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ORIGINAL ARTICLE

Comparative Study Between Radical Hysterectomy With or Without Pelvic Lymphadenectomy for Stage II Endometrial Carcinoma

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Abstract

Background: **The removal of the uterus by surgical procedures is the standard treatment for endometrial cancer, which is the most common type of malignant gynecological tumor. Surgery for early-stage endometrial cancer often involves a total abdominal hysterectomy and bilateral salpingo-oophorectomy, with or without bilateral pelvic/para-aortic lymphadenectomy. In some cases, the patient may also have bilateral pelvic lymphadenectomy.**

Aim and objectives: **The objective of the study is to evaluate the efficacy of radical hysterectomy with or without pelvic lymphadenectomy in the treatment of stage II endometrial cancer. Both approaches were examined in terms of the adverse effects they produced, as well as their success and relapse rates.**

Patients and methods: **A total of 40 patients undergoing radical hysterectomy for stage II endometrial cancer at Al-Azhar University Hospitals were included in this prospective study.**

Result: **In terms of age, parity, and BMI, neither group differed significantly from the other (P value > 0.05). At a 12-month follow-up, women whose treatment included pelvic lymphadenectomy had a significantly higher rate of recurrence and a significantly poorer survival rate than those whose treatment did not. However, at 12 months of follow-up, there was no statistically significant difference among women who had pelvic lymphadenectomy and those who did not ($P > 0.05$) in terms of complications.**

Conclusion: **At 12 months follow-up, women who had a pelvic lymphadenectomy had a significantly higher rate of recurrence and a significantly lower survival rate than women who did not.**

Keywords: Pelvic lymphadenectomy, Radical hysterectomy, Stage II endometrial carcinoma

1. Introduction

In the West, endometrial cancer outnumbers all other types of gynecological cancer combined. roughly 47,000 new cases are identified each year in the US, with roughly 8000 fatalities. Postmenopausal bleeding is the most prevalent presenting symptom, occurring in 90% of cases, and is defined as any bleeding, including minor spotting, in a woman whose last known menstrual cycle was at least 12 months before the commencement of current bleeding. Postmenopausal bleeding is linked with an increased risk of endometrial cancer in about 10% of women.[1]

However, advances in laparoscopic surgery have made it a viable alternative to laparotomy for the treatment of early-stage endometrial cancer. Previous research comparing laparoscopic surgery to laparotomy has consistently demonstrated the benefits of the former procedure, including fewer complications, less blood loss, less pain and a speedier recovery time.[2]

Wertheim's radical hysterectomy is the standard of care for Stage II endometrial cancer. D and C are used in the diagnostic process.[3]

Women who have surgical stage II endometrial cancer and either have radical abdominal

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hysterectomy or total abdominal hysterectomy followed by pelvic and vaginal cuff irradiation have a good chance of surviving the disease.[4]

Many patients with endometrial cancer still have lymphadenectomy as their primary treatment, despite the availability of sentinel lymph node navigation. Lymphedema and lymphocele are long-term consequences that are still common after a complete nodal dissection. Since it is sometimes challenging to avoid risk factors connected to the development of these postoperative problems, the technique to determine lymph nodal status in these females must be individualized to achieve the best possible oncological and functional outcome.[5]

Amato and colleagues found that individuals in the low-risk group who underwent conventional surgery had a favorable prognosis. Standard surgery plus lymphadenectomy was superior to standard surgery plus adjuvant radiation for the high-risk group in terms of cancer-related survival and recurrence-free survival. In terms of relapse-free survival (RFS), cancer differentiation status is the most important prognostic indicator.[6]

The study aimed to determine whether or not stage II endometrial cancer patients fared better after undergoing radical hysterectomy with or without pelvic lymphadenectomy. The outcomes of both treatments will be compared, including any adverse effects and how often the condition returns.

2. Patients and methods

A total of 40 patients undergoing radical hysterectomy for stage II endometrial cancer at Al-Azhar University Hospitals were included in this prospective study.

2.1. Inclusion criteria

All cases with stage II endometrial cancer.

2.2. Exclusion criteria

Patient refusal.

2.3. Methods

Cases were subjected to the following: a comprehensive history taking, examination (general examination, abdominal examination, local clinical examination, vulvar examination, vaginal examination, and bimanual examination), and laboratory investigation (laboratory, radiological, endometrial biopsy, and dilation and curettage (D and C)).

