https://doi.org/10.48047/AFJBS.6.14.2024.4624-4642

African Journal of Biological Sciences

Journal homepage: http://www.afjbs.com

Research Paper Open Access

The Analysis Study of Comparison of Outcome, Quality of Life and Complication Post Operative Laparoscopy versus Laparotomy for Gynaecology Cancer : A Systematic Review and Metaanalysis Studies

[1] Naufal Rifqian, [2] Andi Kurniadi, [3] Mutia Juliana, [1] Alvin Widya Ananda

[1] Faculty of Medicine, Trisakti University, Special Region of Jakarta, Indonesia
[2] Obstetric and Gynaecology Consultant, Division of Oncology, Departement Obstetric and Gynaecology, Faculty of Medicine, Padjadjaran University / Hasan Sadikin Central General Hospital, Bandung, West Java, Indonesia
[3] Immanuel Institute of Health, Bandung, West Java, Indonesia
Correspondence : mulianto_qren@yahoo.com

Volume 6, Issue 14, Aug 2024

Received: 09 June 2024

Accepted: 19 July 2024

Published: 08 Aug 2024

doi: 10.48047/AFJBS.6.14.2024.4624-4642

ABSTRACT

Background

Since the rise of minimally invasive surgery (MIS) in the 1990s, the benefits of laparoscopy compared to laparotomy have been clearly recognized: lower postoperative pain, faster recovery of normal bowel function, shorter hospitalization, lower estimated blood depletion, aesthetic scars and more. The introduction of laparoscopy in gynecological cancers has shown the same benefits with similar oncologic outcomes.

Method

This systematic review and meta-analysis, conducted following PRISMA guidelines and employing the PICO format, aim to explore about speech delay in children in middle income countries, focusing on etiology and risk factor. Inclusion criteria encompass diverse study designs (RCTs, observational, quasi-experimental, and case-control studies) investigating comparison of outcome, quality of life and complications post operative laparoscopy versus laparotomy for gynaecology cancer, while exclusion criteria filter out studies lacking relevance to comparison of outcome, quality of life and complications post operative laparoscopy versus laparotomy for gynaecology cancer.

Result

Using reputable resources like PubMed, Sage journal, lancet, and Science Direct, our research team first gathered 43884 publications. A thorough three-level screening strategy was used to identify only 10 articles that have a direct relationship with the current systematic review have been selected for further screening based on full-text reading and analyses. The selected articles, demonstrate a recent publication trend from 2014 – 2024.

Conclusion

Laparoscopic restaging showed more favorable operative outcomes than laparotomy when performed by surgeons with considerable experience in laparoscopic surgery for gynecological malignancy. There was no difference in the oncologic outcomes of patients undergoing laparoscopic restaging compared with open restaging. Large prospective studies comparing the 2 approaches are warranted to confirm these findings.

Keywords: Gynaecology cancer, laparoscopy, laparotomy, surgery.

INTRODUCTION

The aim of this study is to systematically review and conduct a meta-analysis of comparison of outcome, quality of life and complications post operative laparoscopy versus laparotomy for gynaecology cancer. By comprehensively synthesizing existing literature, this research seeks to explore the comparison of outcome, quality of life and complications post operative laparoscopy versus laparotomy for gynaecology cancer. Through rigorous evaluation and statistical analysis, the study aims to provide valuable insights into the comparison of outcome, quality of life and complications post operative laparoscopy versus laparotomy for gynaecology cancer. The systematic review and meta-analysis intend to inform healthcare practitioners, researchers, and policymakers about the current state of the comparison of outcome, quality of life and complications post operative laparoscopy versus laparotomy for gynaecology cancer for future research and development in this critical area of public health.

Surgery for gynaecology cancer, which can include fallopian tube, peritoneal, and borderline malignant ovarian tumors, is mainly performed by laparotomy. Laparotomy is one of the most invasive treatments in gynecology, frequently resulting in complications such as ileus and infection, and in some cases, postoperative treatment may be delayed. There are only limited reports on the use of laparoscopic minimally invasive surgery (MIS) for ovarian cancer in Japan. Since the first reports of MIS experiences in 1994, there have been many such reports published in other countries. Compared with laparotomy, laparoscopy is less invasive and is associated with less postoperative pain, intraoperative blood loss, and a shorter length of hospitalization, and it is believed to have a significant positive effect on the patient's quality of life (QOL).[1–3]

International guidelines currently recommend minimally invasive surgery (MIS) in those patients with apparent uterine-confined disease, including patients with high-risk endometrial carcinoma. Numerous studies report better perioperative outcomes with this approach rather than with laparotomy. Considering the oncological outcomes, prospective and randomized trials have proven the safety of MIS in low-grade, early-stage tumors (*LAP2*, *LACE*), but there are few reports evaluating its role in the management of high-grade uterine malignancies. The higher rates of locoregional recurrence and mortality in patients undergoing minimally invasive radical hysterectomy for cervical malignancies have raised concern regarding the association between the surgical approach chosen and oncological outcomes in patients with high-risk endometrial cancer.[4–6]

In addition, after the first laparoscopic staging operation on gynaecology malignancies was reported, laparoscopic staging procedure had been considered as an efficient and safe

approach to assess and treat gynaecology malignancies resembling that of laparotomy. However, its application still remains controversial considering the unexpected tumor rapture or spillage, instrumental thermal injury, difficulty in tumor extraction and port-site metastasis etc. Some meta-analysis reported that laparoscopic surgery was associated with lower rates of complications, shorter postoperative hospital stays and similar in recurrence rate comparing to laparotomy.[7,8]

METHODS

This systematic review meta analysis was conducted in adherence to the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analysis) guidelines. Our health care question was defined a priori using the PICO (Population, Intervention, Comparator and Outcomes) format. Population: Individuals undergoing laparotomy or laparoscopy. Intervention: Laparotomy. Comparison: Laparoscopy. Outcome: Comparison of outcome of Laparoscopy and laparotomy.

