

Upstaging based solely on positive peritoneal washing does not affect outcome in endometrial cancer

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Surgical staging of endometrial carcinoma includes the collection of peritoneal washings in the abdomen and pelvis. A positive finding upstages patients to International Federation of Gynecology and Obstetrics stage IIIA. However, the prognostic significance of such an upstaging, and thus the justification for the routine performance of this procedure, is unclear. This 5-year retrospective study was conducted to determine the frequency and prognostic significance of upstaging of endometrial carcinoma based solely on positive washings. The cohort for the study was collected by review of pathology reports of all washings that were performed prior to hysterectomies for suspected endometrial carcinomas over a 5-year period (01/1995–12/1999). Cases with positive cytology were selected if there was no grossly apparent intraperitoneal disease, no histologic evidence of extra-uterine tumor and the cases would otherwise have been considered stage I or II (case group). An age-matched control group was selected of stage I and II patients with the same histologic subtypes and negative washings ($n=19$). Of 220 endometrial carcinomas, peritoneal washing cytology was abnormal in 19 (8.6%) and was solely responsible for upstaging only 10 patients (4.5% of all cases, eight—endometrioid, one—serous, one—mixed; nine stage IA or IB and one stage IIB). Adjuvant therapy was administered in 90% of the case group and 74% of the control group. After a median follow-up of 51 months (case group) and 63 months (control group), we found only a single patient with progression of disease (recurrence, metastases or death) in the control group. It is concluded that abnormal cytology without other evidence of extrauterine disease leads to upstaging of a minority of endometrial carcinoma patients (4.5%), but does not appear to affect their overall outcome. Although this is a small single site study, it raises questions about the value of this procedure in patients with endometrial cancer.

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The internationally agreed-upon purpose for standardized cancer staging is to enable and facilitate the clear and unambiguous communication of clinical and surgical experience among interested parties.^{1–3} Since cancer staging is essentially a

categorization of patients based on the extent of a tumor's anatomic spread from its primary site, it should also categorize patients into prognostically distinct groups, in which those patients in a given stage are more comparable to other patients in that stage than they are to patients from the other stages with respect to clinical outcome.^{1,3} In cancers of the endometrium, as with most malignant tumors of most organs, stage is the most powerful prognostic parameter.^{4–9} The determination of the extent of anatomic spread of endometrial cancers has traditionally been achieved 'clinically'. Clinical staging entailed the use of various combinations of fractional curettage, uterine ultrasound and pelvic examination, as outlined in the 1971 annual report of the International Federation of Gynecology and Obstetrics (FIGO).⁹ However, several studies published subsequently showed that clinical staging

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A preliminary version of this study was presented at Pathology Today[®], the annual meeting of the American Society of Clinical Pathologists (ASCP), San Antonio, TX, October 7–10, 2004.

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had an unacceptably high inaccuracy rate, failing to detect extra-uterine spread of disease in at least 15–20% of cases.^{10–16} Additionally, one of the main reasons for clinical staging, the administration of preoperative radiotherapy, fell into disfavor among gynecologists in the mid-1980s. Thus, following the tri-annual meeting of the oncology committee of FIGO in 1988, it was recommended that all endometrial cancers be surgically staged if the patient has an acceptable risk-to-benefit ratio for surgery.^{17,18} This has since gained widespread acceptance and in their latest report, 92% of all endometrial cancers that were reported to FIGO were surgically staged.⁹

One routinely performed component of surgical staging is peritoneal washing. Originally described in 1956 for 'detecting early spread' of ovarian cancers,¹⁹ this procedure soon gained widespread use in the evaluation of endometrial cancers as well. The principal purpose of peritoneal washing is the potential detection of occult extra-uterine spread of disease in patients that otherwise would have been considered FIGO stage I (tumor confined to the uterine corpus) or stage II (tumor confined to the uterine corpus and cervix). In patients with endometrial cancers, the prognostic value of peritoneal washings was initially investigated in detail by Creasman and Rutledge in 1971.²⁰ Using a cohort of 183 patients who all received preoperative radiotherapy, the authors reported an incidence of positive washings of 11.5%. Furthermore, they demonstrated worse survival at 4 years for patients with positive washings as compared to their counterparts with negative washings.²⁰ The adverse impact of positive washings on overall survival was maintained even in patients with carcinoma that was limited to the endometrium and/or myometrium.²⁰ Numerous studies have since been published on the prognostic significance of positive washings in endometrial carcinoma, with contradicting results.^{21–57} The incidence of positive washings in clinical stage I endometrial carcinoma in these studies ranged from less than 3% to almost 30%, a level of discrepancy which is illustrative of the overall lack of consensus on this subject. Nonetheless, in the FIGO staging scheme⁹ for endometrial cancers (as well as the closely related TNM staging¹ of the American Joint Committee on Cancer), a positive finding on a peritoneal washing, presumably indicating extra-uterine spread of disease, places a patient in a late stage category (stage IIIA). Thus, the clinical and cost justification for the routine performance of this procedure derives mainly from the frequency with which it upstages patients with endometrial cancer, and perhaps more importantly, the prognostic significance of such an upstaging. In this report, we explore both these issues in detail. Using the database of a representative cytology service at a large tertiary care academic medical center, we determined the frequency with which peritoneal washing findings alone upstaged

