THE ROLE OF STAGING LAPAROTOMY IN GRADING GYNECOLOGICAL MALIGNANCIES

Soma Tahir Abdulla [a], Tahir Abdulla Hussein [a], and Maryam Bakir Mahmood [b]

Submitted: 27/5/2022; Accepted: 21/10/2022; Published: 21/12/2022

ABSTRACT

Background

Staging laparotomy can provide optimal care for gynecological malignancies by avoiding over treatment and under treatment.

Objectives

The aim was to explore the difference between surgical and clinical disease staging of gynecological malignancies.

Patients and Methods

A retrospective observational study was performed on 30 women who were operated on for gynecological malignancies and were admitted to the Sulaimani Maternity Teaching Hospital from January 2019 to December 2020. Inclusion criteria included women diagnosed with gynecological malignancies before staging laparotomy. However, exclusion criteria included previous abdominal surgeries for other gynecological malignancies. In addition, demographic features, previous diagnostic methods, and intraoperative staging were recorded.

Results

The mean±SD (standard deviation) age was 51.8±14.9 years (range, 12 to 72), and the majority (56.7%) was between 50-69 years. The mean±SD of patients' gravida and para were 4.5±3.5 (range, 0-12) and 3.4±2.8 (range, 0-8), respectively. In addition, 20% of women had a personal history (13.3%) of tumors or familial history (6.7%)—most women (50%) presented with abnormal vaginal bleeding, either postmenopausal or menstrual abnormalities. Most women with endometrial tumors (50%) had been afflicted with adenocarcinoma (endometrioid type); however, the most common types of ovarian tumors were granulosa cell tumor, papillary serous adenocarcinoma, and malignant ovarian dysgerminoma in 10%, 10%, and 6.7%, respectively. The association between clinical staging and staging laparotomy was significant. There was a 60% upgrade from a lower stage to a higher stage; however, downgrading was only 3.3%.

Conclusion

The current study showed a significant association between clinical staging and staging laparotomy of gynecological malignancies.

Keywords: *Endometrial cancer; Gynecological cancer; Grading; Ovarian cancer; Sulaimani.*

[a] Sulaimani Maternity Teaching Hospital, Sulaimani, Kurdistan Region, Iraq.
Correspondence: somatahir52@gmail.com
[b] Sulaimani Maternity Teaching Hospital, College of Medicine, University of Sulaimani, Kurdistan Region, Iraq.

https://doi.org/10.17656/jsmc.10377

INTRODUCTION

The common gynecological cancer is endometrial cancer, which accounts for 6% of all female cancers [1]. It is considered an ongoing future problem because of the aging and obesity epidemic heralded [1]. Further, the common presenting feature in women is postmenopausal bleeding, and stage I of the disease has an excellent prognosis; the 5-year survival rate of stage I is 97.4% [2]. Therefore, to provide optimal care to females with endometrial cancer, it is essential to avoid overtreatments by surgery, chemotherapy, and radiotherapy or undertreatment of not treating a woman with occult lymph node involvements [2].

Also ovarian cancer is another gynecological cancer. A lifetime possibility of being afflicted with it is one out of 59 [3]. Globally, 200000 women are diagnosed with ovarian cancer annually, and 70% are at an advanced stage of the disease [4]. Further, the prognosis of ovarian cancer's early stages (stages I and II) is also good; a 5-year survival rate is 80-90% (. Thus, it is also essential to precisely classify the stage of the disease to avoid overtreatment or undertreatment [5].

The International Federation of Gynecology and Obstetrics (FIGO) system changed the perspective of gynecological cancer classification from a clinical to a surgical staging system in 1988 [6]. Since the FIGO recommendation, many debates have been made to arrange an internationally accepted classification method [6]. Further, staging laparotomy is making a midline vertical abdominal incision followed by immediate peritoneal washing from the pelvis and abdomen, then careful exploration of content organs of the abdomen [6]. Besides, omentum, cul-de-sac, and adnexa are explored, and palpation and sometimes biopsies of enlarged or suspicious pelvic and aortic lymph nodes are undertaken. Also, the standard staging laparotomy procedure must do extra-fascial total hysterectomy plus bilateral salpingo-oophorectomy, and removal of adnexa is usually recommended, although it may appear normal [6].

