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Evaluation of quality of life, body image and surgical outcomes of robotic total laparoscopic hysterectomy and sentinel lymph node mapping in low-risk endometrial cancer patients – A Robotic Gyne Club study

Liliana Mereu[1] | Valeria Berlanda[1] | Daniela Surico[2] | Barbara Gardella[3] | Riccardo Pertile[4] | Arsenio Spinillo[3] | Saverio Tateo[1]

[1]Department of Obstetrics and Gynecology, S Chiara Hospital, Trento, Italy

[2]Department of Obstetrics and Gynecology, Maggiore della Carità Hospital, Università del Piemonte Orientale, Novara, Italy

[3]Department of Obstetrics and Gynecology, IRCCS Policlinico San Matteo Hospital and University of Pavia, Pavia, Italy

[4]Department of Clinical Epidemiology, Provincial Health Services (APSS), Trento, Italy

Correspondence
Liliana Mereu, Department of Obstetrics and Gynecology, Santa Chiara Hospital, Largo Medaglie d'Oro 9, 38122 Trento, Italy.
Email: liliana_mereu@yahoo.com

Abstract

Introduction: The aims of the study were to evaluate quality of life, cosmetic results and surgical outcomes of robotic single-site and robotic multiport total laparoscopic hysterectomy with sentinel lymph node mapping in women treated for low-risk endometrial cancer.

Material and methods: The study is a prospective, multicenter, case-control study conducted at Ospedale Santa Chiara in Trento and Novara and Pavia University Hospitals. Seventy-six consecutive patients with a biopsy-confirmed diagnosis of low-risk endometrial cancer or atypical endometrial hyperplasia who between January 2017 and January 2019 had undergone robotic total laparoscopic hysterectomy and sentinel lymph node mapping were included. Data on surgical outcomes, quality of life and cosmetic results were prospectively collected and analyzed based on the surgical approach with robotic single-site vs robotic multiport assistance. Patients' clinical characteristics, intra-operative parameters, sentinel lymph node mapping results and postoperative findings were prospectively recorded. Clinical follow up was performed 4 weeks and 6 and 12 months after surgery. Fifty-one patients underwent a robotic multiport procedure and 25 patients a robotic single-site surgery.

Results: There was one significant difference between the two groups in terms of patient characteristics: mean body mass index (BMI) in the multiport group was 29 kg/m^2 vs 24.8 kg/m^2 in the single-site group (*P* value <.001). After univariate and multivariate analysis on intraoperative and postoperative findings, a shorter surgical time was observed in the single-site cohort than in the multiport group (148.7 vs 158.2 minutes, *P* value .0182). BMI also had a significant effect on surgical time (*P* = .022). No differences were seen in terms of sentinel lymph node detection: the bilateral detection rate was 96.1% for multiport (66.7% bilateral, 29.4% monolateral) and 96% for single-site (76% bilateral, 20% monolateral) procedures. No differences

Abbreviations: AEH, atypical endometrial hyperplasia; BMI, body mass index; EC, endometrial cancer; QoL, quality of life; RM, robotic multiport; RSS, robotic single-site; SLN, sentinel lymph node.

between the two approaches were identified with regard to postoperative complications, pain, cosmetic results or quality of life comparisons.

Conclusions: For the treatment of low-risk endometrial cancer and atypical endometrial hyperplasia with total hysterectomy and sentinel lymph node mapping, the robotic single-port approach is comparable to the multiport procedure in terms of intraoperative and postoperative findings, and has an advantage in terms of shorter surgical times. Further studies are required to identify possible differences in quality of life and cosmetic results.