patients with endometrial carcinoma. Then, using the same database, we investigated the prognostic significance of a positive peritoneal washing (when identified in the absence of other evidence of extrauterine disease) compared to stage-matched cases with negative washings. Our results challenge not only the justification for this procedure but the FIGO staging scheme's categorization of patients with an isolated positive washing as stage III.

Methods and patients

The cytologic reports of all peritoneal washings that were performed during the surgical staging of endometrial carcinomas during a 5-year period (01/1995–12/1999) were retrieved from the computerized database of the Pathology Department at Yale-New Haven Hospital (New Haven, CT, USA) and reviewed. Only cases in which carcinoma was diagnosed either in the pre-hysterectomy endometrial curettage and/or in the hysterectomy specimen were included in this study. Thus, washings performed for endometrial glandular hyperplasias (with or without atypia) were excluded. Cases that were not unequivocally diagnosed as negative for malignant cells were then separated and investigated in more detail, including a review of medical records, cytologic slides and the entire pathologic records.

A peritoneal washing typically involves the installation of approximately 100 cm³ of normal saline into the peritoneal cavity immediately upon entry. The fluid is allowed to bath the peritoneal surfaces and is then aspirated from the pelvic region. Cytologic slides are prepared in our laboratory using the ThinPrep[®] 2000 automated slide processor (Cytoc, Boxborough, MA, USA), per manufacturer's instructions.

A patient was deemed to have been upstaged by positive washings alone if, in the absence of washings, the patient would have been considered FIGO stage I or II (study group). Thus, in these patients, the surgeon noted no grossly evident intraperitoneal disease and on histologic sections, their endometrial cancers were confined to the uterine corpus and/or cervix without involvement of the uterine serosae. To create an age-matched control group of randomly selected patients with early-stage endometrial cancers with similar histologic subtypes but negative peritoneal washings, a database of all washings for FIGO stage I and II endometrial carcinomas performed over this period was constructed. The cases were listed consecutively based on the date of washing. For the purposes of matching the patients in the case group, they were also included in this database, each in their appropriate position based on the date of washing. Controls around each patient in the case group were selected as follows: The first patient preceding and subsequent to the case group patient were selected from the list if (1) they were within

3 years of age of the study group patient and (2) their endometrial carcinoma was of the same histologic subtype. In both groups, patients with FIGO stage 1A and 1B, FIGO grade 1 and nuclear grade 1 endometrioid carcinoma received a simple hysterectomy and bilateral salpingo-oophorectomy (Hyst-BSO) only. All other patients with more adverse parameters (nonendometrioid histology, FIGO stage 1c or 2, nuclear grade 2 or above) also received at least bilateral pelvic lymphadenectomies in addition to their Hyst-BSO. None of the patients in both groups received preoperative radiotherapy. Methods of treatment, overall survival and any evidence of tumor progression (recurrence or metastases) were investigated and recorded for all the patients in both groups.