Therefore, in the current study, we aimed to examine the difference between surgical and clinical disease extent of gynecological malignancies, especially endometrial and ovarian cancers. Staging laparotomy has a great role in decreasing morbidity and mortality of the patients, as before this technique, most patients were exposed to multiple operations after the cancer diagnosis. However, some of the patients were incidentally diagnosed as asymptomatic as they were referred by other doctors when doing ultrasound scans for other reasons like renal stones and were satisfied to do the operation after proper counseling about the options they had .previous laparotomy was excluded if done. The same reason is to know exactly the precise of this study for the staging .appendicectomy is done in mucinous ovarian cancer as sometimes it can be secondary to other organs like the GIT system. If the patients have pulmonary metastasis from the pre-operative assessments, usually neoadjuvant chemotherapy is given to ovarian cancer patients then the operation is done. Furthermore, the patients will be exposed to hormonal or radiotherapy in endometrial cancer.

PATIENTS AND METHODS

A retrospective observational study was performed on 30 women who had been operated on by a team consisting of (Consultant surgeon, Gynecologist, Anesthetist, Registrars, SHO, Nurses, and Pathologist) for gynecological malignancies (endometrial and ovarian cancers) and were admitted to the Sulaimani Maternity Teaching Hospital during January 2019 to December 2020.

All the cases were going through a thorough discussion and proper planning by the MDT meetings in Sulaimani Maternity Teaching Hospital. All the necessary investigations and radiological imaging that were important for the diagnosis and staging of the cases were done with the best quality available (TVS or transabdominal U/S, MRI, CT-Scan, colposcopy, Cystoscopy, OGD, accordingly)

After the patients and staging, so, the decision for the operation was made under a multispeciality team (MDT) after the patients written consent.

The Kurdistan Board of Medical Specialties (KBMS) approved the study proposal, and a formal acceptance letter was obtained from Sulaimani Maternity Teaching Hospital before starting the study. Also, informed consent has been taken from the patients for their inclusion in this study.

The inclusion criteria included women diagnosed with gynecological malignancies, either clinically or by previously taken samples, before staging laparotomy. However, the exclusion criteria included females with gynecological cancers who had undergone abdominal surgeries for other reasons.

The demographic features were recorded, including maternal age, residencies, parity, and gravity. Previous diagnostic method records, either clinical or by samples, were reviewed. All radiological findings were recorded, including the degree of myometrial invasion and lymph node involvement. Intraoperative staging by the teams and histopathological examination were also recorded. The operative procedures were total abdominal hysterectomy, bilateral salpingo-oophorectomy, sampling of the iliac, obturator, and paraaortic lymph nodes; peritoneal cytology; biopsies of the subdiaphragmatic peritoneum, omentectomy, and appendectomy.

The "IBM SPSS Statistics version 26" software was used to analyze the data, and both descriptive and inferential statistics were used. Further, a P-value of ≤0.05 was considered a statistically significant association. Also, Pearson Chi-Square was used to determine the significance of the association between categorical independent and dependent variable pairs.

RESULTS

The mean age of the women was 51.8 years, and the women had a mean gestation of 4.5±3.5 (Table 1). The majority of the women were in their sixtieth (Figure 1). The majority of the patients (80%) had negative personal and familial histories for tumors; however, 20% had either a personal history (13.3%) for tumors or familial history (6.7%), (Table 2).

The majority of women presented with either postmenopausal vaginal bleeding (40%) or abdominal pain (33.3%); however, one woman (3.3%) presented for infertility checkups, and another woman presented for routine checkups without symptoms (Table 3). The mean±SD duration of symptoms in the symptomatic patients was 0.8±1.1 years (ranging from asymptomatic to four years). Although clinical features diagnosed all patients before staging laparotomy, sampling was performed in 70% of them. The samplings were either through dilation and curettage (D&C) or direct sampling (Figure 2). The majority of the women with endometrial tumors (50%) had been afflicted with adenocarcinoma (endometrial type); however, the most common histopathological types of ovarian tumors were granulosa cell tumor, Papillary serous adenocarcinoma, and malignant ovarian dysgerminoma in 10%, 10%, and 6.7%, respectively (Table 4). There was a highly significant association between the clinical staging and staging laparotomy staging; staging laparotomy better delineated the tumors' staging. Also, 60% of the patients were upgraded from the lower to the higher stage, but the downgrading was only 3.3% (Table 5).