KEYWORDS

endometrial cancer, quality of life, robotic surgery, sentinel lymph node, single-site robotic surgery

1 | INTRODUCTION

For gynecologic oncologists, minimally invasive surgery has become the standard of care for the treatment of endometrial cancer (EC).[1,2] Minimally invasive surgery results in shorter hospital stays, fewer perioperative complications, faster recovery, less pain and better cosmetic results than laparotomy.[3] The subsequent introduction of robotic-assisted surgery has brought additional advantages over conventional laparoscopy, including 3-dimensional vision, tremor-eliminating software that improves surgical precision and wristed instruments that improve dexterity.[4]

Surgeons and patients have benefited from the introduction of robotics for the surgical staging of EC, with an increase in the number of patients undergoing minimally invasive surgery and a significantly lower risk of severe complications.[5]

The development of a robotic single-site (RSS) platform has been shown to offer advantages over conventional robotic surgery for the treatment of selected patients, such as better cosmetic results, reduced parietal trauma and lower costs.[6-8] Over the last 3 years, a number of studies have evaluated the feasibility and safety of RSS surgery for the treatment of EC, showing the possibility of performing both pelvic lymphadenectomy and sentinel lymph node (SLN) mapping.[9-16] In the literature, there are a limited number of retrospective studies comparing the RSS and robotic multiport (RM) approaches for the treatment of EC.

The aim of this study was prospectively to evaluate the feasibility and safety of RSS surgery for the staging of early EC by analyzing RSS and RM in terms of surgical outcomes, cosmetic results and quality of life (QoL).

Key message

The robotic single-port approach is comparable with the multiport procedure in terms of intraoperative and postoperative findings and has an advantage in terms of shorter surgical times for the treatment of low-risk endometrial cancer.

2 | MATERIAL AND METHODS

Consecutive patients with grade 1-2 EC with myometrial invasion < 50% or atypical endometrial hyperplasia (AEH) scheduled for robotic hysterectomy and SLN mapping between January 2017 and January 2019 were enrolled in the study. Two groups were identified: women undergoing surgery with RM and those undergoing surgery with RSS using the Da Vinci Si platform. Informed consent for robotic hysterectomy and SLN fluorescence detection was obtained from all patients. Data on surgical outcomes, QoL and cosmetic results were prospectively collected and analyzed based on the surgical approach with robotic single-site vs RM assistance.

2.1 | Study design and data collection

This is a prospective study performed in three institutions: Ospedale Santa Chiara in Trento, and Novara and Pavia University Hospitals. The multiport procedure was performed by four gynecologic surgeons (S.T., L.M., D.S., B.G.) with experience in robotically assisted laparoscopic surgery. The RSS procedures were all performed at the same institution by two gynecologic surgeons (S.T. and L.M.).

Inclusion criteria included endometrioid grade 1-2 EC or AEH on preoperative endometrial biopsy, myometrial invasion < 50% at preoperative pelvic ultrasound scan or MRI, written informed consent for robotic hysterectomy and SLN mapping, age 18 years or over.

Exclusion criteria included intermediate or high-risk EC, suspicion of metastasis at preoperative assessment, inadequate vaginal access for uterine extraction, anesthesiological contraindications for minimally invasive surgery or robotic surgery.

Pretreatment evaluation included: medical history, physical examination, vaginal and pelvic examination, chest X-ray, pelvic ultrasound scan or pelvic MRI and QoL assessment.

The patients' clinical characteristics included: age, body mass index (BMI), presurgical clinical staging, comorbidities, prior abdominal surgery. Intraoperative parameters included: surgical time, estimated blood loss, conversion rate, complications, SLN mapping results (ie mapping laterality, number of SLNs removed, number of macrometastases, micrometastases and isolated tumor cells). Postoperative findings included pain, complications and duration of hospitalization. All characteristics and findings were prospectively recorded.

Surgical time was calculated from the beginning of skin incision through to the completion of skin closure. Intraoperative complications were defined as bladder, bowel, ureter, vessel or nerve injury and estimated blood loss exceeding 500 mL or requiring transfusion. Blood loss was estimated at the end of the surgery, as the difference between irrigated and suctioned fluid using a graduated suction canister. The duration of hospitalization was calculated in terms of hours spent in hospital after the end of surgery. Postoperative pain was recorded using the NRS scale (from 1 to 10) at 6, 12, 24 and 48 hours after surgery. Postoperative complications were divided into early (< 30 days) and late (≥ 30 days) using the Clavien-Dindo scale.[17]

Clinical follow up was performed at 4 weeks and 6 and 12 months after surgery.

