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THE SYSTEMATIC REVIEW OPEN SURGERY VS MINIMALLY INVASIVE IN HIGH RISK ENDOMETRIAL CANCER

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ABSTRACT

Background: *When treated with minimally invasive surgery (MIS), women with early-stage endometrial cancer recover more quickly from surgery than when they have open operations; nevertheless, there is no discernible difference in terms of overall survival or progression-free survival.*

Aims : *This systematic review is to review the comparison of open surgery and minimally invasive in high risk endometrial cancer*

Methods: *By comparing itself to the standards set by the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2020, this study was able to show that it met all of the requirements. So, the experts were able to make sure that the study was as up-to-date as it was possible to be. For this search approach, publications that came out between 2014 and 2024 were taken into account. Several different online reference sources, like Pubmed and SCIENCE DIRECT, were used to do this. It was decided not to take into account review pieces, works that had already been published, or works that were only half done.*

Result: *In the PubMed database, the results of our search brought up 144 articles, whereas the results of our search on SCIENCE DIRECT brought up 588 articles. The results of the search conducted for the last year of 2014 yielded a total 121 articles for PubMed and 175 articles for SCIENCE DIRECT. In the end, we compiled a total of 5 papers, 4 of which came from PubMed and 1 of which came from SCIENCE DIRECT. We included five research that met the criteria.*

Conclusion: *In summary, this systematic review of observational studies showed that the prognosis of endometrial cancer patients with high risk histology was unaffected by minimally invasive surgery and might confirm the findings of this rare but lethal malignancy.*

Keyword: *Open surgery, minimally invasive, endometrial cancer*

INTRODUCTION

In industrialized nations, endometrial cancer is the most prevalent kind of gynecologic cancer. Very few women are impacted before the age of 50, and the median age at beginning is around 70 years old. There is convincing evidence linking lifestyle variables including obesity, diabetes mellitus, late menopause, and an aging population to the increased prevalence observed throughout the Western world.[1]

For suspected early-stage endometrial cancer, treatment entails removing the uterus and conducting a bilateral salpingo-oophorectomy, either with or without lymphadenectomy. In certain situations, chemotherapy and/or radiation therapy are added depending on the projected risk of mortality or recurrence. When endometrial cancer patients undergo minimally invasive surgery (MIS), their morbidity, time to return to normal activities of daily living, number of days before returning to work, length of hospital stay, and blood loss are all decreased. This is especially true for older and overweight patients.[2,3]

With over 65,000 new cases identified each year, endometrial cancer is the most frequent gynecologic malignancy in the United States. Because of their aggressive character, endometrial carcinosarcomas cause 15% of all endometrial cancer fatalities, even though they make up fewer than 5% of all endometrial malignancies. Previously, the sarcomatous component of these tumors was the focus of treatment; however, new research has shown that the carcinomatous parts are usually responsible for tumor growth and recurrence. Furthermore, the sarcomatous element eventually gives way to the carcinomatous component in carcinosarcomas, which originate from an epithelial to mesenchymal change. Because of this, these tumors are no longer classified as uterine sarcomas but rather as high-grade endometrial tumors.[4,5]

Compared to simply carcinomatous endometrial tumors, endometrial carcinosarcomas have different behavior. Sixty percent of patients had extra-uterine illness at the time of diagnosis, and over fifty percent of cases will return even after surgery and adjuvant chemotherapy or radiation therapy. Patients with endometrial carcinosarcoma have an estimated 5-year survival rate of 33–39%.[5]

Surgery is used to surgically stage endometrial cancer, including carcinosarcoma, and involves hysterectomy, bilateral salpingo-oophorectomy, and lymph node evaluation. Due to the encouraging findings of studies like Gynecologic Oncology Group LAP2, which showed no adverse effect of the minimally invasive approach on perioperative or oncologic outcomes, laparoscopy has become the standard surgical approach for patients with early-stage uterine carcinoma or sarcoma. Less favorable oncologic results were recently reported by the LACC study for patients receiving minimally invasive surgery for cervical cancer. This has made some people reevaluate if patients with high-grade or higher-risk endometrial cancer should have minimally invasive surgery.[6]

METHODS

Protocol

By following the rules provided by Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2020, the author of this study made certain that it was up to par with the requirements. This is done to ensure that the conclusions drawn from the inquiry are accurate.