Eligibility Criteria

For inclusion in this systematic review and meta-analysis on the exploration of comparison of outcome, quality of life and complications post operative laparoscopy versus laparotomy for gynaecology cancer, studies with diverse designs will be considered. This encompasses randomized controlled trials (RCTs), observational studies, quasi-experimental designs, and case-control studies. Studies must specifically investigate about comparison of outcome, quality of life and complications post operative laparoscopy versus laparotomy for gynaecology cancer, such as comparison of outcome, quality of life and complications post operative laparoscopy versus laparotomy for gynaecology cancer.

The eligible population includes individuals at comparison of outcome, quality of life and complications post operative laparoscopy versus laparotomy for gynaecology cancer, with no restrictions based on age, gender, or geographical location. Exclusion criteria encompass studies not directly relevant to comparison of outcome, quality of life and complications post operative laparoscopy versus laparotomy for gynaecology cancer, reviews lacking original data, and studies solely not focusing on comparison of outcome, quality of life and complications post operative laparoscopy versus laparotomy for gynaecology cancer.

Comparison groups are essential for this analysis, and eligible studies must incorporate a comparison group using the other methods for comparison of outcome, quality of life and complications post operative laparoscopy versus laparotomy for gynaecology cancer. Excluded

are studies without a comparison group or those comparing different of comparison of outcome, quality of life and complications post operative laparoscopy versus laparotomy for gynaecology cancer.

Outcome measures of interest include comparison of outcome, quality of life and complications post operative laparoscopy versus laparotomy for gynaecology cancer. Studies reporting outcomes unrelated to these measures or not directly addressing the comparison of outcome, quality of life and complications post operative laparoscopy versus laparotomy for gynaecology cancer. These criteria are designed to ensure the comprehensive inclusion of studies exploring the comparison of outcome, quality of life and complications post operative laparoscopy versus laparotomy for gynaecology cancer, facilitating a thorough systematic review and meta-analysis of the current literature.

Data Sources and Search Strategy

In pursuit of exploring comparison of outcome, quality of life and complications post operative laparoscopy versus laparotomy for gynaecology cancer, a comprehensive search strategy was deployed. Authors systematically scoured relevant bibliographic databases, including the PubMed, Lancet, Sage journal, and Science Direct. The final search was conducted in July 2024. MeSH terms related to comparison of outcome, quality of life and complications post operative laparoscopy versus laparotomy for gynaecology cancer, and articles with relevant terms within the title or abstract were identified.

Database	**Search Strategy**	***Hits***
Pubmed	*((*"Gynaecology cancer"*[MeSH Subheading] OR* "Detection"*[All Fields] OR* "Diagnosed*" [All Fields]) AND (*"Diagnostic"*[All Fields] OR* " Laparoscopy"*[All Fields]) AND (*"Laparotomy"*[All Fields]) OR (*"Outcome*" [All Fields]))*	43672
The Lancet	*((*"Gynaecology cancer"*[MeSH Subheading] OR* "Detection"*[All Fields] OR* "Diagnosed*" [All Fields]) AND (*"Diagnostic"*[All Fields] OR* " Laparoscopy"*[All Fields]) AND (*"Laparotomy"*[All Fields]) OR (*"Outcome*" [All Fields]))*	4
Sage Journal	*((*"Gynaecology cancer"*[MeSH Subheading] OR* "Detection"*[All Fields] OR* "Diagnosed*" [All Fields]) AND (*"Diagnostic"*[All Fields] OR* " Laparoscopy"*[All Fields]) AND (*"Laparotomy"*[All Fields]) OR (*"Outcome*" [All Fields]))*	14
Science Direct	*((*"Gynaecology cancer"*[MeSH Subheading] OR* "Detection"*[All Fields] OR* "Diagnosed*" [All Fields]) AND (*"Diagnostic"*[All Fields] OR* " Laparoscopy"*[All Fields]) AND (*"Laparotomy"*[All Fields]) OR (*"Outcome*" [All Fields]))*	194

Study Selection

Title and abstract screening for eligibility was conducted by two independent investigators. Studies meeting the eligibility criteria were selected, and the full-text articles were obtained and reviewed. Any discrepancies in study selection were resolved through consensus agreement among all authors.

Data Extraction

Data extraction was performed in duplicate from full-text versions of eligible studies by authors. The data included the total number of events and controls for the comparison of outcome, quality of life and complications post operative laparoscopy versus laparotomy for gynaecology cancer. Data presented in tabular format were the primary source for extraction.

Risk of Bias

The GRADE system was utilized to assess the quality of evidence. The risk of bias was evaluated based on limitations in study design, with RCTs considered high-quality evidence and observational studies as low-quality evidence. Each study underwent scrutiny for limitations, and bias was established across studies for each outcome.

Heterogeneity

Heterogeneity was evaluated based on similarity of point estimates, overlap of confidence intervals, and the statistic. Subgroup comparisons were created to explore potential sources of heterogeneity.

Evaluating the Quality of Evidence

The GRADE approach was employed to upgrade the quality of evidence, considering factors such as large pooled effects, dose-response relations, and confounders.