Table 1. Demographic features of the studied patients.

Demographic features	Mean±SD	Range
Age (year)	51.8±14.9	12 to 72
Gravida	4.5±3.5	0 to 12
Para	3.4±2.8	0 to 8
Abortus	1.1±1.7	0 to 6

SD = standard deviation

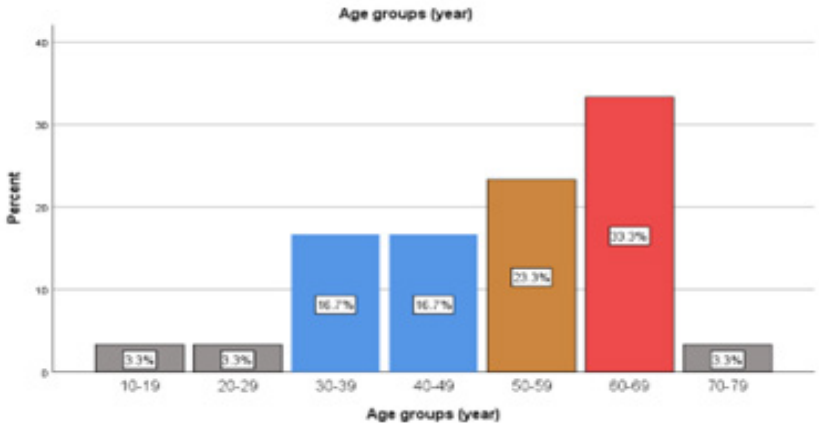

Figure 1. Distribution of age groups of the studied patients.

Table 2. Demography of personnel or family history among the studied patients.

Personal or familial history of tumor	Frequency	Percent
None	24	80
Family history of endometrial tumor (mother)	1	3.3
History of Ca colon underwent laparotomy and received two courses of chemotherapy	1	3.3
History of Ca stomach (gastrectomy four years ago)	1	3.3
Her sister had an ovarian tumor	1	3.3
Hodgkin lymphoma with good response to chemotherapy at 2018	1	3.3
Borderline mucinous cystadenoma in the right ovary (oophorectomy six years ago)	1	3.3
Total	**30**	**100**

Table 3. Clinical presentations among the studied patients.

Clinical features	Frequency	Percent
Postmenopausal vaginal bleeding	12	40
Abdominal pain	10	33.3
Amenorrhea	1	3.3
Abdominal distension and leg pain	1	3.3
Infertility checkup	1	3.3
Vaginal bleeding, suprapubic pain, vaginal discharge, and dyspareunia	1	3.3
Bad odorous bloody vaginal discharge	1	3.3
Irregular menstruation	1	3.3
Menorrhagia	1	3.3
Asymptomatic	1	3.3
Total	**30**	**100**

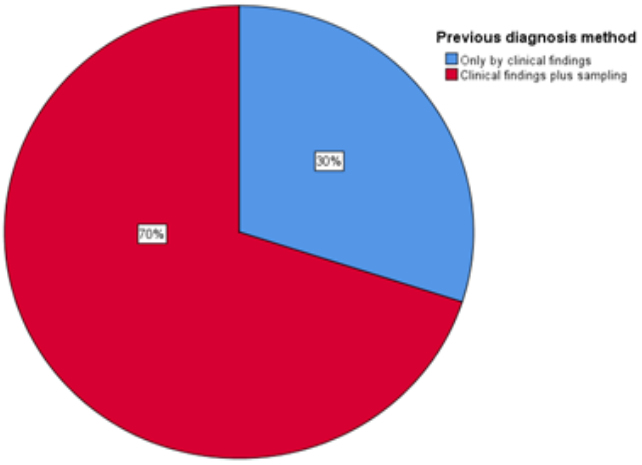

Figure 2. Previous diagnostic methods before staging laparotomy.

Table 4. Final histopathological diagnosis among the studied patients.