Criteria for Eligibility

For the purpose of this literature review, we review published literature contains the difference outcomes between minimally invasive surgery and open surgery in high risk endometrial cancer patients. This is done to provide an explanation and improve the handling of treatment at the patient. As the main purpose of this paper, to show the relevance of the difficulties that have been identified as a whole.

In order for researchers to take part in the study, it was necessary for them to fulfil the following requirements: 1) The paper needs to be written in English. In order for the manuscript to be considered for publication, it needs to meet both of these requirements. 2) The studied papers include several that were published after 2013, but before the time period that this systematic review deems to be relevant. Examples of studies that are not permitted include editorials, submissions that do not have a DOI, review articles that have already been published, and entries that are essentially identical to journal papers that have already been published.

Search Strategy

Weused"ninimallyinvasivesurgery”,“opensurgery”and “endometrial cancer” as keywords.The search for studies to be included in the systematic review was carried out using the PubMed and SCIENCE DIRECT databases by inputting the words: *("open"[All Fields] AND ("surgery"[MeSH Subheading] OR "surgery"[All Fields] OR "surgical procedures, operative"[MeSH Terms] OR ("surgical"[All Fields] AND "procedures"[All Fields] AND "operative"[All Fields]) OR "operative surgical procedures"[All Fields] OR "general surgery"[MeSH Terms] OR ("general"[All Fields] AND "surgery"[All Fields]) OR "general surgery"[All Fields] OR "surgery s"[All Fields] OR "surgerys"[All Fields] OR "surgeries"[All Fields]) AND ("minimally"[All Fields] AND ("invasibility"[All Fields] OR "invasible"[All Fields] OR "invasion"[All Fields] OR "invasions"[All Fields] OR "invasive"[All Fields] OR "invasively"[All Fields] OR*

"invasiveness"[All Fields] OR "invasives"[All Fields] OR "invasivity"[All Fields])) AND ("endometrial neoplasms"[MeSH Terms] OR ("endometrial"[All Fields] AND "neoplasms"[All Fields]) OR "endometrial neoplasms"[All Fields] OR ("endometrial"[All Fields] AND "cancer"[All Fields]) OR "endometrial cancer"[All Fields])) AND ((clinicaltrial[Filter]) AND (2014:2024[pdat])) used in searching the literature.

Data retrieval

After reading the abstract and the title of each study, the writers performed an examination to determine whether or not the study satisfied the inclusion criteria. The writers then decided which previous research they wanted to utilise as sources for their article and selected those studies. After looking at a number of different research, which all seemed to point to the same trend, this conclusion was drawn. All submissions need to be written in English and can't have been seen anywhere else.