Quality of life was assessed by means of a European Organization for Research and Treatment of Cancer questionnaire consisting of 30 questions,[18] validated for the Italian language. QoL was evaluated preoperatively and at 6-week and 6- and 12-month follow ups. Body image was assessed using the body image questionnaire at the 6-month follow up.[19]

2.2 | Surgical protocol

All patients were administered antibiotic prophylaxis (Cefoxitin 2 g intravenously) and postoperative low-molecular-weight enoxaparin (40 mg/d subcutaneously). Pain control in the first 24 hours after surgery was obtained with ketorolac (10 mg three times a day intravenously for 24 hours) and paracetamol (1 g three times a day intravenously for 24 hours, then orally).

The Da Vinci® Si System (Intuitive Surgical) was used to perform extrafascial total hysterectomy, bilateral salpingo-oophorectomy and SLN mapping, following the previously described technique.[14] Both RM and RSS platforms were used. The uterus was extracted from the abdominal cavity through the vagina. Vaginal cuff closure was performed internally with a snaked single-port robotic needle-holder and V-Loc 0/0 barbed suture (Covidien).

The umbilical incision was sutured in planes with number 1 Vicryl (Johnson & Johnson International) on the aponeurosis, and monocryl 3-0 (Johnson & Johnson International) under the skin.

Injection of indocyanine green (4 mL diluted to 2.5 mg/mL) was performed with 1 mL superficially and 1 mL deep in the cervical stroma at 3 and 9 o'clock. An intrauterine manipulator was then placed after coagulation of the Fallopian tubes. Fluorescence imaging was used to visualize the indocyanine green tracer in the lymphatic system. Successful mapping was defined as the observance of a channel leading from the cervix directly to one lymph node in at least one hemipelvis. The identified SLNs were then retrieved, labeled for location with a clip and placed in an Endobag. The ultrastaging procedure described by Abu-Rustum et al[20] was used for the pathologic evaluation of SLNs in EC. The uterus was extracted from the abdominal cavity through the vagina. The vaginal cuff was sutured abdominally with barbed suture.

2.3 | Statistical analyses

All statistical analyses were performed using the SAS System 9.1.3. (SAS Institute Inc.). Mean and standard deviation were obtained for each quantitative measurement, such as age, BMI, number of previous cesarean sections and surgeries, hemoglobin drop, surgical time (minutes), pain at 6, 12, 18 and 24 hours after the procedure and duration of hospitalization after the procedure (days). The initial overview of the sample of women studied also involved the frequency distribution (absolute and percentage) of certain qualitative clinical variables: previous histology, procedure, blood loss during surgery, SLN identification, histology, grading, FIGO staging and intra/postoperative complications. The possible statistical significance of the differences between the RSS and the RM approaches was tested using Student's *t* test for quantitative variable comparisons, and Fisher's exact test for categorical variable comparisons (significant if P value ≤ .05).

All the scales of the EORTC QLQ-C30 at the 6- and 12-month follow up and the items of the body image questionnaire at the 6-month follow up were analyzed with a single and multiple comparison between RSS and RM using Student's *t* test (significant if $P \leq .05$), with the Holm-Bonferroni step-down correction in the case of multiple comparisons. The comparison analysis between the single-site and multi-port approaches was stratified for each quantitative measurement, again using the same statistical tests as above. Having ascertained that outcome variable distribution was normal, a multiple linear regression analysis was carried out for each dependent variable to obtain the effect of the procedure adjusted for BMI, center and surgical procedure. The results were presented with the estimate of the parameters (βs) and corresponding P values.

2.4 | Ethical approval

The study was approved by the Ethics Committee of Azienda Provinciale Servizi Sanitari of Trento and by the Institutional Review Board of the individual institutions (reference number RGCS-I-2016).

3 | RESULTS

About 76 patients were enrolled in the study: 51 women underwent RM and 25 RSS surgery. Patient characteristics are shown in Table 1. In all, 67 (88.2%) women had hysterectomy, bilateral salpingo-oophorectomy and SLN mapping and 7 (9.2%) underwent pelvic lymphadenectomy; no lymph node evaluation was performed in 2 (2.6%) patients. The mean BMI in the RM group was 29 kg/m^2, whereas in the RSS group it was 24.8 kg/m^2 ($P < .001$). In the RSS group the indication for surgery was AEH in 64% and EC in 36% of patients, whereas in the RM group it was AEH in 31.4% and EC in 68.6% of women.

