PREOPERATIVE CERVICAL CYTOLOGY IN ENDOMETRIAL CARCINOMA

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Abstract - We studied the correlation between preoperative cervical cytology, postoperative clinicopathologic findings, and sites of metastasis from 50 surgically staged patients with endometrial carcinoma Thirty-four patients (68%), had normal cervical cytology, and 16(32%) had malignant preoperative cervical cytology. Malignant cervical smears were statistically correlated with surgical stage (P = 0.001), histopathology (P =0.010), tumor grade (P = 0.012), depth of myometrial tumor invasion (P = 0.001), cervical involvement (P = 0.01), lymph node metastases (P = 0.002), and andexal metastases (P = 0.012). Our study indicates that positive preoperative cervical cytology itself does not appear to be an independent prognostic factor and probably should not influence treatment decisions in endometrial cancer.

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INTRODUCTION

Advanced stage, high grade tumor, deep myometrial invasion, and extrauterine spread including lymph node metastases are well known as poor prognostic factors in patients with endometrial carcinoma(1-4).

Patients with high grade tumors or deep myometrial invasion are candidates for extended surgical staging, including pelvic and para-aortic lymph node dissection (5-7). Surgical staging is advocated to determine the appropriate therapy for the individual patient because none of these prognostic variables can be assessed preoperatively. Preoperative identification of patients with poor prognostic factors is therefore useful in planning the operative approach.

The importance of malignant endometrial cells detected by cervical cytology has been demonstrated in different studies(8-14).

This study was undertaken in order to determine whether preoperative malignant cervical cytology had an independent prognostic significance in endometrial carcinoma.

MATERIAL AND METHODS

Between April 1990 and July 1997, a series of 50 consecutive patients with primary endometrial carcinoma were surgically staged with pelvic and para-aortic lymph node assessment at Vali-e-asr Hospital. According to the FIGO (15) system clinical stage, histologic type and tumor grade were assessed. Myometrial invasion by the tumor was categorized as superficial to moderate ($\leq \frac{1}{2}$) and deep ($>\frac{1}{2}$). No preoperative radiotherapy or chemotherapy was performed. Pelvic washing was undertaken. All smears and surgical specimens were reviewd by the department of Pathology at Imam Khomeini Hospital.

Results were statistically analysed using χ^2 analysis. $P < 0.05$ was considered significant.

RESULTS

The mean age of the patients was 58 years, with a range from 30 to 86 years. Twenty-eight cases (56%) were surgical stage I, 3 (6%) stage II, 17(34%) stage III, and 2 (4%) stage IV.

The 50 cases comprised of 47 cases of endometrial carcinoma, 2 adenosquamous carcinomas, and 1 clear cell carcinoma. Eighteen cases (36%) were well differentiated, 22 (44%) moderately differentiated, and 10(20%) poorly differentiated. Thirty patients (60%) had myometrial tumor invasion of less than one-half and 20(40%) more than one-half. Of the 50 cases, 12 patients (24%) had pelvic or para-aortic nodal involvement. Thirty-four (68%) had normal cervical cytology and 16(32%) had malignant cytology on preoperative cervical cytology. Two cases of adenosquamous carcinoma and 1 case of clear cell carcinoma had malignant cervical cytology.

The results of cervical cytology, uterine clinicopathologic findings and age of patients are summarized (Table 1). FIGO stage differed according to cervical cytology (P=0.001), patients with higher stage had more malignant cytology. The histologic findings differed according to cervical cytology (P = 0.010), patients with nonendometroid adenocarcinoma