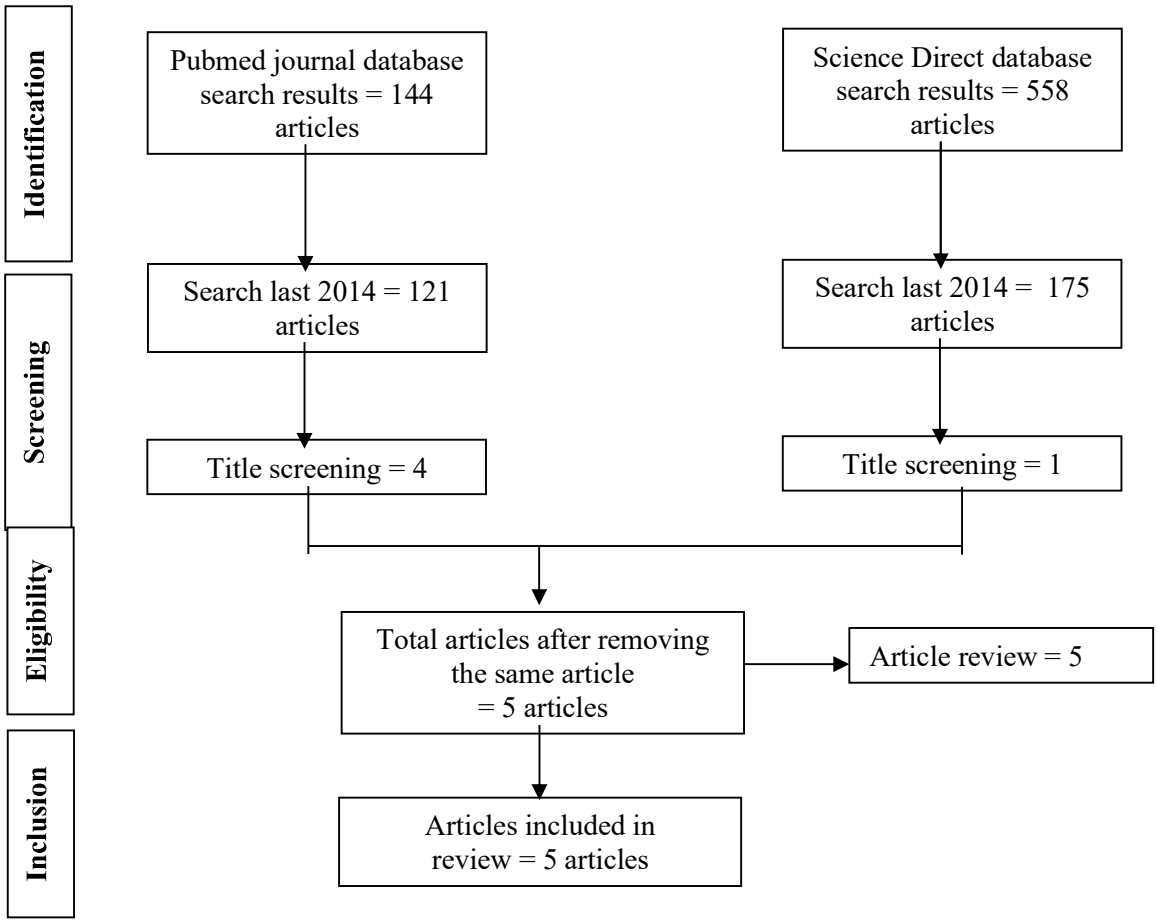

Figure 1. Article search flowchart

Only those papers that were able to satisfy all of the inclusion criteria were taken into consideration for the systematic review. This reduces the number of results to only those that are pertinent to the search. We do not take into consideration the conclusions of any study that does not satisfy our requirements. After this, the findings of the research will be analysed in great detail. The following pieces of information were uncovered as a result of the inquiry that was carried out for the purpose of this study: names, authors, publication dates, location, study activities, and parameters.

Quality Assessment and Data Synthesis

Each author did their own study on the research that was included in the publication's title and abstract before making a decision about which publications to explore further. The next step will be to evaluate all of the articles that are suitable for inclusion in the review because they match the criteria set forth for that purpose in the review. After that, we'll determine which articles to include in the review depending on the findings that we've uncovered. This criteria is utilised in the process of selecting papers for further assessment. in order to simplify the process as much as feasible when selecting papers to evaluate. Which earlier investigations were carried out, and what elements of those studies made it appropriate to include them in the review, are being discussed here.

RESULT

In the PubMed database, the results of our search brought up 144 articles, whereas the results of our search on SCIENCE DIRECT brought up 588 articles. The results of the search conducted for the last year of 2014 yielded a total 121 articles for PubMed and 175 articles for SCIENCE DIRECT. In the end, we compiled a total of 5 papers, 4 of which came from PubMed and 1 of which came from SCIENCE DIRECT. We included five research that met the criteria.