Histopathological diagnosis	Frequency	Percent
Adenocarcinoma (endometroid type)	15	50
Granulosa cell tumor	3	10
Papillary serous adenocarcinoma of the ovary	3	10
Malignant ovarian dysgerminoma	2	6.7
Cystic adenoma	1	3.3
Malignant ovarian Krukenberg tumor	1	3.3
Bilateral malignant ovarian (primary surface epithelial) tumor	1	3.3
Clear cell adenocarcinoma of the vagina	1	3.3
A left ovarian mucinous borderline tumor (intestinal type)	1	3.3
Papillary serous adenocarcinoma of the ovary and adenocarcinoma (endometrial type)	1	3.3
Complex hydatidiform mole (H. mole)	1	3.3
Total	**30**	**100**

Table 5. Association of clinical staging and staging laparotomy for the studied patients.

Staging laparotomy staging	Clinical staging (%)							Total (%)	P-value
	Ia	Ib	IIa	IIb	IIIa	IIIb	IVa		
Ia	5 (16.7)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	5 (16.7)	
Ib	2 (6.7)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2 (6.7)	
Ic1	0 (0)	1 (3.3)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (3.3)	
Ic2	0 (0)	0 (0)	1 (3.3)	0 (0)	0 (0)	0 (0)	0 (0)	1 (3.3)	
Ic3	2 (6.7)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2 (6.7)	
IIa	1 (3.3)	3 (10)	3 (10)	0 (0)	0 (0)	0 (0)	0 (0)	7 (23.3)	
IIb	0 (0)	0 (0)	1 (3.3)	1 (3.3)	0 (0)	0 (0)	0 (0)	2 (6.7)	
IIIa	0 (0)	0 (0)	2 (6.7)	0 (0)	0 (0)	0 (0)	0 (0)	2 (6.7)	**<0.001**
IIIb	0 (0)	0 (0)	1 (3.3)	1 (3.3)	0 (0)	1 (3.3)	0 (0)	3 (10)	
IIIc	0 (0)	0 (0)	0 (0)	1 (3.3)	0 (0)	0 (0)	0 (0)	1 (3.3)	
IIIc1	0 (0)	0 (0)	1 (3.3)	0 (0)	1 (3.3)	0 (0)	0 (0)	2 (6.7)	
IIIc2	0 (0)	0 (0)	0 (0)	0 (0)	1 (3.3)	0 (0)	0 (0)	1 (3.3)	
IVa	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (3.3)	1 (3.3)	
Total	**10 (33.3)**	**4 (13.3)**	**9 (30)**	**3 (10)**	**2 (6.7)**	**1 (3.3)**	**1 (3.3)**	**30 (100)**	

DISCUSSION

Although the incidence of uterine tumors is high, its death rate is relatively low [7]. Further, most patients were identified early in the illness because almost all patients presented with abnormal vaginal bleeding [8]. About 50% of the patients in the current were presented with abnormal vaginal bleeding; it was 100% in all women with endometrial tumors. Therefore, most patients in the current study were at stage I or II.

The FIGO system in 1988 changed gynecological cancer classification from clinical to surgical staging system [6]. Following that change in classification, studies discovered 22% upgrades after surgical staging from clinical stage I due to the extrauterine spread of the tumor [8]. Due to such alteration in staging after surgery related to the treatment options and prognosis, revision of the staging system by staging laparotomy has been proposed [8]. However, the old clinical staging method can still be used for patients when surgery is impossible [8].

A woman with stage I has a disease restricted to the uterus, which is further subdivided into Ia and Ib depending on the invasion of myometrium; invasion of less than half is Ia, and both halves are Ib [9]. Besides, the invasion of uterine myometrium is an important prognostic factor for the 5-year survival rate; tumors confined to one-half of myometrium have a 94% 5-year survival rate which decreases to 59% for Ib tumor [8]. Moreover, another important prognostic factor is the cancer grade; metastases to lymph nodes increment as the grade goes up . For example, the metastasis to

pelvic lymph nodes is 3%, 9%, and 18% for grades 1, 2, and 3, respectively [9].

Furthermore, a detailed surgical staging for ovarian tumors has been identified as an essential prognostic factor for patient outcomes [10,11]. As mentioned, total tumor removal and selecting patients who require further adjuvant therapy can be gained by staging laparotomy [10]. Besides, this method avoids unnecessary management to those who do not need it or does not give the necessary management to those who need it [2,10]. Further, paraaortic lymph nodes are the second most frequent site for the residual tumor, which causes upgrading of the staging of ovarian tumors after staging laparotomy; positive paraaortic lymph nodes after staging laparotomy was from 7-32% [12,13].