Results

Of 220 endometrial carcinomas, peritoneal washing cytology was unequivocally reported as 'negative' for malignant cells in 201 (91.4%). The remaining 19 cases (8.6%) were 'positive for malignant cells' ($n=14$, 6.4%), 'suspicious for malignant cells' ($n=2$, 0.9%), or 'atypical, suggestive of malignancy' ($n=3$, 0.14%). All slides were reviewed and final diagnoses were confirmed. The following cytologic features characterized cases that were unequivocally diagnosed as malignant: several clustered, three-dimensional, scalloped-edged aggregates of large cells with vesicular to hyperchromatic nuclei that typically displayed prominent macronucleoli. The 'suspicious' cases were typically single cells, overall quantitatively less as compared to the 'positive' cases but largely retaining the same nuclear features. The three 'atypical' cases showed two or three clusters of enlarged cells with hyperchromatic nuclei, inconspicuous nucleoli, regular nuclear membranes, wisps of eosinophilic cytoplasm and an unaltered nuclear/cytoplasmic ratio. For the purposes of this study, 'positive', 'suspicious' and 'atypical' cases were all lumped into one group representing 'abnormal' peritoneal washings. Of 19 cases in this group, positive cytology alone was upstaged only 10 patients (4.5% of all cases). The histologic subtypes were endometrioid ($n=8$), serous ($n=1$), mixed ($n=1$). Nine of 10 cases were upstaged from FIGO stage IA or IB and one was upstaged from FIGO stage IIB. These 10 patients constituted our 'case group', and their detailed clinicopathologic information is outlined in Table 1. The washings in 70% of these 10 cases were unequivocally diagnosed as 'positive', 20% as 'suspicious' and 10% as 'atypical'. Adjuvant chemotherapy, radiotherapy and/or hormonal therapy was administered in 90% of the patients in the case group. After a median follow-up of 51 months (range 6–94), no single patient had experienced disease progression, defined as tumor recurrence, metastasis or death. The 19 randomly selected patients in the

control group ranged in age from 41 to 82 years. Adjuvant therapy was administered in 74% of this group. After a median follow-up of 63 months (range 4–107), only one patient had experienced disease progression. In this patient, radiologic evidence of a pulmonary metastatic deposit was identified 2 years after her hysterectomy. She was placed on a strong progestin (Megace) with subsequent reduction in the size of the lesion (as assessed radiographically) over a 6-month period. The mass has subsequently been stable and she shows no other evidence of disease progression with a total of 52 months of additional follow-up. The remaining 18 patients have remained disease-free over their period of follow-up. The clinicopathologic characteristics of the study and control group patients are compared in Table 2. Various clinicopathologic parameters in the case group and study group were compared using the Fisher's exact test. As expected, no significant difference was found ($P>0.05$).

Discussion

'Management in this situation is controversial if no other features of extra-uterine disease have been documented at the time of surgical staging, because insufficient data exist regarding recurrence risk and treatment results'.⁵⁸

The above statement from the latest *Staging Classifications and Clinical Practice Guidelines of Gynaecologic Cancers*, a joint publication of consensus guidelines from FIGO and the International Gynecologic Cancer Society, is illustrative of the difficulties encountered by clinicians in assessing the significance of positive peritoneal washings in early stage endometrial cancer. Thus, currently, under the same set of clinicopathologic circumstances, some patients receive no further therapy while others receive adjuvant therapy. Since peritoneal washings have been in routine use for almost half a century, and since the conclusive identification of a possible prognostic significance of positive washings continues to remain elusive, the logical question arises as to whether the whole concept of routine peritoneal washings for endometrial cancers require a re-evaluation. Pursuant to this effort, we have assessed the frequency with which cytology alone was upstaged patients with endometrial carcinoma over a 5-year period at a large academic medical center. Additionally, we investigated whether an isolated positive washing in patients with early stage endometrial carcinoma confers upon affected patients an overall worsening of clinical outcome. Our results show that a small but not insignificant percentage of patients (4.5%) will be upstaged by cytologic findings alone. This figure is lesser than the 11.4% average incidence found by McLellan *et al*³⁹ in their literature meta-analysis that included 3091 patients in 15 studies. However, as previously noted, the incidence of positive

Table 1 Clinical and pathologic details for the patients in the case and control groups

