

Discrepancy of pre- and postoperative grades of patients with endometrial carcinoma

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Summary

Purpose: To investigate the diagnostic accuracy of endometrial curettage in patients with endometrial carcinoma. In this retrospective study, pre- and postoperative histopathologic findings of patients with endometrial cancer were investigated. **Methods:** 168 patients with the final diagnosis of endometrial cancer were enrolled in the study. Pre- and postoperative histopathologic diagnoses and grades (according to the 1988 FIGO classification) of the patients were compared retrospectively. **Results:** 22 patients were diagnosed as having endometrial hyperplasia and the remaining 136 patients had endometrial carcinoma preoperatively. Overall discrepancy rate of grades was 39% (31% upgrade, 8% downgrade; $p < 0.05$). There was also 9% discrepancy between the pre- and postoperative histopathological types. **Conclusion:** It has been suggested that since endometrial cancer patients with low grades according to the preoperative pathologic diagnosis have a potential to upgrade, the management of these patients if myometrial invasion is less than one-half thickness, simply by hysterectomy plus bilateral salpingo-oophorectomy (without lymph node sampling), might actually miss some patients who actually deserve surgical staging. Further studies are needed to draw a sufficient conclusion.

Key words: Endometrial carcinoma; Endometrial curettage; Grade; Discrepancy.

Introduction

Endometrial cancer is one of the most common female genital tract malignancies. Nearly 90% of patients with endometrial carcinoma present with abnormal vaginal bleeding, usually during menopause [1]. Several preoperative endometrial sampling tools have been used for the diagnosis of endometrial disorders in patients with abnormal uterine bleeding but dilatation and curettage is the most commonly used sampling technique with a high predictive power for tumor grade [2].

The clinical staging of endometrial cancer includes a thorough pelvic examination, imaging techniques, and endometrial sampling. However, preoperative evaluation could not provide sufficient information for histopathologic type, grade, myometrial invasion and lymphovascular involvement, so the final staging has to rely on the postoperative pathologic examination of the hysterectomy material of the patients with endometrial cancer. Many studies conducted on patients subject to adequate surgical evaluation demonstrated significant rates of clinical understaging [3, 4]. For this reason, in 1988, the International Federation of Obstetrics and Gynecology (FIGO) switched the staging system of endometrial cancer from clinical to surgical [5].

In this retrospective study, pre- and postoperative histopathologic findings of patients with endometrial cancer were investigated.

Materials and Methods

A total of 172 patients operated in the Gynecologic Oncology Clinic of Zeynep Kamil Hospital between January 2000 and December 2009 with the final diagnosis of endometrial cancer were analyzed retrospectively. All patients underwent total abdominal hysterectomy and bilateral salpingo-oophorectomy with or without pelvic-paraortic lymphadenectomy. The period of time between endometrial sampling and surgery was less than one week. None of the patients received any chemotherapy or other anti-cancer treatments before surgery. The study group was composed of 158 patients for whom the method of endometrial sampling was curettage. Histopathologic evaluation of both the samples and final hysterectomy specimens were performed by the same team according to 1988 FIGO classification [5]. Tumor grades and histological types of endometrial samples and final hysterectomy specimens of all patients were compared.

Statistical analyses were performed by the Pearson chi-square, Kruskal Wallis, Mann Whitney U, two-sample Kolmogorov Smirnov and Wilcoxon signed rank tests as appropriate, using SPSS version 11.5. Data are given as percent or mean \pm standard deviation (SD). A level of 0.05 was chosen to indicate statistical significance. All reported p values are two-tailed.

Results

Among the analyzed 158 postoperative endometrial cancer specimens, preoperative diagnosis of 22 patients (14%) was atypical endometrial hyperplasia and the remaining 136 curettage samples were diagnosed as endometrial carcinoma. Mean age, gravidity and parity of these 136 patients were 4.1 ± 2.9 , 3.0 ± 2.2 and 59.5 ± 9.8 , respectively. Surgical stages of the patients according to FIGO were as follows: 16 IA, 58 IB, 32 IC, one IIa, five IIb, three IIIa, two IIIb, 17 IIIc, two IVa and none IVb. Twenty-two patients (16%) were premenopausal (12 grade 1, seven grade 2, three grade 3) and 112 patients

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Table 1. — Cross-tabulation of pre- and postoperative grades of the 136 patients with endometrial cancer. Pre- and postoperative grades differed significantly (Wilcoxon signed rank test, $p = 0.001$; Discrepancy rate of grade 3 also differed both from those of grade 1 and 2; Mann Whitney U test, $p = 0.021$).

Preoperative Grade (n)	Postoperative grade			Discrepancy		
	Grade 1	Grade 2	Grade 3	Upgrade	Downgrade	Total
Grade 1 (72)	42	22	8	30 (42%)†	—	30 (42%)
Grade 2 (39)	7	20	12	12 (31%)†	7 (18%)	19 (49%)
Grade 3 (25)	0	4	21	—	4 (16%)	4 (16%)*
Total (136)	49	46	41	42 (31%)	11 (8%)	53 (39%)

*Mann Whitney U test, $p < 0.05$.

†Kolmogorov-Smirnov test, $p < 0.05$.

Table 2. — Cross-tabulation of pre- and postoperative histological types of 136 patients with endometrial cancer (Wilcoxon signed rank test, $p = 0.139$).

