2011; **117**(4): 906–912.
[PubMed Abstract](#) | [Publisher Full Text](#)
21. Uppal S, Frumovitz M, Escobar P, *et al.*: **Laparoendoscopic single-site surgery in gynecology: review of literature and available technology.** *J Minim Invasive Gynecol.* 2011; **18**(1): 12–23.
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
22. Al-Badawi IA, AlOmar O, Albadawi N, *et al.*: **Single-port laparoscopic surgery for benign salpingo-ovarian pathology: a single-center experience from Saudi Arabia.** *Ann Saudi Med.* 2016; **36**(1): 64–69.
[PubMed Abstract](#) | [Publisher Full Text](#)
23. Chern BS, Lakhota S, Khoo CK, *et al.*: **Single incision laparoscopic surgery in gynecology: Evolution, current trends, and future perspectives.** *Gynecology and Minimally Invasive Therapy.* 2012; **1**(1): 9–18.
[Publisher Full Text](#)
24. Ross SB, Clark CW, Morton CA, *et al.*: **Access for laparoendoscopic single site surgery.** *Diagn Ther Endosc.* 2010; **2010**: 943091.
[PubMed Abstract](#) | [Publisher Full Text](#) | [Free Full Text](#)
25. Zivanovic O, Sonoda Y, Diaz JP, *et al.*: **The rate of port-site metastases after 2251 laparoscopic procedures in women with underlying malignant disease.** *Gynecol Oncol.* 2008; **111**(3): 431–437.
[PubMed Abstract](#) | [Publisher Full Text](#)
26. Ahmed I, Paraskeva P: **A clinical review of single-incision laparoscopic surgery.** *Surgeon.* 2011; **9**(6): 341–351.
[PubMed Abstract](#) | [Publisher Full Text](#)
27. Escobar PF, Starks DC, Fader AN, *et al.*: **Single-port risk-reducing salpingo-oophorectomy with and without hysterectomy: surgical outcomes and learning curve analysis.** *Gynecol Oncol.* 2010; **119**(1): 43–47.
[PubMed Abstract](#) | [Publisher Full Text](#)
28. Behnia-Willison F, Foroughinia L, Sina M, *et al.*: **Single incision laparoscopic surgery (SILS) in gynaecology: feasibility and operative outcomes.** *Aust N Z J Obstet Gynaecol.* 2012; **52**(4): 366–370.
[PubMed Abstract](#) | [Publisher Full Text](#)
29. Salamah K, Abuzaid M, Abu-Zaid A: **Dataset 1 in: Single-Incision Laparoscopic Surgery in Gynecologic Surgery: A Single-Institutional Experience from Saudi Arabia.** *F1000Research.* 2017.
[Data Source](#)

Open Peer Review

Current Referee Status:  

Version 1

Referee Report 21 September 2017

doi:[10.5256/f1000research.13584.r25796](https://doi.org/10.5256/f1000research.13584.r25796)



Sarfraz Ahmad

Florida Hospital Medical Center, Orlando, FL, USA

With great interest I read the paper by Salamah *et al.* The authors reported their single-center experience of single-incision laparoscopic surgery (SILS) in the field of gynecologic surgery from a tertiary healthcare center in Saudi Arabia. The topic is of great significance since this study is only the second ever from Saudi Arabia, and will add valuable data to the limited regional peer-reviewed literature.

Introduction: The authors introduced the topic appropriately, defined terminology of SILS, and highlighted the significance of the study thereby clearly mentioned the objectives of study.

Methods: The ethical approval for the study was obtained. Appropriate descriptions of the study design/setting, research subjects and surgical procedure are provided. The study was descriptive, retrospective, and one-group of patients. Only simple statistical tests were carried out, i.e., calculations of numbers/percentages, SDs and ranges.