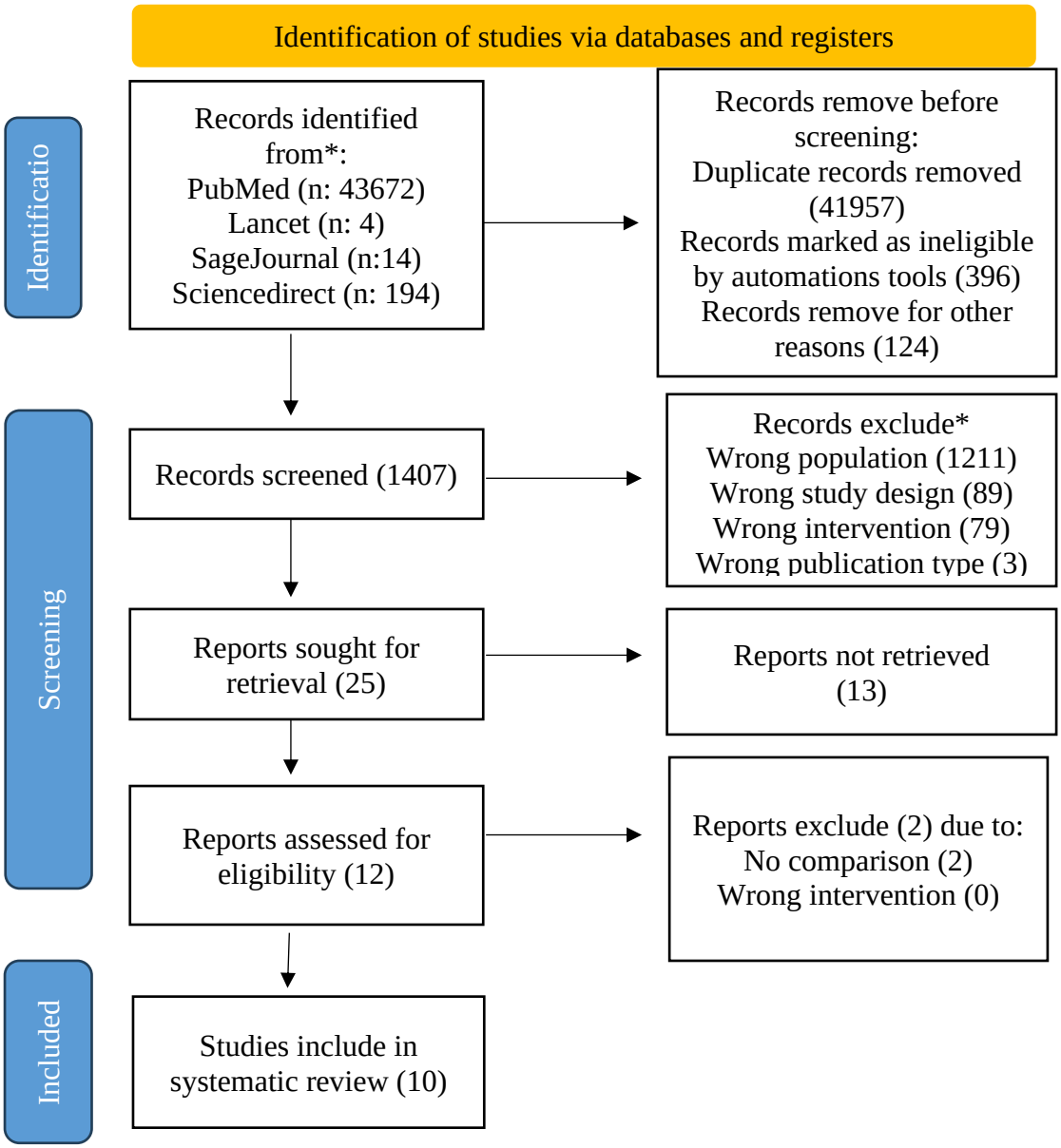

Figure 1. Article search flowchart

Critical appraisal of Study

Parameters	(Garcia, NG et al., 2023)	(Yuan, Z et al., 2019)	(Ran, X et al., 2022)	(Ghazali, WAHW et al., 2019)	(Huang, W et al., 2022)	(Koo, YJ et al., 2014)	(Merlier, m et al., 2020)	(Wang, Y et al., 2022)	(Cakmak, Y et al., 2020)	(Liu, M et al., 2014)
1. Bias related to temporal precedence										
Is it clear in the study what is the "cause" and what is the "effect" (ie, there is no confusion about which variable comes first)?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
2. Bias related to										

selection and allocation										
Was there a control group?	No	No	No	No	No	No	No	No	No	No
3. Bias related to confounding factors										
Were participants included in any comparisons similar?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
4. Bias related to administration of intervention/exposure										
Were the participants included in any comparisons receiving similar treatment/care, other than the exposure or intervention of interest?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
5. Bias related to assessment, detection, and measurement of the outcome										
Were there multiple measurements of the outcome, both pre and post the intervention/exposure?	No	No	No	No	No	No	No	No	No	No
Were the outcomes of participants included in any comparisons measured in the same way?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Were outcomes measured in a reliable way?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
6. Bias related to participant retention										
Was follow-up complete and, if not, were differences between groups in terms of their follow-up adequately described and analyzed?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
7. Statistical conclusion validity										
Was appropriate statistical analysis used?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

RESULT

Using reputable resources like PubMed, Sage journal, lancet, and Science Direct, our research team first gathered 43884 publications. A thorough three-level screening strategy was used to identify only 10 articles that have a direct relationship with the current systematic

review have been selected for further screening based on full-text reading and analyses. The selected articles and their respective publication year along with the distribution of the publications years have been shown in Figure 1 above.

