

The significance of the degree of myometrial invasion in patients with Stage IB endometrial cancer

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Summary

Objective: To study the validity of the FIGO staging classification of endometrial cancer Stage IB by correlating degree of myometrial invasion depth with outcome measures.

Study Design: Fifty patients with endometrial adenocarcinoma FIGO Stage IB who underwent hysterectomy between 1989 and 2001 were divided into two groups according to depth of myometrial invasion. The first group comprised of 31 patients with myometrial invasion of less than or equal to one-third. The second group included 19 patients with invasion greater than one-third but less than one-half. The two groups were compared with regard to prognostic factors and outcome measures.

Results: The overall 5-year recurrence-free survival, disease specific survival and overall survival rates were 87%, 94% and 77%, respectively. These outcome measures did not vary significantly between the two groups. There were no statistically significant differences between the two groups with regard to the following parameters: duration of follow-up, age, proportion of patients who underwent complete surgical staging and postoperative adjuvant radiotherapy. Histologic parameters of the two groups, such as histological type, grade and proportion of patients with capillary space-like involvement and lower uterine segment involvement were not significantly different.

Conclusions: In patients with Stage IB endometrial cancer the amount of myometrial invasion defined as less than one third compared with invasion greater than one third does not appear to correlate with their outcome, thus validating the FIGO staging system.

Key words: Endometrial cancer; Myometrial invasion.

Introduction

The amount of myometrial invasion of endometrial cancer is known to correlate with outcome [1]. This correlation has been historically based on division of the uterine wall into thirds [2], and this stratification continues to be employed in recent studies as well [1, 3]. In 1988 endometrial carcinoma Stage IB was defined by the International Federation of Obstetrics and Gynecology (FIGO) as invasion of less than one-half of the myometrium. In a recent study of patients with Stage IB endometrial carcinoma, the amount of myometrial invasion defined as invasion less than or equal to one-third of the endometrium versus invasion greater than one-third and less than half of the myometrium did not appear to influence outcome [4]. In that study however, only 12% of the patients underwent complete surgical staging and all patients received postoperative intravaginal brachytherapy [4].

The objective of this study was to determine whether the depth of myometrial invasion correlated with outcome of patients with Stage IB endometrial carcinoma who had not routinely received postoperative radiotherapy.

Patients and Methods

Fifty patients with endometrial carcinoma Stage IB, who underwent surgery at the Barzilai Medical Center, Ashkelon, Israel between 1989 and 2001 formed the study group. For the purpose of the study, the histopathological findings were reviewed. The depth of myometrial invasion, tumor grade, presence of lower uterine segment involvement (LUSI) and capillary space-like involvement (CSLI) were noted.

The patients were divided into two groups according to the depth of myometrial invasion. In the first group there were 31 patients with myometrial invasion of less than or equal to one-third. In the second group there were 19 patients with myometrial invasion greater than one-third but less than one-half. The two groups were compared with regard to prognostic factors and outcome measures. The chi-square test was used to test association between variables. The life table analysis using Wilcoxon statistics was used to compare survival. Independent prognostic factors were identified using the Cox stepwise regression analysis.

Results

The median age of the patients was 64 (range 36-85) years. In addition to total abdominal hysterectomy and bilateral salpingo-oophorectomy, 21 (42%) patients underwent complete surgical staging. Twelve patients (21%) received postoperative adjuvant radiotherapy. Forty-five (90%) patients had endometrioid histology and eight (16%) were FIGO grade 3. LUSI was noted in 17 (34%) patients and CSLI was present in six (12%)

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Table 1. — Distribution of prognostic factors according to depth of invasion.

Variable	Myometrial invasion		p
	≤ 1/3 31 patients N (%)	> 1/3 19 patients N (%)	
Age (years)			
< 60	15 (48)	5 (26)	N.S.
≥ 60	16 (52)	14 (74)	
Grade 3			
Yes	5 (16)	3 (16)	N.S.
No	26 (84)	16 (84)	
Endometrioid histology			
Yes	28 (90)	17 (89)	N.S.
No	3 (10)	2 (10)	
LUSI*			
Yes	8 (26)	9 (47)	N.S.
No	23 (74)	10 (53)	
CSLI**			
Yes	2 (7)	4 (21)	N.S.
No	29 (93)	15 (79)	
CSS***			
Yes	11 (36)	10 (53)	N.S.
No	20 (64)	9 (47)	
Adjuvant radiotherapy			
Yes	6 (19)	6 (32)	N.S.
No	25 (81)	13 (68)	

LUSI*: Lower uterine segment involvement; CSLI**: Capillary space-like involvement; CSS***: Complete surgical staging.

patients. The distribution of prognostic factors according to depth of invasion is shown in Table 1. The patients were followed for a median time of 44 months (range 11-145), from the date of surgery.