Results: Overall, the results section reads well reporting the major findings. Results were presented in simple tables and divided into pre-, intra- and post-operative categories. There are some repetitions between the text and the tables which makes easier to understand the findings. In Table 2, perhaps the authors should correct the "Type of Surgery" data: i.e., Laparoscopy=51, Laparotomy=3 (instead of 3 and 18, respectively) and appropriate percentages.

Discussion: It is succinct and properly reflecting on the study's main findings without unnecessary details. The significance of study was re-highlighted. Brief comparisons with the the existing peer-reviewed literature were made with regards to aspects pertaining to the pre-operative details such as BMI and previous surgery. Most importantly, the study findings were directly compared-and-contrasted to the only study from Saudi Arabia (by Al-Badawi *et al.* 2016) which is a plausible and appreciated move. Study's future directions and limitations are adequately pinpointed.

Conclusion: Reads very well and reflects on the study's main conclusions.

Overall Comments: The manuscript is very well-written in terms of English language, grammar, word counts, clarity, logical sequence, citations, and appropriate references cited. The strong points of paper are: 1) being the second in Saudi Arabia, which highlights the significance of the study to warrant additional peer-reviewed publication based on scientific soundness, despite no novelty; and 2) the study is of great importance in terms of regional interests as it enriches the scarce limited peer-reviewed literature on the topic. The study weakness mainly revolve around the methodology part as this is a mere

descriptive retrospective study without a control-group and detailed statistical calculations, which makes it a “less” strong evidence; however, the study limitations are duly acknowledged by the authors. I highly recommend the authors to pursue future studies proposed in their manuscript, as these directions are going to have more impact and contribute substantially to the body of existing of peer-reviewed literature regionally and internationally. More strong-evidence-based study design should be considered too, such as prospective and controlled-study designs. A cost-effective study comparing conventional vs. SILS in gynecologic surgery indications may be an interesting topic, especially from a third-world country with relatively constrained healthcare economy.

Final Remarks and Decision: According to the scope/policy of the F1000 Research Open-Access journal, the study is “scientifically sound” and “suitable” irrespective of the perceived level of novelty. Therefore, I approve the study for publication in its current draft.

Conflict of Interest: I report no conflict of interest pertaining to this manuscript.

References

1. Salamah K, Abuzaid M, Abu-Zaid A: Single-incision laparoscopic surgery in gynecologic surgery: a single-institutional experience from Saudi Arabia. *F1000Research*. 2017; **6**. [Publisher Full Text](#)

Is the work clearly and accurately presented and does it cite the current literature?

Yes

Is the study design appropriate and is the work technically sound?

Yes

Are sufficient details of methods and analysis provided to allow replication by others?

Yes

If applicable, is the statistical analysis and its interpretation appropriate?

Yes

Are all the source data underlying the results available to ensure full reproducibility?

Yes

Are the conclusions drawn adequately supported by the results?

Yes

Competing Interests: No competing interests were disclosed.

Referee Expertise: Gynecologic oncology research & teachings

I have read this submission. I believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.

Referee Report 18 September 2017

doi:10.5256/f1000research.13584.r25813



Ahmed Nazer

Department of Obstetrics and Gynecology, McGill University, Montreal, QC, Canada

Small descriptive study about SILS. Based on the presets data, it is difficult to comment about the safety of this approach for TLH or LAVH as the number is very small and there is no informations about the indications of the hysterectomies.

Overall promising results and worth to publish .

Is the work clearly and accurately presented and does it cite the current literature?

Yes

Is the study design appropriate and is the work technically sound?

Yes

Are sufficient details of methods and analysis provided to allow replication by others?

Yes

If applicable, is the statistical analysis and its interpretation appropriate?

Yes

Are all the source data underlying the results available to ensure full reproducibility?

Yes

Are the conclusions drawn adequately supported by the results?

Yes

Competing Interests: No competing interests were disclosed.

I have read this submission. I believe that I have an appropriate level of expertise to confirm that it is of an acceptable scientific standard.