The intraoperative findings are shown in Table 2. The mean duration of hospitalization was 2.1 days for the RSS group and 3.1 days for the RM group ($P = .0001$), but the results of the multiple regression analysis showed no significant difference between the two surgical approaches (parameter estimates for RSS vs RM = −.37 days with $P = .315$). The only outcome variable for which the surgical approach remained significant even in the multiple regression analysis is surgical time, which is 23 minutes longer for RM than for RSS ($P = .018$). In the latter analysis, BMI also had a significant effect on surgical time: with each incremental unit of BMI, surgical time increased significantly by 1.6 minutes ($P = .022$). No differences were found in terms of SLN detection: bilateral detection rate—96.1% in the RM group (66.7% bilateral, 29.4% monolateral) and 96% in the RSS group (76% bilateral, 20% monolateral). One macrometastasis and two isolated tumor cells were found in the SLNs. In one RSS case, the removal of the right common iliac SLN was not feasible. Twenty-two (29%) patients who enrolled in the study with a preoperative diagnosis of AEH were found to have EC at the postoperative histological exam. Intraoperative complications occurred in three (3.9%) cases, all vaginal lacerations: one required vaginal suture but two did not require any additional surgery. Grade 2 postoperative complications occurred in four cases (5.2%): two urinary tract infections and one case of pneumonia requiring antibiotic therapy, and one vaginal cuff bleed which required the use of an intravaginal hemostatic sponge. In the postoperative complication comparison, pain did not show any statistically significant differences between the two approaches.

Considering each item in an individual comparison, the QoL analysis (Table 3) showed that better physical function was obtained in the RSS group (97.1 vs 91.6, $P = .007$) at 6 and 12 months after the procedure and that less pain was experienced in the RM group (98.6 vs 94.4, $P = .029$) at 6 months. The multiple comparison approach no longer highlighted these differences as statistically significant. No statistically significant differences were found in terms of body image and cosmetic results between the two approaches.

4 | DISCUSSION

The feasibility of RSS hysterectomy and pelvic assessment with SLN mapping was first described by Sinno et al. in 2015[11] and subsequently confirmed by Moukarzel et al.[15] and Mereu et al.[14] The RSS approach has shown advantages over the RM approach in terms of reduced invasiveness, reduced postoperative pain and good aesthetic results.

To the authors' knowledge, this is the first study prospectively to compare the two surgical approaches (RSS and RM) in the treatment of early EC with SLN mapping. In accordance with previous studies,[21] 43% patients were upstaged after surgery: 22 cases of AEH became EC and 11 with < 50% myometrial invasion became ≥ 50% at the final histological exam. These results highlight the important role of SLN mapping for retroperitoneal evaluation, even in patients preoperatively assigned a low-risk grade. The accuracy of preoperative biopsies performed during a hysteroscopy or via D&C is around 70%-90%,[22] frozen section analysis is mainly used to determine whether a lesion was malignant or benign but it has intrinsic limitations for obtaining more detailed information on the architectural and cytological characteristics of the lesion. This explains the variable results reported in the literature on the accuracy of the intraoperative identification of uterine risk factors.[23]

In our series of selected cases with a preoperative diagnosis of AEH and grade 1 and 2 EC, the incidence of lymph node metastasis

TABLE 1 Patients' characteristics

	Total (n = 76)	RSS (25)	RM (51)	*P* value
Age, y, mean (SD)	61.7 (11.0)	61.4 (10.4)	61.9 (11.4)	.85
Parity, median (range)	2 (0-4)	2 (0-3)	2 (0-4)	.96
Body mass index, mean (SD)	27.6 (5.8)	24.8 (3.8)	29.0 (6.1)	<.001
Previous abdominal surgeries, n (%)	43 (56.6)	14 (56)	29(56.8)	.82
Indication for surgery, n (%)				
Endometrial atypical hyperplasia	32 (42.1)	16 (64.0)	16 (31.4)	.05
Adenocarcinoma grade 1	21 (27.6)	4 (16.0)	17 (33.3)	
Adenocarcinoma grade 2	21 (27.6)	5 (20.0)	16 (31.4)	
Other endometrial cancer	2 (2.6)	0 (0.0)	2 (3.9)	

Abbreviations: RM, robotic multiport; RSS, robotic single-site.