#	Age (years)	Histologic subtype	FIGO stage	FIGO gr.	Nuc. Grd.	LVI	Adjuvant treatment	Outcome	Cyto dx
Case group									
1	76	Endometrioid	Stage IB→IIIA	3	3	Yes	EBRT/vaginal brachytherapy	NERM 74 Months	Positive
2	73	Endometrioid	Stage IB→IIIA	2	2	No	Vaginal brachytherapy	NERM 61 Months	ATYP
3	59	Endometrioid	Stage IA→IIIA	1	1	No	Progestin therapy	NERM 48 Months	Positive
4	72	Endometrioid	Stage IA→IIIA	3	3	Yes	Chemotherapy	NERM 55 Months	Positive
5	45	Endometrioid	Stage IA→IIIA	1	1	No	No further treatment	NERM 47 Months	ATYP
6	45	Endometrioid	Stage IA→IIIA	1	1	No	Chemotherapy ^a	NERM 49 Months	SUSP
7	53	Endometrioid	Stage IB→IIIA	3	3	No	Chemotherapy ^a	NERM 94 Months	Positive
8	73	Endometrioid	Stage IB→IIIA	1	2	No	Vaginal brachytherapy	NERM 47 Months	Positive
9	69	MMMT/Serous	Stage IIB→IIIA	NA	3	Yes	Chemotherapy/EBRT	NERM 6 Months	Positive
10	79	Serous	Stage IA→IIIA	NA	3	No	Chemotherapy/vaginal brachytherapy	NERM 52 Months	Positive
Control group									
1	76	Endometrioid	Stage IB	2	1	No	Vaginal brachytherapy	NERM 68 Months	Negative
2	72	Endometrioid	Stage IA	1	1	No	No further treatment	NERM 33 Months	Negative
3	73	Endometrioid	Stage IC	2	2	No	Vaginal brachytherapy	NERM 63 Months	Negative
4	74	Endometrioid	Stage IB	1	2	Yes	Vaginal brachytherapy	NERM 39 Months	Negative
5	60	Endometrioid	Stage IB	1	2	Yes	Vaginal brachytherapy	NERM 57 Months	Negative
6	56	Endometrioid	Stage IA	1	1	No	No further treatment	NERM 4 Months	Negative
7	73	Endometrioid	Stage IA	1	1	No	No further treatment	NERM 60 Months	Negative
8	75	Endometrioid	Stage IC	2	2	Yes	EBRT	NERM 106 Months	Negative
9	43	Endometrioid	Stage IB	2	2	No	Vaginal brachytherapy	NERM 8 Months	Negative
10	43	Endometrioid	Stage IB	2	2	No	Vaginal brachytherapy	NERM 107 Months	Negative
11	43	Endometrioid	Stage IA	1	1	No	Vaginal brachytherapy	NERM 79 Months	Negative
12	41	Endometrioid	Stage IA	1	1	No	No further treatment	NERM 64 Months	Negative
13	56	Endometrioid	Stage IA	1	1	No	No further treatment	NERM 17 Months	Negative
14	56	Endometrioid	Stage IB	2	2	Yes	EBRT/vaginal brachytherapy	NERM 69 Months	Negative
15	76	Endometrioid	Stage IC	1	1	Yes	EBRT/vaginal brachytherapy	Metastases at 24 Months	Negative
16	75	Endometrioid	Stage IB	1	2	No	Vaginal brachytherapy	NERM 39 Months	Negative
17	69	MMMT	Stage IB	3	3	Yes	Chemotherapy	NERM 74 Months	Negative
18	70	Serous	Stage IA	NA	3	No	Vaginal brachytherapy/ chemotherapy	NERM 45 Months	Negative
19	82	Serous	Stage IB	NA	3	No	Vaginal brachytherapy/ chemotherapy	NERM 86 Months	Negative

FIGO: International Federation of Gynecology and Obstetrics; MMT: malignant mixed Müllerian tumor; EBRT: external beam radiotherapy; NERM: patient is alive with no evidence of tumor recurrence or metastases at the indicated follow-up period; FIGO Gr: FIGO grade (1–3 scale); Nuc Grade: Nuclear grade (1–3 scale); Cyto Dx: cytologic diagnosis of washings; NA: not applicable; SUSP: suspicious for malignant cells; ATYP: atypical, suggestive of malignancy; LVI: lymphovascular invasion.

^aIn cases 6 and 7 of the study group, the pre-hysterectomy endometrial curettages showed endometrioid carcinoma with areas of clear cell and serous carcinoma, respectively. However, in the final hysterectomy specimens only endometrioid carcinoma was identified in both cases.

washings reported in individual studies varied significantly, from 2.9%⁵⁵ to 29.8%.³⁴ Additionally, those studies were all carried out prior to the FIGO staging recommendations of 1988, and as the authors noted, the vast majority of the patients in those series received preoperative radiation.³⁹ More recent studies, such as those of Obermair *et al*⁴⁹ and Hirai *et al*,⁵⁹ have shown more consistent figures of less than 5%. One notable exception is the recently reported study of Takeshima *et al*,⁵⁶ in which a positive washing incidence of 18% was identified for their 'low-risk' group of patients.