Author	Origin	Method	Sample Size	Result
Garcia, NG et al., 2023[9]	Spain	This was a retrospective, single-center observational study that included all patients who underwent surgical staging for EOC by laparoscopy or laparotomy between 2010 and 2019.	49	Forty-nine patients were included; of which 20 underwent laparoscopy, 26 laparotomy, and three conversion from laparoscopy to laparotomy. No significant differences were observed between the two groups regarding operative time, number of lymph nodes dissected, or intraoperative tumor rupture rate, while estimated blood loss and transfusion requirements were lower in the laparoscopy group. The complication rate tended to be higher in the laparotomy group. Patients in the laparoscopy group had a faster recovery, with earlier urinary catheter and abdominal drain removal, shorter hospital stay, and a trend toward earlier tolerance of oral diet and mobilization. At a mean follow-up of 45.7 months, 14 patients had disease recurrence, with no differences in the mean progression-free survival between the two groups (36 months for laparoscopy vs. 35.5 months for laparotomy, $P = 0.22$).
Yuan, Z et al., 2019[10]	China	Retrospective observational study with propensity score matching was used to ensure balanced groups for ARH and LRH. One-hundred-and-ninety-eight women with cervical cancer, 99 treated using ARH and 99 using LRH, between January 2012 and December 2014.	198	Compared with ARH, LRH was associated with a lower volume of blood loss ($P < 0.001$) and transfusion rate ($P < 0.001$), with a broader resection of the parametrium ($P < 0.001$). Post-operatively, the time to first flatus was shorter for LRH than ARH ($P < 0.001$) but the rate of urinary retention was higher for LRH (22.2%) than ARH (8.1%; $P = 0.009$). DFS and OS were similar between groups. By IPTW, laparoscopy was also not associated with poorer survival in terms of DFS (HR 1.52, CI 0.799–2.891, $P = 0.202$) or OS (HR 0.942, HR 0.425–2.09, $P = 0.883$).

Ran, X et al., 2022[11]	China	We conducted an observational study of women diagnosed with International Federation of Gynecology and Obstetrics (FIGO) 2014 stage I ovarian cancer who underwent surgery at the West China Second University Hospital from 2012 to 2020.	200	Among 200 eligible patients, 74 patients undergoing laparoscopy were compared with a cohort of 126 patients undergoing open surgery. Baseline characteristics were similar between groups after matching. Patients who had laparoscopy had a shorter operative time (P = 0.001), a shorter hospital stay (P <0.001), and lower blood loss (P = 0.001) than patients who had open surgery. The median (range) follow-up period was 43.0 (38.8–47.2) and 45.0 (36.0–54.0) months for cases and controls, respectively (P <0.001). There are no significant differences in progression-free survival (P = 0.430, log-rank test) and overall survival (P = 0.067, log-rank test) between the two groups.
Ghazali, WAHW et al., 2019[12]	Malaysia	Patient outcomes were compared between 26 women who underwent laparoscopic total hysterectomy with or without lymphadenectomy and 14 women who underwent open laparotomy extrafascial hysterectomy with or without lymphadenectomy. Data were collected using electronic medical records.	40	There was a significant reduction in operative blood loss in the laparoscopic group with mean 262.50 ± 47.87 and laparotomy group with mean 381.82 ± 138.33, 95% confidence interval, $P <$ 0.05. Postoperative hospital stay was also significantly reduced in the laparoscopic group, where the mean postoperative stay in laparoscopic group was 2.5 ± 2.0 days and laparotomy 5.0 ± 3.6 days. There was no significant difference in mean operative time (the mean operative time: 256 ± 76.40 for laparotomy and 288.75 ± 43.66 for the laparoscopic approach). More number of lymph nodes were harvested laparoscopically (29.75 ± 16.59) than laparotomy (23.0 ± 12.62); however, this was not significant.
Huang, W et al., 2022[13]	China	One retrospective study was conducted with 391 patients treated with 242 patients underwent ARH and 149 patients	391	Our research found that there was no difference in tumor size, histology, pathology grades, positive lymph nodes, and postoperative complications between LRH and ARH ($P >$ 0.05). The estimated blooding loss (EBL) and length of postoperative hospital stay were less for LRH

		underwent LRH between May 2010 and August 2019.		than ARH (248.12 ml vs. 412.56 ml, $P < 0.05$, and 10.48 days vs. 15.16 days, $P < 0.05$). The mean operative time was longer for LRH than ARH (227.51 min vs. 215.62 min, $P < 0.05$). Significant difference was found in intraoperative complications ($P < 0.05$). However, LVSI was higher for LRH than ARH (36.8% vs. 19.8%, $P < 0.05$). We discovered that the LVSI was related with International Federation of Obstetrics and Gynecology stage and tumor size.
Koo, YJ et al., 2014[14]	Korea	Data from patients who underwent surgical management for early-stage ovarian cancer between 2006 and 2012 were retrospectively reviewed. All patients presented with stage I or II disease, and underwent comprehensive staging surgery consisting of a total hysterectomy, bilateral salpingo-oophorectomy, pelvic and para-aortic lymphadenectomy, omentectomy, and peritoneal cytology.	77	Seventy-seven patients who underwent laparoscopic surgery (24 patients) or laparotomy (53 patients) were identified. Surgery for none of the patients was converted from laparoscopy to laparotomy. The mean operation time was shorter and the estimated blood loss was lower in the laparoscopy group than in the laparotomy group, though the differences were not statistically significant (193 min vs. 224 min, p=0.127; 698 mL vs. 973 mL, p=0.127). There were no differences in the intraoperative or postoperative complications. During a mean follow-up period of 31 months, tumor recurrence occurred in 4 patients: 2 (8.3%) in the laparoscopy group and 2 (3.8%) in the laparotomy group. The mean disease-free survival was 59 months after laparoscopy and 66 months after laparotomy (p=0.367).
Merlier, m et al., 2020[15]	France	Data of patients with early stage EOC (FIGO I-IIA) who underwent primary surgery between 2000 and 2018 were extracted from the FRANCOGYN database. OS and RFS of these two groups,	144	of the 144 patients included, 107 patients underwent laparotomy and 37 underwent laparoscopy for a staging purpose. The median follow-up was 36.0 months (18.0 to 58.0). For the laparoscopy and the laparotomy group, the median follow-up period was 24 (11.0 to 50.0) and 42.0 (24.0 to 66.0) months, respectively, ($p < 0.001$). Tumor recurrence occurred in 33 (23%) patients: 2