TABLE 2 Intraoperative and postoperative characteristics

	Total (n = 76)	RSS (n = 25)	RM (n = 51)	*P* value
Procedure, n (%)				
Hysterectomy, bilateral salpingo-oophorectomy, sentinel lymphnode	67 (88.2)	24 (96.0)	43 (84.3)	.123
Hysterectomy, bilateral salpingo-oophorectomy, sentinel lymphnode, pelvic lymphadenectomy	7 (9.2)	2 (8.0)	5 (9.8)	
Hysterectomy, bilateral salpingo-oophorectomy	2 (2.6)	1 (4.0)	1 (2.0)	
Blood loss during surgery, n (%)				
<100 mL	67 (88.2)	24 (96.0)	43 (84.3)	.112
>100 mL	9 (11.8)	1 (4.0)	8 (15.7)	
Hb Drop, mean (SD)	1.14 (0.81)	1.47 (0.65)	0.98 (0.84)	.013 .392[a]
Surgical time, min mean (SD)	154.8 (39.7)	148.7 (18.7)	158.2 (47.6)	.247 .018[a]
Pain 6 h after surgery, mean (SD)	0.7 (1.39)	0.8 (1.5)	0.5 (1.0)	.505 .504[a]
Pain 12 h after surgery, mean (SD)	0.3 (1.0)	0.5 (1.3)	0.0 (0.0)	.076 .271[a]
Pain 18 h after surgery, mean (SD)	0.0 (0)	0.0 (0)	0.0 (0)	0 .982[a]
Pain 24 h after surgery	0.5 (0.9)	0.6 (1.0)	0.3 (0.8)	.439 .435[a]
Hospitalization after surgery, days mean, (SD)	2.8 (1.5)	2.1 (0.6)	3.1 (1.6)	<.0001 .161[a]
Sentinel lymph node identification, n (%)				
None	3 (4.0)	1 (4.0)	2 (3.9)	.737
Monolateral	20 (26.3)	5 (20.0)	15 (29.4)	
Bilateral	53 (69.7)	19 (76.0)	34 (66.7)	
Histology, n (%)				
Endometrioid adenocarcinoma	63 (82.9)	18 (72.0)	45 (88.2)	.077
Endometrial atypical hyperplasia	10 (13.1)	6 (24)	4 (7.8)	
Negative	3 (3.9)	1 (4)	2 (3.9)	
Grading (n = 63), n (%)				
G1	26 (41.3)	4 (22.2)	22 (48.9)	.080
G2	36 (57.1)	14 (77.8)	22 (48.9)	
G3	1 (1.6)	0 (0)	1 (2.2)	
FIGO Stage (n = 63), n (%)				
1A	52 (82.5)	17 (94.4)	35 (77.8)	.060
1B	9 (14.5)	0 (0)	9 (20.0)	
3B	1 (1.6)	1 (5.9)	0 (0.0)	
3C	1 (1.6)	0 (0.0)	1 (2.2)	

Abbreviations: RM, robotic multiport; RSS, robotic single-site.
[a]Multivariate regression analysis.

was 4%, which is in line with the findings of Creasman et al. who, in their seminal GOG surgical–pathologic trial, reported a lymph node metastasis rate ranging from 3% to 9% for patients with grade 1 cancer and lesions.[24] Similarly, the occurrence of an EC with metastatic lymph node disease in patients with a preoperative diagnosis of AEH has been extensively described,[25,26] and