This study also showed that endometrial cancer patients upstaged based on abnormal peritoneal washing cytology alone have no worse an outcome than do age—and tumor histologic subtype—matched patients with stage I or II endometrial cancer whose washings were negative. Our findings are in concordance with most similar studies

published since the surgical staging recommendations of FIGO (1988) were routinely implemented at most centers.^{23,43,47,48,51,56} As noted by Obermair *et al*,⁴⁹ studies performed prior to 1990 showed more mixed results. We speculate that in the latter studies, at least a subset of clinically staged patients whose adverse outcomes were being attributed to the implications of positive washings, actually had occult extra-uterine disease elsewhere. One potential limitation of this study is that most of the patients in our case group received some form of posthysterectomy therapy. The natural history of any neoplastic process is, of course, best studied in the absence of any therapeutic interference. In this setting, that would entail a prospective study in which clinical stage I patients with positive washing cytology receive no further treatment and are compared either with an appropriately matched control group with negative cytology⁶⁰ or

Table 2 Comparison of the case group and control group patients

	Case group	Control group
Number of patients	10	19
Age (years)		
Range	45–79	41–82
Median	70.5	70
Mean	64	64
Histologic subtype		
Endometrioid	8	16
Serous	1	2
Mixed	1	0
MMMT	0	1
FIGO stage		
IA	5	7
IB	4	9
IC	0	3
IIB	1	0
Lymphovascular invasion (%)	33	32
Follow-up period (median) (months)	51	63
Adjuvant therapy (%)	90	74

FIGO: International Federation of Gynecology and Obstetrics, MMT: malignant mixed Müllerian tumor.

randomized into treatment and nontreatment arms. This type of study is fraught with potential difficulties related to rarity of the study event (ie upstaging endometrial cancer patients based on peritoneal cytology alone), the number of years it would take to complete such a study and some ethical considerations. Thus, such a study is unlikely to be conducted. We believe the potential bias from treatment in this study is ameliorated somewhat because the majority of patients in both the case group and the control group received adjuvant therapy, creating a mutual offset. No patient in the study group experienced disease progression, rendering unnecessary the stratification of patients in this small group based on treatment differences.

The presence of malignant cells in peritoneal washings as an indication that there is extra-uterine spread of disease seems intuitive, and their presence is assigned the full implications of extra-uterine disease as evidenced by their stage IIIA placement in the FIGO staging system.⁹ However, tumor metastasis is a complex multi-factorial process, and it is estimated that only a small percentage of circulating cells that exit their primary site actually survive, achieve autonomous growth and thus initiate a metastatic focus.^{61–63} This was well illustrated in the recent report of Hirai *et al*.⁵⁹ In that elegant study, a cohort of 55 endometrial cancer patients with positive washings had intraabdominal tubes placed during their primary operations for the purpose of subsequently obtaining fluids for cytologic analysis. Although all patients had positive washings at the start of the study, by day 14, all but one of 34 patients (with stage I or II endometrial

cancer) had negative washings. This ‘regression’ of tumor cells would explain why positive washings appear not to adversely impact the overall survival of patients with early stage endometrial cancers in recent studies. There is now emerging evidence that a significant innate and adaptive immunity exists in the peritoneum that prevents the successful growth and propagation of tumor cells.⁶⁴ This immunity may be subverted by some tumors, allowing them to grow. The malignant potential of tumor cells within the peritoneal cavity may also be related to the number of tumor cells. In the study of Szpak *et al*,²⁶ the concentration of malignant cells in washings correlated with overall survival in stage I endometrial carcinoma patients: four patients with malignant cells >1000 cells/100 ml of washing sample died of disease within 2 years of surgery, the other eight patients with lesser concentrations of malignant cells experienced no disease progression during the follow-up period. Although much about the pathogenesis of the tumor–peritoneum interaction remains to be elucidated, the above findings indicate that at minimum, positive washings may not be synonymous with the normally understood biologic implications of true metastases.

Based on the findings in this and other recent studies,^{23,43,47,48,51,56} an argument can be made against the routine performance of peritoneal washings during the surgical staging of patients with endometrial carcinoma. For a procedure that is performed on all patients, only a small proportion of them are upstaged exclusively by the results of this procedure. More importantly, most of the recent studies have failed to demonstrate any worsening of overall outcome in those patients with early stage cancer who are upstaged solely based on abnormal washings.^{23,43,47,48,51,56} In an analysis of recent studies (studies published after the surgical staging recommendations of FIGO (1988) can reasonably be expected to have been routinely implemented in most centers (ie 1990 and beyond)), six of nine studies (66.7%) demonstrated that peritoneal washing cytology alone is of no significant independent prognostic value in early stage endometrial cancers. At an approximate cost of \$40 (billable cost for pathology, excluding surgical and specimen transport expenses), the peritoneal washing is a relatively cheap as well as easy-to-perform test. However, in the absence of a demonstrable independent clinical impact, this cost to patients and the healthcare system, minimal as it may be, hardly seems justifiable. Many physicians currently ignore the results of washings while others treat aggressively based on it. The latter has included progestins, chemotherapy, abdominal radiation and intraperitoneal chromic phosphate.^{28,29,32,39,65} However, if washings are capturing intraperitoneal malignant cells at a point in time in which they have not established autonomous growth and were destined for necrosis, these patients may be receiving unnecessary adjuvant therapy.