2.4. Procedure

Both groups underwent radical hysterectomy, bilateral salpingo-oophorectomy, and pelvic lymphadenectomy ($n = 20$ for each group). Previous reports were evaluated and compared with the surgical outcomes, Median intraoperative blood loss and operation time were calculated, Visceral damage, blood transfusion required, etc. There were difficulties during the operation and afterward for every patient. Previous reports of hysterectomy were compared with our study's data on blood loss and complication rates.

2.5. Surgical technique

The patient is positioned supine, and preparations are made to the abdomen and vagina. Patients often have a foley catheter inserted into their bladder and SCDs strapped to both of their lower limbs. Three centimeters above the umbilicus, a vertical midline incision is created that extends inferiorly to the pubic symphysis.

2.6. Ethical consideration

The oncosurgery division at Al-Azhar University Hospitals has submitted the study protocol to the Institutional Review Board for approval. The Al-Azhar University School of Medicine's Ethical Committee gave their stamp of approval. Each person who took part in the study had already given their informed, written consent. Privacy and confidentiality were maintained throughout the whole study process.

2.7. Data management and statistical analysis

Microsoft Excel was used to code, process, and analyze data gathered from a cases's medical history, physical examination, laboratory tests, and outcome measurements. The information was then loaded into SPSS 20.0 (Statistical Package for the Social Sciences) for further analysis. Statistical significance was tested using either Pearson's or Spearman's correlation coefficients, depending on whether the data was presented as qualitative (represented as numbers and percentages) or quantitative (continuous groups represented by means±standard deviations). The thresholds for statistical significance ($P < 0.05$) and high significance ($P < 0.001$) were established as follows.

3. Results

In terms of age, parity and BMI, neither group differed significantly from the other (P value > 0.05) (Table 1).

When comparing hematological and biochemical data, neither group differed significantly from the other ($P > 0.05$) (Table 2).

This table showed statistically significant higher amount of blood loss and longer duration of operation in females underwent pelvic lymphadenectomy than those who did not have pelvic lymphadenectomy ($P < 0.05$). Despite of higher rate of need for blood transfusion in females underwent pelvic lymphadenectomy than those who did not have pelvic lymphadenectomy but the difference among both groups was statistically insignificant ($P > 0.05$) (Table 3).

In terms of complications, recurrence and survival at 1 month follow-up, there was no statistically significant difference among women who underwent pelvic lymphadenectomy and those who did not ($P > 0.05$) in the table above (Table 4).

Table 1. Comparison of clinical data among the studied groups.

	No pelvic lymphadenectomy ($N = 20$)		Pelvic lymphadenectomy ($N = 20$)		*Independent student t-test/chi square test*	
	Mean	SD	Mean	SD	t	*P* value
Age, years	57.95	5.35	58.15	6.00	−0.111	0.912
BMI	27.55	2.52	28.55	2.39	−1.286	0.206
Parity	4.10	1.65	4.25	1.52	−0.299	0.766
Parity	*N* (%)		*N* (%)		χ^2	*P* value
2	2 (10%)		2 (10%)		2.628	0.854
3	7 (35%)		4 (20%)			
4	5 (25%)		7 (35%)			
5	3 (15%)		4 (20%)			
≥6	3 (15%)		3 (15%)			

Table 2. Comparison of laboratory data among the studied groups.

	No pelvic lymphadenectomy ($N = 20$)		Pelvic lymphadenectomy ($N = 20$)		*Independent student t-test*	
	Mean	SD	Mean	SD	t	*P* value
HB	11.29	1.01	11.01	0.47	1.143	0.26
HCT	31.87	3.04	31.47	3.07	0.42	0.677
WBCs	7.91	0.49	8.01	0.58	−0.559	0.58
Plat	281.45	25.90	285.00	29.24	−0.406	0.687
RBG	78.75	5.35	80.25	5.49	−0.875	0.387
TG	67.00	4.46	67.45	4.73	−0.31	0.759
Cholesterol	111.75	9.36	111.00	9.12	0.257	0.799
PT	24.90	2.36	25.15	2.48	−0.327	0.746
PTT	33.40	2.36	33.65	2.48	−0.327	0.746
INR	1.29	0.24	1.29	0.23	−0.067	0.947
Urea	27.27	0.21	27.32	0.23	−0.642	0.525
Creat	0.93	0.20	0.87	0.18	1.001	0.323
AST	18.60	4.06	17.70	3.26	0.773	0.444
ALT	15.50	3.93	14.50	3.22	0.881	0.384

ALT, alanine transaminase; AST, aspartate aminotransferase; HCT, hematocrit test; INR, international normalised ratio; PT, prothrombin time; PTT, partial thromboplastin time.

Table 3. Comparison of operative data among the studied groups.