Preoperative	Postoperative						Total	Discrepancy (%)
	Endometrioid	Serous	Mucinous	Clear cell	Mixed	Undifferentiated		
Endometrioid	109	5	0	1	2	0	117	7
Serous	1	7	0	0	1	0	9	22
Mucinous	1	0	2	0	0	0	3	33
Clear cell	0	0	0	2	0	0	2	0
Mixed	1	0	0	0	3	0	4	25
Undifferentiated	0	0	0	0	0	1	1	0
Total	112	136	2	3	6	1	136	9

(84%) were postmenopausal (58 grade 1, 32 grade 2, 22 grade 3). No difference was found by means of menopausal state of the preoperative grade groups (Pearson chi-square test).

Preoperative grades of the samples diagnosed as endometrial carcinoma were: 72 (53%) grade 1, 39 (29%) grade 2 and 25 (18%) grade 3. However, in the final hysterectomy specimens, 49 (37%) patients were diagnosed as grade 1, 46 (34%) as grade 2, 41 (29%) as grade 3. The pre- and postoperative grades of the patients with endometrial cancer differed significantly ($n = 136$, Wilcoxon signed rank test, downgrade = 11, upgrade = 42, unchanged = 82, $p = 0.000$; Table 1).

The concordance rates of the pre- and postoperative diagnoses of the preoperative grade 1-3 patients were 58%, 51% and 84%, respectively ($n = 136$, Kruskal Wallis test, $X^2 = 7.271$, $p = 0.026$; Table 1). The concordance rates of preoperative grade 1-2 patients did not differ from each other (Mann Whitney U test, $Z = -0.711$, $p = 0.477$). However, the grade 3 group differed both from grade 1 (Mann Whitney U test, $Z = -2.305$, $p = 0.021$) and grade 2 groups (Mann Whitney U test, $Z = -2.641$, $p = 0.008$) significantly.

According to the final histopathologic examination, 11 patients were down graded (seven grade 2 patients, four grade 3 patients) and 42 patients (30 grade 1 and 12 grade 2 patients) were upgraded (Table 2). Rate of upgrade differed between grade 1 and 2 patients significantly ($n = 111$, two-sample Kolmogorov Smirnov $Z = 5.030$, $p = 0.000$).

The comparison of tumor histological type between

D&C and hysterectomy specimen revealed that for 22 patients with a preoperative diagnosis of atypical endometrial hyperplasia, postoperative diagnosis was endometrioid adenocarcinoma. Among 136 preoperative endometrial cancer samples, 118 were endometrioid adenocarcinoma, nine were papillary serous, two were clear cell, four were mixed type and one was undifferentiated carcinoma. However, histo-pathological types of 12 (9%) patients changed postoperatively. Pre- and postoperative histopathological types did not differ significantly (Wilcoxon signed rank test, $p = 0.139$; Table 2).

Discussion

In this retrospective study, 136 patients with a diagnosis of endometrial carcinoma were analyzed. The method of the preoperative sampling was endometrial curettage for all patients and it was found that grades of the disease differed significantly between pre- and postoperative diagnoses with an overall discrepancy rate of 39% (Table 1). There was also a 9% discrepancy between the pre- and postoperative histopathological types of the disease, and it was not statistically significant (Table 2).

Tumor grade has a strong correlation with the risk of spread outside the uterus. In a report conducted by Gynecologic Oncology Study Group, the risk of pelvic node metastases were prospectively as 2.8%, 8.7%, and 18.3%, respectively, and the risks for aortic node metastases were 1.6%, 4.9%, and 11.1%, respectively in clinical Stage I grade 1-3 endometrial carcinoma. Consequently clinical

staging is strongly recommended for patients higher than clinical Stage I, grade 1-2 [6].

Endometrial sampling by hysteroscopy, pipelle, lavage and Vabra are the commonly used techniques with high sensitivity and specificity rates but D&C of the whole cavity has been accepted as a reference together with hysterectomy specimens in the evaluation of the efficacy of these techniques in the literature [3, 7-9]. There have been many studies comparing the pre- and postoperative diagnoses in patients with endometrial cancer, with concordance rates of grades ranging from 50% to 85% with higher concordance rates for grade 3 and up to 93% for histological types if the method of preoperative sampling was curettage. The accuracy of frozen sections was even lower than the endometrial curettage [3]. In the present study, the overall concordance of pre- and postoperative grades was 61% and of histopathological types 91% (Tables 1 and 2).

The diagnostic accuracy of endometrial sampling has been found to be even lower in grade 1 and 2 compared to grade 3 [7-13] as was the case in the present study. The concordance of grades in the present study was 58, 51 and 84% for grade 1-3 patients, respectively, and the upgrade rates for grade 1 and 2 were 42% and 31%, respectively ($p < 0.05$; Table 1).

Together with the findings of this study and the review of the literature, as a considerable rate of patients with preoperative diagnoses of Stage I, grade 1-2 endometrial cancer would upgrade to higher levels according to the final histopathological diagnosis, and the grading according to frozen sections is also not entirely accurate so, it could be suggested that the management of patients with preoperative diagnoses of Stage I, grade 1-2 with hysterectomy plus salpingo-oophorectomy (without lymph node sampling), might miss some patients who actually deserve surgical staging.

In conclusion, according to the results of this retrospective study, for patients with endometrial carcinoma, preoperative sampling with endometrial curettage has a diagnostic accuracy of 91% for histopathologic types and 61% for grades of the tumors. Further studies are needed to draw a sufficient conclusion.

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