The 5-year recurrence-free survival was 87% (SE 0.07), the 5-year disease-specific survival was 94% (SE 0.04) and the 5-year overall survival was 77% (SE 0.07). The 5-year recurrence-free survival, disease-specific survival and overall survival according to the prognostic factors are shown in Tables 2-4.

The depth of myometrial invasion did not significantly influence survival. On multivariate analysis, none of the other prognostic factors were significantly correlated with recurrence or survival measures.

Discussion

In this series of patients with endometrial cancer Stage IB, the amount of myometrial invasion, defined as less than one-third compared with invasion greater than one-third did not correlate with recurrence-free survival, disease-specific survival and overall survival. This lack of difference in outcome could not be attributed to significant differences between the groups with respect to prognostic factors (Table 1). In this regard, our findings corroborate those of Alektiar *et al.* [4].

Within the study patients, grade 3 tumor correlated with poor overall survival and CSLI correlated with poor disease-specific and overall survival. On multivariate analysis, these factors did not emerge as independent prognostic factors. Conflicting results have been reported

Table 2. — Five-year recurrence-free survival.

Variable	%	SE	p
Myometrial invasion			
≤ 1/3	82	0.01	0.61
> 1/3	93	0.06	
Age (years)			
< 60	100	0.0	0.05
≥ 60	68	0.16	
Grade 3			
Yes	86	0.13	0.11
No	87	0.08	
Endometrioid histology			
Yes	86	0.08	0.57
No	100	0.0	
LUSI*			
Yes	100	0.0	0.332
No	83	0.08	
CSLI**			
Yes	82	0.16	0.06
No	87	0.08	
CSS***			
Yes	100	0.0	0.19
No	81	0.1	
Adjuvant radiotherapy			
Yes	91	0.08	0.33
No	85	0.09	

LUSI*: Lower uterine segment involvement; CSLI**: Capillary space-like involvement; CSS***: Complete surgical staging.

Table 3. — Five-year disease-specific survival.

Variable	%	SE	p
Myometrial invasion			
≤ 1/3	92	0.07	0.41
> 1/3	94	0.06	
Age (years)			
< 60	82	0.12	0.09
≥ 60	100	0.0	
Grade 3			
Yes	86	0.13	0.6
No	94	0.05	
Endometrioid histology			
Yes	92	0.05	0.65
No	100	0.0	
LUSI*			
Yes	100	0.0	0.37
No	92	0.06	
CSLI**			
Yes	82	0.16	0.002
No	94	0.05	
CSS***			
Yes	100	0.0	0.24
No	89	0.07	
Adjuvant radiotherapy			
Yes	91	0.08	0.18
No	94	0.06	

LUSI*: Lower uterine segment involvement; CSLI**: Capillary space-like involvement; CSS***: Complete surgical staging.

on the influence of tumor grade as an independent factor on outcome measures [1, 4-6]. The presence of CSLI has been reported to be associated with significant risk of pelvic nodal metastasis as evident at surgical staging [3],

Table 4. — Five-year overall survival.

Variable	%	SE	p
Myometrial invasion			
≤ 1/3	82	0.099	0.74
> 1/3	67	0.122	
Age (years)			
< 60	82	0.13	0.43
≥ 60	73	0.09	
Grade 3			
Yes	44	0.18	0.04
No	84	0.07	
Endometroid histology			
Yes	80	0.07	0.16
No	52	0.24	
LUSI*			
Yes	58	0.15	0.068
No	86	0.07	
CSLI**			
Yes	50	0.07	0.014
No	82	0.2	
CSS***			
Yes	80	0.13	0.22
No	74	0.09	
Adjuvant radiotherapy			
Yes	64	0.15	0.08
No	81	0.08	

LUSI*: Lower uterine segment involvement; CSLI**: Capillary space-like involvement; CSS***: Complete surgical staging.

and with tumor recurrence [7]. Our results concurred with other studies that did not find CSLI as an independent prognostic factor for recurrence and survival [1, 4, 8]. Similar to other reports [9], in our series LUSI was not associated with an adverse outcome.

Stage IB is the most common stage in patients with endometrial cancer [8]. Myometrial invasion depth, the most important independent prognostic factor [1], may have a bearing on clinical decisions such as postoperative adjuvant radiotherapy [10, 11]. Our results, which lend further validity to the current staging classification, may assist in this respect.

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