	No pelvic lymphadenectomy ($N = 20$)		Pelvic lymphadenectomy ($N = 20$)		Mann–Whitney *U* test/ independent student *t*-test	
	Mean	SD	Mean	SD	z/t	*P* value
Amount of blood loss	730.00	335.71	1475.00	1561.91	−2.086	0.044
Operation duration	80.50	21.33	100.75	13.60	−3.58	0.001
Need for blood transfusion	*N* (%)		*N* (%)		Chi square test	
					χ^2	*P*-value
Yes	17 (85%)		13 (65%)		2.133	0.144
No	3 (15%)		7 (35%			

Table 4. Follow-up after 1 month among the studied groups.

	No pelvic lymphadenectomy ($N = 20$)	Pelvic lymphadenectomy ($N = 20$)	Chi square test	
			χ^2	P value
Recurrence	N (%)	N (%)		
No	20 (100%)	19 (95%)	1.026	0.311
Yes	0	1 (5%)		
Complications				
Paralytic illues	0	1 (5%)	1.500	0.472
UB injury	0	1 (5%)		
Wound Infection	2 (10%)	2 (10%)		
Number of Complications				
Yes	18 (90%)	16 (80%)	0.784	0.376
No	2 (10%)	4 (20%)		
Survival				
Yes	20 (100%)	19 (95%)	1.026	0.311
No	0	1 (5%)		

Table 5. Follow-up after 6 month among the studied groups.

	No pelvic lymphadenectomy ($N = 20$)	Pelvic lymphadenectomy ($N = 20$)	Chi square test	
			χ^2	P value
Recurrence	N (%)	N (%)		
No	20 (100%)	17 (85%)	3.243	0.072
Yes	0	3 (15%)		
Complications				
Urinary fistula	0	1 (5%)	–	–
Incisional hernia	0	2 (10%)		
Number of Complications				
Yes	20 (100%)	17 (85%)	3.243	0.072
No	0	3 (15%)		
Survival				
Yes	20 (100%)	18 (90%)	2.105	0.147
No	0	2 (10%)		

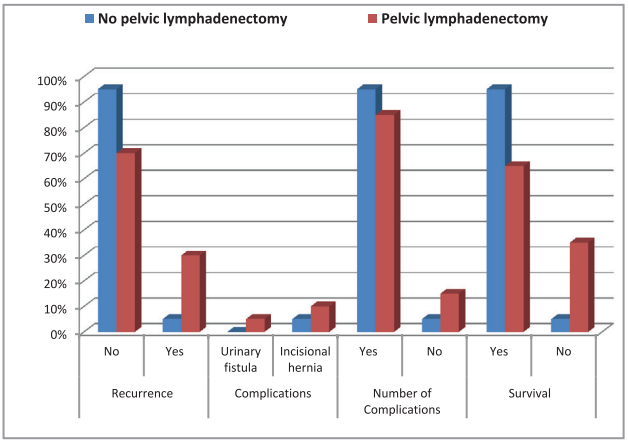

Fig. 1. Follow-up at 12 month of the studied groups.

This table showed no statistically significant difference among females underwent pelvic lymphadenectomy than those who did not have pelvic lymphadenectomy as regard complications, recurrence and survival at 6 month follow-up ($P > 0.05$) (Fig. 1, Table 5).

4. Discussion

In industrialized nations, endometrial cancer accounts for more than half of all cases of gynecological cancer. There will likely be 65,950 new cases of endometrial cancer diagnosed in the US in 2022, with 12,550 fatalities attributable to the disease. Endometrial cancer is growing in frequency, which is intriguing. Over the past decade, the number of new instances of endometrial cancer has risen by an estimated 40%.[7]

4.1. The main results of this study were

Regarding demographic and basic data of the studied group; their age ranged between 50 and 69 years with mean value of 58.05 ± 5.61years and their BMI ranged between 22 and 31 with mean value of 28.05 ± 4.18. Parity in most of them 62.5% was greater than or equal to 4. When comparing the groups with and without lymphadenectomy, there were no statistically significant differences in age, parity, or BMI ($P > 0.05$).

Panici and colleagues study confirms our findings; they followed 514 patients who met the criteria for pelvic systematic lymphadenectomy ($n = 264$) or no lymphadenectomy ($n = 250$) preoperatively for endometrial carcinoma diagnosed in accordance with the International Federation of Gynecology and Obstetrics. When comparing the two groups statistically, we found no differences in age, parity, or BMI.[8]

Patients in the study by M. Abuhelwa and colleagues ranged in age from 46 to 75 years old, and their mean BMI was 33.1 kg/m^2±4.9.7.6% werenulliparous, 3.8% were primiparous, and 84.6% were multiparous.[9]

The present study found no statistically significant differences in hematological or biochemical parameters among the two groups ($P > 0.05$). There was statistically significant higher amount of blood loss and longer duration of operation in females underwent pelvic lymphadenectomy than those who did not have pelvic lymphadenectomy ($P < 0.05$). Despite of higher rate of need for blood transfusion in females underwent pelvic lymphadenectomy than those who did not have pelvic lymphadenectomy but the difference among both groups was statistically insignificant ($P > 0.05$).