Odetto, et al[7] (2023) showed that in patients with high-risk endometrial cancer, there was no difference in oncologic outcomes or postoperative complications between minimally invasive and open surgery.

Janda, et al[8] (2017) showed that when comparing complete abdominal hysterectomy to total laparoscopic hysterectomy for women with stage I endometrial cancer, there was no difference in overall survival at 4.5 years and a comparable disease-free survival rate. The use of laparoscopic hysterectomy for women with stage I endometrial cancer is supported by these data.

Fader, et al[9] (2014) showed that comparing women with high grade endometrial malignancies staged by minimally invasive procedures to those staged by laparotomy, the former had fewer problems and comparable survival rates. Minimizing surgical morbidity is of significance because the majority of this senior group will undergo adjuvant therapy. In women with apparent early-stage illness, a high-risk histologic subtype does not exclude minimally invasive surgery when performed by skilled laparoscopists or robotic surgeons.

Table 1. The litelature include in this study

Author	Origin	Method	Sample	Result
Odetto et al, 2023[7]	Argentina	Retrospective cohort study	343 patients	There are 214 (62%) and 129 (38%) of the 343 eligible patients had open surgery and laparoscopic surgery, respectively. Regarding higher or equivalent grade III Clavien-Dindo postoperative complications (11 percent in the open surgery group vs. 9 percent in the minimally invasive surgery group; P = 0.34), no discernible changes were seen between the two groups. Even after building a Cox proportional model (hazard ratio [HR] 1.08 95% CI 0.63–1.84); (p = 0.76), minimally invasive surgery was not linked with lower disease-free survival at four years (79.14 % [95 % CI 69.42– 86.08] versus 78.80 % [95 % CI 70.61–84.96]); (p = 0.25).
Janda et al, 2017[8]	Australia	Randomized cohort study	760 patients	The median duration of the patient follow-up was 4.5 years. 679 (89%) of the 760 patients (mean age, 63 years) who were randomly assigned to the experiment finished it. Disease-free survival at 4.5 years of follow-up was 81.3% in the TAH group and 81.6% in the TLH group. The difference in the disease-free survival rate was 0.3% (in favor of TLH; 95% CI, −5.5% to 6.1%; P =.007), satisfying the equivalency criterion. In terms of endometrial cancer recurrence (28/353 in the TAH

				group [7.9%] vs 33/407 in the TLH group [8.1%]; risk difference, 0.2% [95% CI, −3.7% to 4.0%]; P =.93) and overall survival (24/353 in the TAH group [6.8%] vs 30/407 in the TLH group [7.4%]; risk difference, 0.6% [95% CI, −3.0% to 4.2%]; P =.76) there was no statistically significant difference between the groups.
Fader et al, 2014[9]	USA	Randomized cohort study	383 patients	Among the 383 patients who fulfilled the requirements, 191 had a laparotomy and 192 had MIS (65% robotic, 35% laparoscopy). The age (mean 66 years), stage, body mass index, histology, and adjuvant therapy of the subgroups were all well matched. In the MIS group, the median operational time was greater (191 vs. 135 min; p<.001). On the other hand, the MIS cohort experienced a considerably lower rate of complications (8.4% vs. 31.3%; p<.001), a shorter hospital stay (1 vs. 4 days), and a higher mean lymph node count (39.0 vs. 34.0; p=.03). Regarding the number of lymph nodes, there was no discernible difference between robotic and laparoscopic staging. Progression-free (PFS) and overall survival did not differ statistically across the surgery cohorts at a median follow-up period of 44 months. According to multivariable analysis, PFS was correlated with stage and therapy.
Segarra-Vidal et al, 2021[10]	Spain	Randomized cohort study	626 patients	Out of the 626 patients who met the eligibility criteria, 263 (42%) had minimally invasive surgery, and 363 (58%) had open surgery. There were no changes in the disease-free survival rates between minimally invasive surgery (54.6% [95% CI 46.6-61.8]) and open surgery (53.4% [95% CI 45.6-60.5%]) at 5 years in the matched cohort (P=.82). When comparing minimally invasive surgery to open surgery, there was no difference in disease-free survival (hazard ratio [HR] 0.85, 95% CI 0.63-1.16; P=.30), overall survival (HR