Table 1. Preoperative cervical cytology versus clinicopathologic findings

Clinicopathologic findings	Cervical Cytology Normal (N=34)	Malignant (N=16)	χ^2	P
Age				
< 50 years	8 (67%)	4(33%)	0.011	0.92
> 50 years	26(68%)	12 (32%)		
Stage				
I, II	25(80.6%)	6 (19.4%)	11.03	0.001
III, IV	9 (47.4%)	10 (52.6%)		
Histological type				
Endometroid	34(72.4%)	13 (27.6%)	9.14	0.010
Adenosquamous	0	2		
Clear cell	0	1		
Grade				
G.I	14 (78%)	4(22%)	8.83	0.012
G II	16(72.7%)	6 (27.3%)		
G III	4 (40%)	6 (60%)		
Myometrial invasion				
< one-hulf	24 (80%)	6 (20%)	10.93	0.001
> one-half	10(50%)	10 (50%)		

had malignant cytology. Tumor grade was associated with cervical cytology (P=0.012); Patients with more poorly differentiated malignancies had more malignant cytology.

The depth of myometrial tumor invasion was also associated with cervical cytology, (P = 0.001), patients with deeper myometrial tumor invasion had more malignant cervical cytology. No significant association was found between malignant cervical cytology and patients' age (P=0.92).

The relation of cervical cytology results to the sites of metastases are depicted in Table 2. Preoperative cervical cytology was significantly associated with cervical metastases (P=0.01); malignant cytology was more frequent among patients with cervical involvement. Preoperative cervical cytology was also associated with adnexal metastases (P = 0.012); malignant cytology was more frequent among patients with adnexal metastases. Preoperative cervical cytology was significantly associated with lymph node metastases (P= 0.002); malignant cytology was more frequent among patients with nodal involvement. No significant association was found between malignant cervical cytology and pelvic peritoneal cytology findings (P = 0.24).

Table 2. Preoperative cervical cytology versus sites of metastasis

Metastasis (N=34)	Cervical Cytology Normal (N=16)	Malignant	χ^2	P
Cervical involvement				
Negative	28(75.7%)	9 (24.3%)	6.66	0.01
Positive	6 (46.2%)	7 (53.8%)		
Adnexal metastases				
Negative	32 (72.7%)	12 (27.3%)	6.36	0.012
Positive	2 (34%)	4 (66%)		
Lymph node metastases				
Negative	29(76.5%)	9 (23.7%)	9.84	0.002
Positive	5(42%)	7 (58.0%)		
Peritoneal cytology				
Negative	32 (69.4%)	14 (30.6%)	1.41	0.24
Positive	2 (50.0%)	2 (50%)		

Table 3. Positive rate of abnormal cervical cytology in endometrial carcinoma

Author	year(s)	number of endometrial carcinoma	Cases with abnormal smear	
			No.	%
Schachter (10)	1980	42	33	79
Schneider (11)	1986	313	109	35
Kim [12]	1991	95	37	39
Du Beshter (13)	1991	86	68	77
Larson (14)	1994	164	70	43
Total		700	317	45

DISCUSSION

About 45% of patients with endometrial carcinoma will have positive cervical cytology when initially diagnosed (Table 3) (10-14).

We detected malignant endometrial cells on cervical smear in just 32% of patients. Compared to patients with negative preoperative cervical cytology, those with positive cervical cytology have been found to be older (8,9) and of higher stage (11,13,14), higher grade tumor (11-14), with deep myometrial invasion (13) more cervical involvement (9,14) and more extrauterine spread including positive peritoneal washing (7,13) or lymph node metastases (14).

A significant correlation between preoperative malignant cervical cytology, patients' age and positive peritoneal washing could not be found.

Exfoliation of atypical endometrial cell and subsequent detection by cervical cytology may primarily be dependent upon tumor stage, tumor grade, or cervical involvement in patients with endometrial carcinoma, and that patients with malignant cervical cytology are more likely to require extended surgical staging than patients with normal cervical cytology.

Our results suggest that patients with endometrial carcinoma who have malignant cells collected by preoperative cervical cytology are at higher risk of having advanced stage, high grade, deeply invasive cancer, cervical involvement, and extrauterine metastases. We believe preoperative cervical cytology can be of help for patients before surgery but positive cervical cytology does not appear to be an independent prognostic factor and probably should not influence treatment decisions in endometrial cancer.

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