In keeping with our results, study of Panici and colleagues as they revealed that there was statistically significant longer duration of operation in females underwent pelvic lymphadenectomy than those who did not have pelvic lymphadenectomy.[8]

Operating times in the study by Kitagawa and colleagues ranged from 99 to 504 min and intraoperative blood loss averaged 150 ml (0–680 ml). The median operative time in their study was 204 min, significantly greater than the 75–204 min seen in prior studies.[10]

The probability of lymphatic metastasis is reduced by doing a lymphadenectomy, which is a common procedure performed to determine if endometrial cancer has spread. In most cases, around 11 lymph nodes are taken out during a non-systematic lymphadenectomy. However, doctors frequently resort to systematic lymphadenectomy in an effort to cure and prevent metastases. This procedure entails the removal of 11 or more lymph nodes from the same region as a nonsystematic lymphadenectomy. Patients who undergo systematic lymphadenectomy have considerably diminished lymph function after surgery compared with those who undergo nonsystematic lymphadenectomy, raising the risk of complications.[11]

Lymph node excision may have various benefits in theory. Patients with confirmed lymphatic spread may be more easily identified with comprehensive surgical staging, allowing for more precise postoperative treatment and potentially less morbidity from needless radiation. Lymph node dissection has the potential to completely remove metastatic lymphatic illness.[12]

At the 1-month follow-up point, we discovered that there were no statistically significant differences among the groups of women who had or had not undergone pelvic lymphadenectomy in terms of morbidity, recurrence, or survival. This was the case regardless of whether or not the women had undergone pelvic lymphadenectomy. There was no statistically significant difference between the women who got pelvic lymphadenectomy and those who did not ($P > 0.05$) in terms of complications, recurrence, or survival at the 6-month follow-up for the study. At a follow-up period of 12 months, researchers found that women who had a pelvic lymphadenectomy had a significantly greater rate of recurrence and a much worse survival rate than women who had not undergone this surgical procedure. However, after a year of follow-up, there was no statistically significant difference in the incidence of problems between women who had pelvic lymphadenectomy and those who did not ($P > 0.05$).

Patients who had undergone pelvic systematic lymphadenectomy were more likely to encounter postoperative issues, both early and late (81 patients in the lymphadenectomy arm versus 34 patients in the no-lymphadenectomy arm, $P = 0.003$). Patients in the no-lymphadenectomy arm had a lower risk of experiencing postoperative complications. A significantly larger percentage of patients with lymph node metastases were found in the pelvic systematic lymphadenectomy group compared with the no-lymphadenectomy group (13.3% vs. 3.2%, difference = 10.1%, 95% CI = 5.3%–14.9%, $P < 0.001$) than in the group of patients who did not have lymphadenectomy. The median amount of time spent following up with patients was 49 months; by that point, 78 occurrences (recurrences or deaths) had been reported, and 53 people had already passed away. Before accounting for any confounding factors, there was no significant difference between the two groups in terms of the risk of a first event or the chance of dying [hazard ratio (HR) for first event = 1.10, 95% confidence interval (CI) = 0.70 to 1.71, $P = 0.68$; HR for death = 1.20, 95% CI = 0.70 to 2.07, $P = 0.50$). A study that included all patients showed that those who underwent lymphadenectomy had overall survival rates of 81% and disease-free survival rates of 85.9% at 5 years, while those who did not have lymphadenectomy had survival rates of 90% and overall survival rates of 81% at the same time.[8]

In addition, the overall rates of serious complications were comparable between groups, as reported

by Bogani and colleagues (0.7% in the hysterectomy group and 1.3% in the hysterectomy with SNM group; $P = 0.561$). There were no complications related to the lymphatic system. Disease-carrying lymph nodes were found in 12.6% of SNM cases overall. Both groups had a similar rate of administering adjuvant therapy. Only 4% of patients with SNM got adjuvant therapy based only on nodal status; the remaining 96% received treatment based on both nodal and uterine risk factors. There was no correlation between surgical method and either disease-free or overall survival at 5 years ($P = 0.720$ and $P = 0.632$, respectively).[12]