		constituted according to the surgical route, were compared using Log rank test.		(5.4%) in the laparoscopy group and 31 (29%) in the laparotomy group (p = 0.08). The OS rate at 5 years was 97.3% after laparoscopy and 79.8% after laparotomy (p = 0.19).
Wang, Y et al., 2022[16]	China	A retrospective chart review was undertaken of patients who underwent laparoscopic (laparoscopy group) or laparotomic (laparotomy group) restaging at the Peking Union Medical College Hospital, China, between January 2012 and December 2017.	157	A total of 157 patients were included, with 50 in the laparoscopy group and 107 in the laparotomy group. Baseline characteristics were similar between the groups. No cases were converted from laparoscopy to laparotomy. The laparoscopy group had a significantly shorter operating time (p<0.001), less estimated blood loss (p<0.001), and a shorter postoperative hospitalization duration (p<0.001) than the laparotomy group. Transfusions were required in only eight laparotomy patients. No significant differences in postoperative complications were observed between the two groups (p=0.55). Eighteen (11.5%) patients were upstaged to stage II or stage III after surgery. A total of 123 (78.3%) patients received postoperative platinum-based chemotherapy. During the follow-up period, 15 (9.6%) patients experienced disease recurrence, and 3 patients died of disease progression. Five-year disease-free survival (p = 0.242, log-rank test) and overall survival (p = 0.236, log-rank test) were not affected by the surgical approach.
Cakmak, Y et al., 2020[17]	Turkey	To compare the surgical outcomes and perioperative complications of laparoscopic surgery and laparotomy in the treatment of early-stage endometrioid endometrial cancer patients, we retrospectively investigated patients who underwent surgery	128	A total of 128 patients were treated for stage I endometrial cancer during the study period. Sixty-two patients (48.4%) underwent laparoscopic surgery, and 66 (51.6%) patients underwent laparotomy. Median operation time and pelvic lymph node count in the laparotomy and laparoscopy groups did not demonstrate statistically significant differences. However, the length of hospital stay, estimated blood loss, and perioperative

		due to endometrial cancer at our institution between 2014 and 2018.		complication rate were lower in the laparoscopic surgery group. Laparoscopic surgery in early-stage endometrial cancer may be performed with less blood loss, shorter duration of hospital stays, and similar lymph node counts compared to laparotomic surgery.
Liu, M et al., 2014[18]	China	We retrospectively analyzed the clinical data of patients who underwent laparoscopy (35 patients) or laparotomy (40 patients) for the comprehensive surgical staging of EOC in Zhujiang Hospital during the period of 2002 to 2010 and compared the 2 surgical approaches in operative time, intraoperative blood loss, number of dissected lymph nodes, tumor rupture rate, length of hospital stay, time of gastrointestinal function recovery, wound healing condition, complication rate, upstaging rate, rate of postoperative chemotherapy, and postoperative follow-up condition.	75	The laparoscopy group had significantly shorter hospital stay and time of first postoperative flatus and had significantly lower rate of poor wound healing than the laparotomy group. The 2 groups did not show significant differences in operative time, intraoperative blood loss, number of dissected lymph nodes, tumor rupture rate, complication rate, upstaging rate, and rate of postoperative chemotherapy

Complications

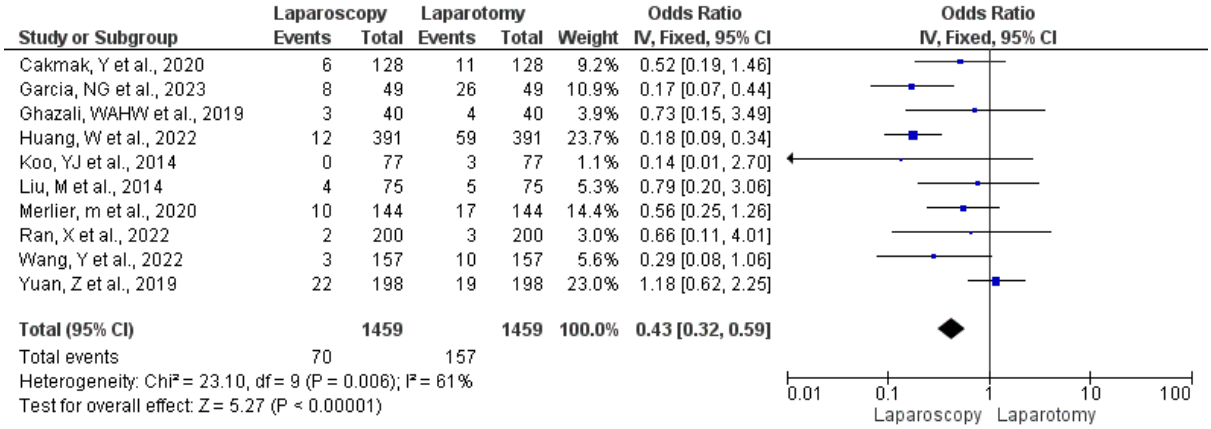

Figure 2. Forest Plot of Complications

Based on the Z value of 5.27 and p value <0.00001, there is a significant comparison of complications of Laparoscopy and laparotomy.