TABLE 3 Quality of life analysis

	Preoperative				6 mo after surgery				12 mo after surgery			
	Total (n = 76)	RSS (n = 25)	RM (n = 51)	*P* value	Total (n = 76)	RSS (n = 25)	RM (n = 51)	*P* value	Total (n = 55)	RSS (n = 19)	RM (n = 36)	*P* value
Global health status, mean (SD)	28.7 (19.6)	20.0 (16.8)	33.0 (19.6)	.006	22.9 (22.5)	21.0 (18.0)	23.9 (24.4)	.606	18.0 (17.2)	18.0 (20.8)	18.1 (15.2)	.988
Physical functioning, mean (SD)	91.5 (13.6)	94.7 (9.4)	89.9 (15.0)	.099	93.4 (10.0)	97.1 (6.1)	91.6 (11.1)	.007	94.9 (8.2)	98.2 (3.7)	93.2 (9.4)	.006
Role functioning, mean (SD)	96.0 (13.8)	96.7 (11.8)	95.8 (6.1)	.789	96.7 (10.2)	97.3 (10.4)	96.4 (10.2)	.712	97.6 (6.7)	98.3 (5.3)	97.2 (7.5)	.597
Emotional functioning, mean (SD)	80.5 (21.6)	74.7 (26.5)	83.3 (18.4)	.150	90.0 (13.5)	90.7 (15.3)	89.7 (12.7)	.772	91.2 (13.6)	91.7 (12.7)	91.0 (14.1)	.859
Cognitive functioning, mean (SD)	93.9 (12.4)	92.0 (13.7)	94.8 (11.8)	.365	93.6 (11.6)	96.5 (6.9)	92.2 (13.1)	.063	93.6 (13.4)	95.6 (10.9)	92.6 (14.6)	.432
Social functioning, mean (SD)	97.4 (9.4)	96.7 (6.8)	97.7 (10.6)	.604	98.5 (6.8)	99.3 (3.3)	98.0 (7.9)	.321	99.7 (2.3)	100.0 (0)	99.5 (2.8)	.324
Fatigue, mean (SD)	89.3 (15.1)	88.4 (17.1)	89.8 (14.2)	.724	87.3 (14.1)	86.2 (16.1)	87.8 (13.2)	.651	92.3 (12.3)	93.0 (11.8)	92.0 (12.6)	.775
Nausea and vomiting, mean (SD)	98.2 (7.0)	96.0 (11.1)	99.3 (3.3)	.150	99.6 (2.7)	100.0 (0)	99.4 (3.3)	.159	99.4 (3.2)	99.1 (3.8)	99.5 (2.8)	.647
Pain, mean (SD)	96.5 (8.3)	96.0 (8.7)	96.7 (8.2)	.721	95.8 (10.2)	98.7 (4.6)	94.4 (11.9)	.029	97.3 (7.7)	98.3 (5.3)	96.8 (8.8)	.436
Dyspnea, mean (SD)	95.2 (11.8)	96.0 (11.1)	94.8 (12.2)	.673	93.9 (13.0)	96.0 (11.1)	92.8 (13.9)	.319	95.2 (11.9)	98.3 (7.7)	93.5 (13.4)	.102
Insomnia, mean (SD)	81.1 (25.1)	82.7 (23.8)	80.4 (26.0)	.714	84.2 (21.4)	82.7 (23.8)	85.0 (20.3)	.663	89.1 (18.2)	87.7 (22.8)	89.8 (15.6)	.689
Appetite loss, mean(SD)	97.4 (11.9)	96.0 (14.7)	98.0 (10.3)	.537	99.1 (5.4)	98.7 (6.7)	99.4 (4.7)	.650	99.4 (4.5)	100.0 (0)	99.1 (5.6)	.324
Constipation, mean (SD)	87.3 (23.1)	85.3 (23.7)	88.2 (22.9)	.610	93.4 (13.4)	94.7 (12.5)	92.8 (13.9)	.573	94.6 (14.0)	94.7 (12.5)	94.4 (14.9)	.942
Diarrhea, mean (SD)	97.8 (8.3)	96.0 (11.1)	98.7 (6.5)	.269	94.7 (17.3)	98.7 (6.7)	92.8 (20.4)	.067	96.4 (13.9)	100.0 (0)	94.4 (16.9)	.057
Financial difficulties, mean (SD)	99.1 (5.4)	98.7 (6.7)	99.4 (4.7)	.650	98.7 (8.5)	100.0 (0)	98.0 (10.4)	.182	100.0 (0)	100.0 (0)	100.0 (0)	—