In addition, Polan *et al*. reported 3282 endometrial cancer patients who underwent total laparoscopic hysterectomy. These patients were treated with the procedure. 1089 (33.2% of the total) had standard lymphadenectomy conducted, and 144 (4.4%) had sentinel lymphadenectomy performed. Of these, 2049 (62.4% of the total) did not have lymphadenectomy performed at all. The rate of significant problems was found to be highest (3.6% for conventional lymphadenectomy, 2.0% for sentinel lymphadenectomy, and 2% for not performing any lymphadenectomy at all; $P = 0.03$). Patients who underwent standard lymphadenectomy were nearly twice as likely to encounter a major complication or be readmitted as those who underwent sentinel lymphadenectomy or no lymphadenectomy [adjusted odds ratio (aOR) 1.8; 95% CI 1.2–2.9). Patients who underwent sentinel lymphadenectomy or no lymphadenectomy did not have an increased risk of being readmitted. After a normal lymphadenectomy, the readmission rate was 4.6%, while it was 1.4% after a sentinel lymphadenectomy, and it was 2.2% after no lymphadenectomy at all. ($P < 0.001$).[13]

The present study had some limitations. The relatively small sample size is the main limitation. Also, it is a single center study is another limitation.

4.2. Conclusion

At the 12-month follow-up point, there was a statistically significant greater rate of recurrence and a lower survival rate in females who had pelvic lymphadenectomy in comparison to those who did not have pelvic lymphadenectomy.

Conflicts of interest

There are no conflicts of interest.

References

1. Ware RA, van Nagell JR. Radical hysterectomy with pelvic lymphadenectomy: indications, technique, and complications. *Obstet Gynecol Int*. 2010;2010:1–9. Article ID 587610.
2. Mourits MJ, Bijen CB, Arts HJ, et al. Safety of laparoscopy versus laparotomy in early-stage endometrial cancer: a randomised trial. *Lancet Oncol*. 2010;11:763–771.
3. Pete I, Godeny M, Toth E, Rado J, Pete B, Pulay T. Prediction of cervical infiltration in Stage II endometrial cancer by different preoperative evaluation techniques (D&C, US, CT, MRI). *Eur J Gynaecol Oncol*. 2003;24:517–522.
4. Eltabbakh GH, Moore AD. Survival of women with surgical stage II endometrial cancer. *Gynecol Oncol*. 1999;74:80–85.
5. Volpi L, Sozzi G, Capozzi VA, et al. Long term complications following pelvic and para-aortic lymphadenectomy for endometrial cancer, incidence and potential risk factors: a single institution experience. *Int J Gynecol Cancer*. 2019;29:2.
6. Amato NA, Partipilo V, Mele F, Boscia F, De Marzo P. [Pelvic lymphadenectomy as an alternative to adjuvant radiotherapy in early stage endometrial cancer at high risk of recurrent lymphatic metastases (stage I)]. *Minerva Ginecol*. 2009;61, 11-11.
7. Léon-Castillo A. Update in the molecular classification of endometrial carcinoma. *Int J Gynecol Cancer*. 2023;33:3.
8. Panici PB, Basile S, Maneschi F, et al. Systematic pelvic lymphadenectomy vs no lymphadenectomy in early-stage endometrial carcinoma: randomized clinical trial. *JNCI: J Nat Cancer Inst*. 2008;100:1707–1716.
9. M M Abuhelwa, M M Gebril, M M Labib. Role of pelvic lymphadenectomy in cases of grade cases of grade 1 endometrial cancer. Al-Azhar Med J.
10. Kitagawa M, Katayama K, Furuno A, et al. Safety of total laparoscopic modified radical hysterectomy with or without lymphadenectomy for endometrial cancer. *Gynecol Minim Invasive Ther*. 2017;6:6–11.
11. Zhang H, Jia L, Zhang Q, Zhang Y, Yang X, Kong B. Therapeutic role of systematic retroperitoneal lymphadenectomy in endometrial cancer. *Bull Cancer*. 2012;99:E10–E17.
12. Bogani G, Casarin J, Maggiore UL, et al. Survival outcomes in endometrial cancer patients having lymphadenectomy, sentinel node mapping followed by lymphadectomy and sentinel node mapping alone: long-term results of a propensity-matched analysis. *Gynecol Oncol*. 2020;158:77–83.
13. Polan RM, Rossi EC, Barber EL. Extent of lymphadenectomy and postoperative major complications among women with endometrial cancer treated with minimally invasive surgery. *Am J Obstet Gynecol*. 2019;220:263-e1.