Relaps

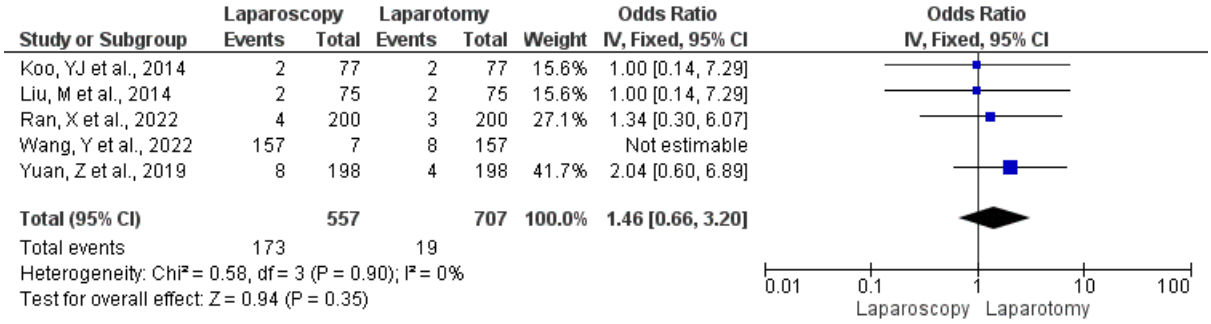

Figure 3. Forest Plot of Relaps

Based on the Z value of 0.94 and p value <0.00001, there is of relapse incident of Laparoscopy and laparotomy.

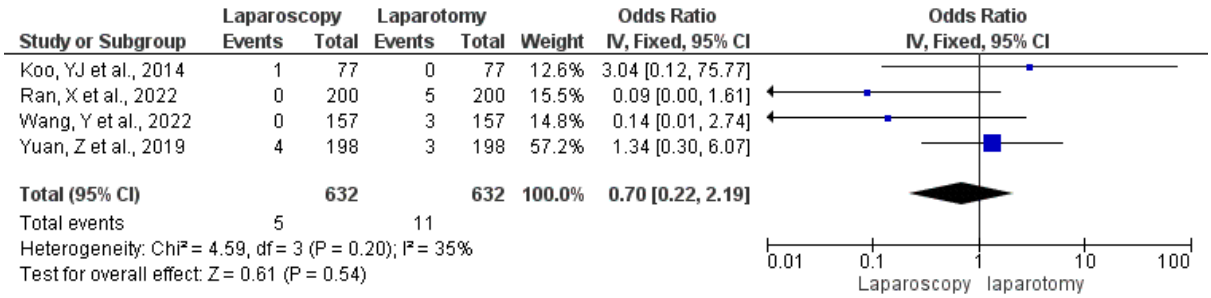

Figure 4. Forest Plot of Mortality

Based on the Z value of 0.61 and p value <0.00001, there is a mortality incident of complications of Laparoscopy and laparotomy.

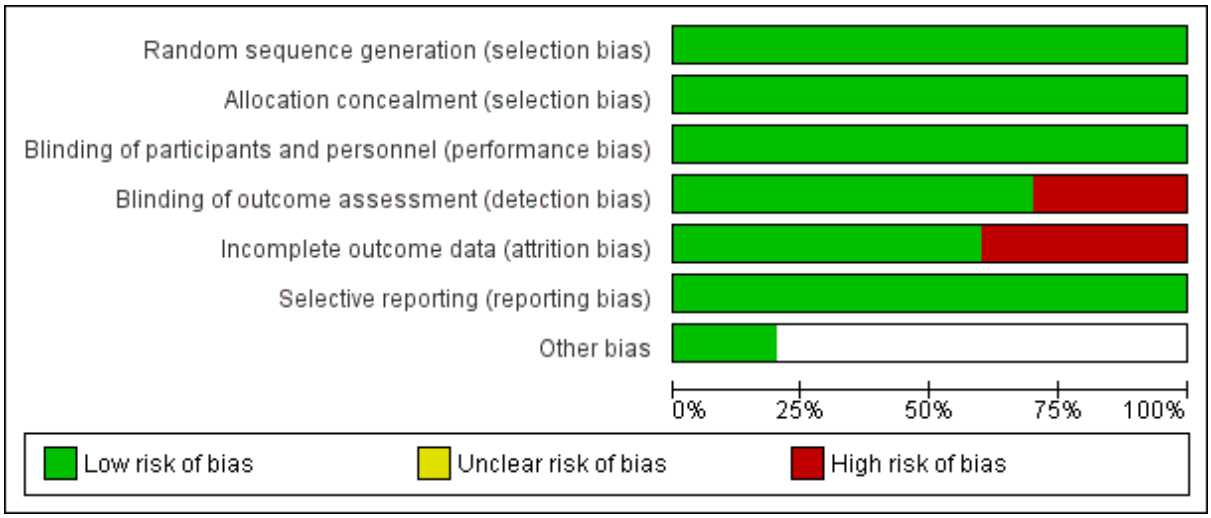

Figure 5. Risk of Bias

Based on the risk of bias, there is a low risk of all criteria in the 10 studies concerned.