After staging laparotomy, the current study found an upgraded of 50% from the lower stage to the higher stage; however, a downgrading of only 3.3%. However, the staging stayed the same at only 46.7%. Further, the association between the clinical staging and staging laparotomy was statistically significant.

Inconclusion, there was a statistically significant association between the clinical staging of gynecological malignancies, especially endometrial and ovarian tumors, and stagings performed after staging laparotomy. Furthermore, the study showed that extensive surgery for gynecological malignancies would aid in precise grading and hence better postsurgical management (chemotherapy, radiotherapy, hormonal therapy) plan and outcome. Therefore, we recommend comprehensive surgical staging for all gynecological malignancies in whom the radiological and the clinical staging is sub-optimal or inconclusive after ruling out any contraindication for undergoing the operation.

Conflict of interest

The authors declare no conflict of interest.

REFERENCES

1. Jemal A, Siegel R, Ward E, Hao Y, Xu J, Murray T, et al. Cancer Statistics, 2008. CA Cancer J Clin. 2008;58(2):71–96.

2. Ries LAG, Young JL, Keel GE, Eisner MP, Lin YD, Horner MD. Cancer Survival Among Adults: US SEER Program, 1988-2001 Patient and Tumor Characteristics. 2007. 1988–2001 p.

3. Mining L, Patrono MG, Gallego RA, Bernabé JV De, Diaz-Padilla I. Surgical Treatment of Ovarian Cancer. In: Ovarian Cancer - A Clinical and Translational Update. Madrid: INTECH; 2013. p. 161–82.

4. Siegel R, Desantis C, Virgo K, Stein K, Mariotto A, Smith T, et al. Cancer Treatment and Survivorship Statistics, 2012. CA CANCER J CLIN. 2012;62(4):220–41.

5. Bookman MA, Brady MF, Mcguire WP, Harper PG, Alberts DS, Friedlander M. Evaluation of New Platinum-Based Treatment Regimens in Advanced-Stage Ovarian Cancer : A Phase III Trial of the Gynecologic Cancer InterGroup. J Clin Oncol. 2009;27(9):1419–25.

6. Benedet J, Denny L, Jones HW, Kavanagh J, Kitchener H, Kohorn E, et al. Staging Classifications and Clinical Practice Guidelines for Gynaecological Cancers. In: FIGO Committee on Gynecologic Oncology Guidelines. 2006. p. 1–160.

7. Siegel R, Naishadham D, Jemal A. Cancer statistics, 2013. CA Cancer J Clin. 2013;63(1):11–30.

8. Sonoda Y. Surgical treatment for apparent early-stage endometrial cancer. Obs Gynecol Sci. 2014;57(1):1–10.

9. Pecorelli S. Revised FIGO staging for carcinoma of the vulva, cervix, and endometrium. Int J Gynaecol Obs. 2009;105(2):103–4.

10. Bristow RE, Santillan A, Diaz-Montes TP, Gardner GJ, Giuntoli RL, Meisner BC, et al. Centralization of care for patients with advanced-stage ovarian cancer: A cost-effectiveness analysis. Cancer. 2007;109(8):1513–22.

11. Engelen MJA, Kos HE, Willemse PHB, Aalders JG, De Vries EGE, Schaapveld M, et al. surgery by consultant gynecologic oncologists improves survival in patients with ovarian carcinoma. Cancer. 2006;106(3):589–98.

12. Grabowski JP, Harter P, Buhrmann C, Lorenz D, Hils R, Kommoss S, et al. Re-operation outcome in patients referred to a gynecologic oncology center with presumed ovarian cancer FIGO I-IIIA after the sub-standard initial surgery. Surg Oncol. 2012;21(1):31–5.

13. Harter P, Gnauert K, Hils R, Lehmann TG, Fisseler-Eckhoff A, Traut A, et al. Pattern and clinical predictors of lymph node metastases in epithelial ovarian cancer. Int J Gynecol Cancer. 2007;17(6):1238–44.