Abbreviations: RM, robotic multiport; RSS, robotic single-site.

the National Comprehensive Cancer Network's clinical practice guidelines[1] included SLN mapping as a possible lymphatic assessment for patients with low- and high-risk uterine-confined EC. The acceptable SLN detection rate varies among practices, but a detection rate of 80%-90% or above is reported.[20] In this series, we observed an SLN detection rate of 96% in both cohorts, with a slightly higher bilateral SLN detection rate for the RSS approach. Conversely, in one case it was not possible to remove the SLN detected by fluorescent camera because it was impossible to access the presacral area with the RSS surgical instruments. This is an important limitation of the RSS approach that can interfere with the application of the SLN algorithm, especially in the case of an intermediate lymphatic pathway that follows the posterior broad ligament and reaches the lymph node at the promontorium.

In our series, patients who underwent RSS surgery were discharged 1 day earlier than those who had RM surgery; however, the results of the multiple regression analysis according to BMI, center and surgical procedure showed a non-significant difference between the two approaches. After multiple regression analysis, the only outcome variable for which the surgical approach remained significant is surgical time, with RM taking 23 minutes longer than RSS (P = .018). Our finding is not consistent with data available in the literature;[27] compared with the previous retrospective study by Moukarzel et al., we had a shorter median surgical time in both arms (RSS 148 vs 175 and RM 158 vs 184 minutes) and we observed that the shorter surgical time in the RSS group was associated with the docking time. In general, the RSS approach is associated with similar perioperative outcomes to the RM approach. This corroborates the previously published feasibility and safety data evaluation of the RSS platform for the surgical management of EC.[9,15,27,28]

In the multivariate regression analysis, BMI significantly influenced surgical time, with an increase of 1.6 minute per incremental unit of BMI for both approaches.

Previous studies demonstrated the feasibility of RSS hysterectomy in non-obese and obese patients with a mean BMI of 27 (range 19-52)[13]. However, some limitations were highlighted in the obese population: difficult single-site trocar insertion and docking due to the thickness of the periumbilical abdominal wall, fewer degrees of freedom and a very small distance between the instrument, the uterus and the pelvic lymph nodes, due to the stiffness and length of the instruments, and the absence of extra arms to keep the bowel out of the surgical field.[12-13,29] Corrado et al. reported a higher mean hemoglobin drop and conversion rate, and less lymph node dissection in women with higher BMI undergoing RSS surgery.[30] In this study, we did not observe any statistical difference in terms of intraoperative blood loss or SLN detection associated with BMI in the RSS subgroup. Although Corrado et al. recorded a high level of patient satisfaction with regard to the cosmetic outcomes, in this comparison we did not observe any difference in terms of body image and cosmetic results.[28]

This is the first study to compare QoL between the RSS and RM approaches. Although the study does not have the power to highlight differences in terms of QoL, when we considered each item in an individual comparison, we observed better function but increased pain symptoms at 6 and 12 months after RSS surgery. This could be explained by the fact that only one incision is made during single-site surgery; on the one hand, this might allow better physical function, but on the other, being almost three times larger, this could explain the greater pain reported by patients 6 and even 12 months after the surgical procedure. In any case, the multiple comparison approach no longer showed these differences to be statistically significant between the two robotic approaches.

The biases to be taken into consideration for this study are: the small sample size, the impossibility of performing randomization because just one center was in possession of a single-site platform with fluorescence camera, the concentration of patients with a lower BMI in a single arm, and the fact that the differences in the laparoscopic expertise of the centers involved with regard to robotic surgery and single-site surgery may not generate reproducible results.

5 | CONCLUSION

Robotic multiport and RSS are both practicable approaches for the treatment of low-risk EC with SLN mapping. RSS reduces surgical time. In terms of QoL, body image and cosmetic results, no differences were observed between the two approaches with regard to body image and cosmetic results. Further studies are required to clarify the advantages of the different robotic approaches in specific patient subgroups and to define correct indications.

CONFLICT OF INTEREST

None.

ORCID

Liliana Mereu https://orcid.org/0000-0002-0610-5132
Riccardo Pertile https://orcid.org/0000-0003-1455-842X

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