DISCUSSION

Surgery is the primary treatment for patients with early gynaecology cancer. Various studies have shown that the advantages of laparoscopic surgery over open surgery include a lower rate of postoperative adhesions, a shorter hospital stay, fewer postoperative complications, less pain, and better quality of life due to faster recovery. Furthermore, several studies have concluded that minimally invasive surgery provides similar oncological outcomes and is associated with lesser morbidity compared to laparotomy. Minimally invasive surgery was included in the majority of the existing guidelines throughout the world for the treatment of endometrial cancer. Given the option of the laparoscopic approach, primary surgery is performed by laparoscopy in the large majority of hospitals. However, minimally invasive treatment of malignant diseases, such as cervical cancer, has been controversial in the last few years. A randomized international multicenter study on cervical cancer published by Ramirez and co-workers revealed that radical endoscopic surgery was associated with a significantly higher risk of recurrence and mortality compared to the open procedure. Despite the numerous explanations offered for this phenomenon, including the use of a uterine manipulator and the method of colpotomy, the reasons for the unfavorable effects of the minimally invasive approach are not clear. Tumor exposure may be a likely reason for high recurrence rates after minimally invasive surgery.[19–21]

Evidence suggests that laparoscopic surgery is an acceptable alternative to the conventional laparotomy for the treatment of gynaecology cancer. Staging in gynaecology

cancer is surgical and hysterectomy is required to determine the depth of myometrial invasion and cervical involvement. The laparoscopic approach may result in a reduction in operative morbidity, including wound infection in overweight and elderly women. In addition, it has been suggested that the OS and DFS is comparable to laparotomy. There have been a few reports of port-site recurrence and vaginal recurrence after laparoscopy for gynaecology cancer. The risk of port-site metastases may be reduced by closure of the port site in layers, and the risk of vaginal recurrence reduced by avoiding uterine manipulation during laparoscopy. There is mounting evidence to suggest that laparoscopy is an acceptable alternative to laparotomy in the surgical treatment of gynaecology cancer.[22,23]

Evaluated the relative cost of laparoscopy compared with open surgery in women with early gynaecology cancer and found that laparoscopy resulted in higher costs due to the cost of disposable instrumentation and direct material/operating room costs, but the cost of hospital stay was higher in the laparotomy group because the stay was longer. Where bed costs are higher, this difference in cost might be eliminated, however the median lengths of hospital stay in the laparotomy groups in most of the studies reporting this outcome seem excessive with a range of up to 14.5 days. Literature on the quality of life for women undergoing laparoscopy compared with laparotomy is scant, however reported significantly lower postoperative pain scores in the laparoscopy group.[24,25]

CONCLUSION

In conclusion, laparoscopic restaging showed more favorable operative outcomes than laparotomy when performed by surgeons with considerable experience in laparoscopic surgery for gynecological malignancy. There was no difference in the oncologic outcomes of patients undergoing laparoscopic restaging compared with open restaging. Large prospective studies comparing the 2 approaches are warranted to confirm these findings.

REFERENCES

1. Kamei Y, Kobayashi E, Nakatani E, Shiomi M, Sawada M, Kakuda M, et al. A single institution’s experience with minimally invasive surgery for ovarian cancer, and a systematic meta-analysis of the literature. Int J Clin Oncol [Internet]. 2023 Jun 28;28(6):794–803. Available from: https://link.springer.com/10.1007/s10147-023-02320-2
2. Perrone E, Capasso I, Pasciuto T, Gioè A, Gueli Alletti S, Restaino S, et al. Laparoscopic vs. robotic-assisted laparoscopy in endometrial cancer staging: large retrospective

single-institution study. J Gynecol Oncol [Internet]. 2021;32(3). Available from: https://ejgo.org/DOIx.php?id=10.3802/jgo.2021.32.e45

3. Lu Z, Guo C, Wang T, Qiu J, Hua K. Characteristics, complications, and outcomes of early-stage cervical stump carcinoma: laparoscopy versus laparotomy. J Int Med Res [Internet]. 2021 Feb 27;49(2):030006052199224. Available from: http://journals.sagepub.com/doi/10.1177/0300060521992247
4. Odetto D, Rey Valzacchi GM, Ostojich M, Alessandria S, Darin MC, Tapper K, et al. Minimally invasive surgery versus laparotomy in women with high risk endometrial cancer: A multi-center study performed in Argentina. Gynecol Oncol Reports [Internet]. 2023 Apr;46:101147. Available from: https://linkinghub.elsevier.com/retrieve/pii/S2352578923000164
5. Wang Y zhou, Deng L, Xu H cheng, Zhang Y, Liang Z qing. Laparoscopy versus laparotomy for the management of early stage cervical cancer. BMC Cancer [Internet]. 2015 Dec 24;15(1):928. Available from: http://bmccancer.biomedcentral.com/articles/10.1186/s12885-015-1818-4
6. Lee YJ, Chung YS, Lee JY, Nam EJ, Kim SW, Kim YT, et al. Role of diagnostic laparoscopy in deciding primary treatment in advanced-stage ovarian cancer. J Gynecol Oncol [Internet]. 2023;34(2). Available from: https://ejgo.org/DOIx.php?id=10.3802/jgo.2023.34.e17
7. Kong Q, Wei H, Zhang J, Li Y, Wang Y. Comparison of the survival outcomes of laparoscopy versus laparotomy in treatment of early-stage ovarian cancer: a systematic review and meta-analysis. J Ovarian Res [Internet]. 2021 Dec 16;14(1):45. Available from: https://ovarianresearch.biomedcentral.com/articles/10.1186/s13048-021-00793-1
8. Haddad S, Ghadimi K, Abrishamkar R, Asl NSM. Comparing laparoscopy and laparotomy procedures in the radical hysterectomy surgery for endometrial cancer: a basic review. Am J Transl Res [Internet]. 2021;13(4):2456–61. Available from: http://www.ncbi.nlm.nih.gov/pubmed/34017404
9. Garcia* NG, Moreno CS, Teixeira N, Lloret PE, Guibourg RL, Negre RR. Comparison of Laparoscopy and Laparotomy in the Management of Early-stage Ovarian Cancer. Gynecol Minim Invasive Ther [Internet]. 2023;12(2):83–9. Available from: https://journals.lww.com/10.4103/gmit.gmit_99_22
10. Yuan Z, Cao D, Yang J, Yu M, Shen K, Yang J, et al. Laparoscopic vs. Open Abdominal Radical Hysterectomy for Cervical Cancer: A Single-Institution, Propensity Score Matching Study in China. Front Oncol [Internet]. 2019 Oct 30;9. Available from:

