Could endometrial cytology be helpful in detecting endometrial malignancies?

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Summary

This short communication assesses the concordance indexes between hysteroscopic biopsies and endometrial cytology for each endometrial pattern found in a sample of 37 women. Patients underwent endometrial cytology under sonographic guidance. The specimens were obtained with an endocervical brush and were fixed on slides (no liquid-based methods). After endometrial cytology, hysteroscopy with biopsy was performed. The best concordance index was found for endometrial malignancies, suggesting that endometrial cytology is able to detect cancers but not other endometrial diseases, as compared with endometrial hysteroscopic biopsies. Therefore, the overall concordance index suggests a fair concordance between histological and cytological findings. This leads us to conclude that usual endometrial cytology should not be recommended to screen endometrial diseases, but it may be used as an alternative diagnostic tool when hysteroscopic biopsies or other blinded procedures for endometrial sampling are unwanted, because it allows malignancies to be detected as well as hysteroscopic-guided biopsies.

Key words: Endometrial cytology; Endometrial biopsy; Diagnosis.

Introduction

Hysteroscopy with endometrial biopsy is the best tool to undergo endometrial pathologies [1]. To date, many studies have highlighted the goodness of hysteroscopy in diagnosing endometrial pathologies, as compared with dilatation and curettage [2], ultrasonographic imaging [3] and blinded endometrial biopsies [4]. Fewer reports have assessed the goodness of endometrial cytologic sampling in predicting endometrial pathologies [5-9]. We believe that the wide diffusion of hysteroscopic techniques led gynecologists to avoid endometrial cytologic sampling, even if it is overall useful in diagnosing endometrial malignancies [5, 6].

The aim of this short report is to check if endometrial cytology performed with a cervical brush agrees with histological findings obtained from hysteroscopic biopsies.

Patients and Methods

This study was conducted on 37 women who agreed to undergo cytologic endometrial sampling before hysteroscopy. Five women were non menopausal and 32 were menopausal. Indications for hysteroscopic examination were irregular menstrual bleeding, abnormal postmenopausal bleeding, and sonographic abnormal patterns.

Cytologic endometrial samples were performed with a sterile endocervical brush. A Saint Martin's forceps was applied on the cervix, gently tractioning the uterus while the sterile brush was introduced within the uterine cavity. A convex 2.5 mHz ultrasonographic probe placed over the pubis, with the bladder moderately repleted, was used to check the brush position within the uterine cavity. Then, the brush was rotated 360° again, first close to the uterine fundus and following, close to the tubal angles.

Samples were fixed with 2% formalin on slides, and stained with Papanicoloau color for cytological examination (100x). No liquid-based methods were used to prepare microscope slides. Sometimes, some endometrial fragments were placed on slides, allowing histological assessment.

After the sampling, an ultrasonographic probe evidenced a hyperecogenic pattern within the uterine cavity due to air introduced with the brush. Such marker confirms the goodness of the sample.

Some days after endometrial cytology sampling, patients underwent office hysteroscopic biopsies.

Results of cytologic diagnosis and histologic diagnosis were assessed with Cohen's kappa statistic. Concordance coefficients were quantized as reported by Landis and Koch [10]: kappa coefficient = 0, poor concordance; kappa coefficients 0.01-0.20 slight concordance; kappa coefficient 0.21-0.40 fair concordance; kappa coefficient 0.41-0.60 moderate concordance; kappa coefficient 0.61-0.80 substantial concordance; and kappa coefficient 0.81-1 almost perfect concordance.

Results

Table 1 shows the rates of normal patterns, hyperplasias (not atypical), endometrial polyps, and endometrial cancer for both cytological and histological findings. Kappa values are reported for each pattern. Additionally, overall kappa with significance is shown in the last column on the right. The concordance is poor for hyperplastic patterns, slight for normal patterns, fair for endometrial polyps, and almost perfect for endometrial cancer. Thus, overall concordance is fair for cytological and histological findings ($p = 0.006$).

The cytological sampling was easy in all patients who complained of pelvic discomfort or mild painful sensations like menstrual pain.

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Table 1. — *Histologic and cytologic patterns*.

	Cytology	Histology	k	Overall k
Normal pattern	26	22	0.180	
	70.3%	59.5%		
Hyperplasia	6	5	0.041	0.305
(not atypical)	16.2%	13.5%		$p = 0.006$
Endometrial	1	6	0.251	(C.I. 99%
polyps	2.7%	16.2%		0.004 - 0.008)
Cancers	4	4	1	
	10.8%	10.8%		

Rates and k values for each pattern. Overall k provide an estimation of the concordance for all patterns.

Discussion

These results do not suggest the use of endometrial cytology as a screening test for detecting endometrial pathologies. However, endometrial cytology seems very able to detect endometrial cancer. This has been reported by other authors with tools able to provide endometrial fragments and/or with a liquid-based preparation of the sample [6, 7, 9]. However, in light of the wide use of hysteroscopy for detecting endometrial cancer and other endometrial diseases in Italy, it seems that endometrial cytology does not have any clinical use. However, when office hysteroscopy or other endometrial sampling tools are not wanted, clinicians should counsel patients about endometrial cytology as a practical and inexpensive tool for detecting endometrial malignancies. The goal of endometrial cytologic samples should be to remove some tissue fragments in order to improve pathological examination. Every endometrial sampler device and tool that allows this kind of tissue sampling improves diagnostic accuracy of endometrial cytology [11, 12]. However, ultrasound guidance and Martin's forceps on the cervix allow the removal of some endometrial fragments with a common endocervical brush, without a cost-effectiveness disadvantage.

Conclusion

Endometrial cytology with the usual endocervical brush and sonographic guide may be helpful in detecting endometrial malignancies, if hysteroscopic biopsies, dilatation and curettage, or other blinded endometrial biopsies are unwanted or impossible.

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