The contrary argument, for the continued routine performance of peritoneal washings, also has several supporting points. It is not in dispute that positive peritoneal washings provide some prognostic information. When patients with endometrial cancer are considered as a group, positive washings correlates consistently across several studies with established prognostic parameters such as advanced tumor stage, advanced histologic grade, lymph node metastases, depth of myometrial invasion, and even recurrence and survival.^{23,25,39,41,62,63,66,67} What is more controversial is whether they provide independent prognostic information in early stage cancer patients after covariates have been excluded. For those patients with stage I and stage II endometrial cancers of low histologic grade, positive washings probably have no independent impact on disease recurrence rates or survival as discussed above.⁶⁸ Washings may, however, be used to guide therapy for a subset of patients with early stage type II endometrial cancers. For example, it is well established that endometrial serous carcinoma may exist as a small, endometrium-confined focus, and still show extrauterine metastases.^{69–71} Thus, a positive washing in this setting is more likely to represent true extra-uterine spread of disease, and Chen and Berek⁶⁵ administer adjuvant chemotherapy such as paclitaxel and carboplatin for these patients. However, the dominant prognostic parameter here is likely nonendometrioid histology, not the positive washing. In advanced stage patients, positive washings do not emerge as an independent adverse prognostic parameter on multivariate analyses, but may be of use when combined with other poor prognostic parameters to predict the risk of disease recurrence and overall survival.^{23,56,68} Since extent of disease is often unknown when washings are taken, this argues for the continued collection of peritoneal washings in all patients. Additionally, by no means is there consensus on the lack of prognostic significance of peritoneal washing cytology for clinical stage I patients upstaged by cytology alone, and a small minority of studies continue to demonstrate for this finding an adverse impact on overall survival. A study published as recently as 2001⁴⁹ showed that such patients had a significantly worse disease-free survival as compared with similar patients with negative washings (67 vs 96%, $P < 0.001$). Zuna and Behrens⁴⁴ and Kennedy *et al*²⁵ also noted statistically significant survival differences when early stage patients with positive and negative washings were compared. Finally, as noted previously, the test is relatively cheap, easy-to-perform, and relatively complication-free.

If routine washings are continued, at minimum, the implications of positive washings in the staging of patients with endometrial cancer require a re-evaluation. In the current FIGO staging system,⁹ positive washings indicate stage IIIA disease, which categorizes such patients into the same group as others with ovarian or fallopian tube spread, and

uterine serosal involvement. The heterogeneous nature of such a grouping was evident in a recent study in which stage IIIA patients were specifically investigated with respect to outcome.⁵³ The authors concluded that for low-risk histologic subtypes (ie endometrioid carcinoma, which represents 80% of all endometrial carcinoma), adnexal and serosal involvement were both associated with a poor outcome, while positive peritoneal washing was not.⁵³ Another study, in which stage IIIA patients were classified into two groups based on uterine serosa/adnexal involvement or positive peritoneal washings alone, showed similar findings: overall survival at 5 years was 27% for the first group and 80% for the second.⁷² Boronow,² a pioneer in gynecologic oncology, has also objected to this grouping, writing that serosal involvement should be viewed as an extreme of myometrial invasion, 'quite a different entity from adnexal spread'. He also proposed that washing cytology results be applied to more stages of endometrial cancer, as they are with ovarian malignancies.¹ We certainly agree that there needs to be greater discussion on whether positive washings alone should upstage these patients, and a reassessment of the placement of these patients in the FIGO staging system seems warranted.

In conclusion, we demonstrated in this study that positive cytology without other evidence of extra-uterine disease leads to upstaging of a minority of endometrial carcinoma patients (4.5%), but does not appear to affect their overall outcome. Although this is a small single-site study, it raises questions about the value of this procedure in patients with endometrial cancer as well as the stage IIIA placement of patients with positive results in the FIGO staging system. We encourage further consideration and study of these concepts.

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