https://www.frontiersin.org/article/10.3389/fonc.2019.01107/full

11. Ran X, He X, Li Z. Comparison of Laparoscopic and Open Surgery for Women With Early-Stage Epithelial Ovarian Cancer. Front Oncol [Internet]. 2022 Apr 29;12. Available from: https://www.frontiersin.org/articles/10.3389/fonc.2022.879889/full
12. Ghazali WHW, Jamil S, Sharin I. Laparoscopic versus laparotomy: Staging surgery for endometrial cancer – Malaysia's early experience. Gynecol Minim Invasive Ther [Internet]. 2019;8(1):25. Available from: http://www.e-gmit.com/text.asp?2019/8/1/25/250641
13. Huang W, Wang Y, Yang F, Luo N, Ai G, Wu Y, et al. The impaction of laparoscopic versus laparotomy for lymphovascular space invasion of early cervical cancer: A multicenter retrospective study. Gynecol Minim Invasive Ther [Internet]. 2022;11(1):17. Available from: http://www.e-gmit.com/text.asp?2022/11/1/17/337649
14. Koo YJ, Kim JE, Kim YH, Hahn HS, Lee IH, Kim TJ, et al. Comparison of laparoscopy and laparotomy for the management of early-stage ovarian cancer: surgical and oncological outcomes. J Gynecol Oncol [Internet]. 2014;25(2):111. Available from: https://ejgo.org/DOIx.php?id=10.3802/jgo.2014.25.2.111
15. Merlier M, Kerbage Y, Pierache A, Ramdane N, Canlorbe G, Bolze PA, et al. Impact on Prognosis of the Surgical Route, Laparoscopy or Laparotomy, for the Surgical Staging of Early Stage Ovarian Cancer-A Study from the FRANCOGYN Group. J Clin Med [Internet]. 2020 Oct 31;9(11). Available from: http://www.ncbi.nlm.nih.gov/pubmed/33142772
16. Wang Y, Yin J, Li Y, Shan Y, Gu Y, Jin Y. Laparoscopic and Laparotomic Restaging in Patients With Apparent Stage I Epithelial Ovarian Cancer: A Comparison of Surgical and Oncological Outcomes. Front Oncol [Internet]. 2022 Jun 20;12. Available from: https://www.frontiersin.org/articles/10.3389/fonc.2022.913034/full
17. Cakmak Y, Comert DK, Sozen I, Oge T. Comparison of Laparoscopy and Laparotomy in Early-Stage Endometrial Cancer: Early Experiences from a Developing Country. J Oncol [Internet]. 2020 Apr 30;2020:1–5. Available from: https://www.hindawi.com/journals/jo/2020/2157520/
18. Liu M, Li L, He Y, Peng D, Wang X, Chen W, et al. Comparison of laparoscopy and laparotomy in the surgical management of early-stage ovarian cancer. Int J Gynecol Cancer. 2014;24(2):352–7.
19. Baum S, Alkatout I, Proppe L, Kotanidis C, Rody A, Laganà AS, et al. Surgical treatment of endometrioid endometrial carcinoma - laparotomy versus laparoscopy. J

Turkish-German Gynecol Assoc [Internet]. 2022 Dec 1;23(4):233–40. Available from: https://jtgga.org/articles/doi/jtgga.galenos.2022.2021-12-2

20. Tang Q, Liu W, Jiang D, Tang J, Zhou Q, Zhang J. Perioperative and Survival Outcomes of Robotic-Assisted Surgery, Comparison with Laparoscopy and Laparotomy, for Ovarian Cancer: A Network Meta-Analysis. Hanprasertpong J, editor. J Oncol [Internet]. 2022 Apr 30;2022:1–15. Available from: https://www.hindawi.com/journals/jo/2022/2084774/
21. Kaya AC, Radosa MP, Zimmermann JSM, Stotz L, Findeklee S, Hamza A, et al. Intraoperative and postoperative complications of gynecological laparoscopic interventions: incidence and risk factors. Arch Gynecol Obstet [Internet]. 2021 Nov 21;304(5):1259–69. Available from: https://link.springer.com/10.1007/s00404-021-06192-7
22. Galaal K, Donkers H, Bryant A, Lopes AD. Laparoscopy versus laparotomy for the management of early stage endometrial cancer. Cochrane Database Syst Rev [Internet]. 2018 Oct 31;2018(10). Available from: http://doi.wiley.com/10.1002/14651858.CD006655.pub3
23. Rodriguez J, Rauh-Hain JA, Saenz J, Isla DO, Rendon Pereira GJ, Odetto D, et al. Oncological outcomes of laparoscopic radical hysterectomy versus radical abdominal hysterectomy in patients with early-stage cervical cancer: a multicenter analysis. Int J Gynecol Cancer [Internet]. 2021 Apr;31(4):504–11. Available from: https://ijgc.bmj.com/lookup/doi/10.1136/ijgc-2020-002086
24. Zhang F, Song X. Laparoscopic Versus Abdominal Radical Hysterectomy for Cervical Cancer. Am J Clin Oncol [Internet]. 2022 Nov;45(11):465–74. Available from: https://journals.lww.com/10.1097/COC.0000000000000939
25. Falcetta FS, Lawrie TA, Medeiros LR, da Rosa MI, Edelweiss MI, Stein AT, et al. Laparoscopy versus laparotomy for FIGO stage I ovarian cancer. Cochrane Database Syst Rev [Internet]. 2016 Oct 13;2022(1). Available from: http://doi.wiley.com/10.1002/14651858.CD005344.pub4