				1.04, 95% CI 0.73-1.48, P=.81), or recurrence rate (HR 0.99; 95% CI 0.69-1.44; P=.99). Poorer disease-free survival (HR 1.01, 95% CI 0.65-1.58, P=.96), overall survival (HR 1.18, 95% CI 0.71-1.96, P=.53), or recurrence rate (HR 1.12, 95% CI 0.67-1.87; P=.66) were not linked to the use of uterine manipulators.
Borgfeldt et al, 2021[11]	Swedish	Retrospective study	7.275 patients	While in the multivariable analysis, surgical approach (MIS vs. open surgery) was not associated with overall survival after adjusting for known risk factors (HR 1.12, 95% CI 0.95–1.32), open surgery was associated in the univariable analysis with worse overall survival compared with MIS hazard ratio, HR, 1.39 (95% CI 1.18–1.63). Independent risk variables for overall survival were higher FIGO stage, non-endometrioid histology, non-diploid malignancies, lymphovascular space invasion, and advancing age.

Segarra-Vidal, et al[10] (2021) showed that when patients with high-risk endometrial cancer underwent open surgery or minimally invasive surgery, the oncologic results were the same.

Borgfeldt, et al[11] (2021) showed that when known predictive risk variables were included into the multivariable analysis, the minimally invasive or open surgical method had no effect on survival for patients with endometrial cancer stages I–III.

DISCUSSION

The literature on gynecologic oncology has extensive documentation of the advantages of minimally invasive surgery. The rates of minimally invasive surgery for endometrial cancer at high-volume National Comprehensive Cancer Network centers were assessed by Bergstrom et al. They came to the conclusion that these centers did not exhibit the age, race, or body mass index disparities seen in studies based on national databases, and that their rates of minimally invasive surgery were higher than the national average while also having low perioperative complications.[12]

Walker et al. showed in the seminal LAP2 research that minimally invasive surgery for endometrial cancer is safe and feasible without compromising the patients' oncologic prognosis. These patients saw reduced rates of complications, intraoperative injuries, and compromised survival, along with faster recovery times and shorter hospital stays. If we are to believe that the patients with uterine carcinosarcoma were the "sarcomas" in the cohort, then despite being qualified for LAP2, they made up just 1.6% of the trial population. The authors were unable to provide detailed commentary on minimally invasive surgery in carcinosarcoma and its impact on perioperative or oncologic outcomes in this high-grade histology due to the small number of patients in this category. Carcinosarcomas were not included in the LACE experiment.[5,8]

The groundbreaking LAP-2 research shown that MIS is oncologic safe for individuals with endometrial cancer. The progression-free and overall survival of LAP2 patients with uterine serous, clear-cell carcinosarcoma and Grade III endometrial adenocarcinoma did not differ between the MIS and open surgical approaches, according to a post hoc study. In comparison to open surgery, MIS was linked to better perioperative outcomes and comparable oncologic results in the broadest systematic study that has been published to date.[13,14]

There are racial and socioeconomic differences in the surgical care of endometrial cancer patients. The literature has widely documented the healthcare inequalities associated with endometrial cancer, which can be attributed to a variety of variables. These include differences in biology, genetics, social status, cultural factors that impact the way people seek healthcare, unconscious prejudices in healthcare systems, and uneven access to clinical trials and high-quality treatment.[15]

CONCLUSION

In summary, this systematic review of observational studies showed that the prognosis of endometrial cancer patients with high risk histology was unaffected by minimally invasive surgery and might confirm the findings of this rare but lethal malignancy.

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