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Utility of a Standardized Protocol for Submitting Clinically Suspected Endometrial Polyps to the Pathology Laboratory

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Abstract

The purpose of the study is to assess whether a protocol for submitting clinically suspected endometrial polyps will improve the detection rate of polyps and evaluation of the background endometrium. A retrospective review from 1999–2015 was performed. Cases were divided into: 1) polyps and curettings placed in 2 containers (separate, n=61) and 2) polyps and curettings placed in one container (combined, n=80). Polyps were identified in 100% of cases in the separate compared to 95% in the combined group ($p=0.62$). The background endometrium was evaluable in 79% in the combined compared to 90% in the separate group ($p=0.07$). The frequency of hyperplasia without atypia, atypical hyperplasia and carcinoma was 4.4%, 3.6% and 1.5%, respectively. In conclusion, the enhanced rate of polyp detection and evaluation of the background endometrium in the separate group is minimal. This supports the recommendation of submitting endometrial polyps and curetting combined in one container.

Keywords

endometrial polyp; containers; hyperplasia; carcinoma; evaluation; protocol

Introduction

Endometrial polypectomies, biopsies and curettages are common specimens sent for histopathologic evaluation. Endometrial sampling is a standard component of the diagnostic workup of abnormal uterine bleeding in addition to the removal of endometrial polyps visualized on hysteroscopy for management. Endometrial polyps are overgrowths of localized endometrial tissue and may be pedunculated or sessile and single or multiple in the endometrial cavity. Polyps can range in size from a few millimeters to several centimeters. Morphologically, endometrial polyps exhibit localized proliferation of glands, varying amounts of fibrous stroma, with or without thick walled blood vessels and in the ideal situation are covered by epithelium on three sides¹.

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Although the majority of endometrial polyps are benign, they can be associated with premalignant or malignant entities including endometrial hyperplasia and carcinoma. Polyps are detected in pre and postmenopausal women and can be asymptomatic or present with symptoms such as abnormal uterine bleeding². Postmenopausal status and abnormal bleeding are significant predictors of malignancy associated with polyps^{3, 4}, and thus indications for excision. Hysteroscopic polypectomy is a safe and effective method for diagnosing and treating polyps and is preferred over non-visual techniques⁵.

Careful histologic evaluation of excised polyps and curettings is necessary to detect malignant or premalignant conditions. At Vanderbilt University Medical Center (VUMC), it is standard procedure to submit the entire endometrial tissue received for microscopic evaluation. Polypectomy and curettage specimens can be submitted by the clinician in two different ways: 1) polyp and curettings in two separate containers and 2) polyp and curettings combined into one container. There is a significant variation in the method of submission used by clinicians as no standard protocol currently exists.

The purpose of this study is to compare the frequency of histologic polyp detection and evaluation of the background endometrium in the separate and combined methods and to recommend one method over the other. To the best of our knowledge, this is the first study reported in the English literature evaluating the effectiveness of these methods.

Methods

Patients

This is a quality assurance project performed at the VUMC. A retrospective review of pathology reports and electronic medical records of cases accessioned as “endometrial polyp” at VUMC from august, 1999 through March, 2015 was performed. Hysterectomy specimens and outside referrals were excluded. Case records were extracted from Cerner CoPath and Synthetic Derivative, a de-identified Vanderbilt data set. A total of 141 cases were included in the study and divided into two groups based on the method of submission by the clinician: 1) polyps and curettings in two separate containers (separate, n=61) and 2) polyp and curettings combined into one container (combined, n=80).

Grossing protocol

The gross protocol at our institution for endometrial polyps and curettings is to measure the size of the tissue fragments in aggregate in three dimensions (mm), report the number of pieces submitted, specify the range of dimensions of the largest and smallest fragments and to measure any intact polyp(s) in three dimensions. This is followed by a description of the color and texture of the tissue. Large polyps are usually bisected longitudinally. Lens paper is used to wrap small biopsies to prevent the loss of tissue during processing. Blood clot and mucus are usually submitted in separate cassettes. It is standard procedure to entirely submit all tissue received for microscopic evaluation.

Microscopic evaluation of polyps

The microscopic interpretation for polypectomy specimens used at our institution varies depending on the presence or absence of a polyp and extent of morphologic features characteristic of an endometrial polyp present in the specimen. In both the combined and separate groups, the frequency of polyp detection was determined. Histologic detection of a polyp was determined based on the final pathologic diagnosis confirming or suggesting the presence of a polyp. Microscopic diagnoses considered diagnostic of a polyp included: changes suggestive of a polyp, changes consistent with a polyp, and endometrial polyp(s) present.

Microscopic evaluation of the background endometrium

The frequency of evaluation of the background endometrium in the separate and combined groups was determined. The background endometrium was considered evaluable if the final pathologic diagnosis provided a morphologic description of the endometrium, such as proliferative, secretory, endometritis, hyperplasia, or carcinoma. The background was determined to be non-evaluable if this was specifically stated in the report or no specific diagnosis or description was rendered in the pathology report.

In addition, the frequency of hyperplasia or malignancy in cases with an endometrial polyp was determined. The diagnosis of hyperplasia included simple or complex hyperplasia (with and without atypia). Hyperplasia and malignancy cases were grouped together for the analysis.

Statistical analysis

The Mann-Whitney test was used to compare differences between continuous variables, whereas the Chi-square or Fischer exact test was utilized to describe differences in frequencies.

Results

Demographics

A total of 141 cases including 80 combined and 61 separate cases were included in the study. The patient's ranged in age from 24–80 (average 49) and 24–81 (average 49) years in the separate and combined groups, respectively.

Frequency of polyp detection

Table 1 summarizes the frequency of endometrial polyp detection in the polyp container in each group. Endometrial polyps were identified in all cases of the separate group (61/61, 100%). Of these, 59 (97%) were present in the polyp container and 2 (3%) were identified in the curetting's container. In the combined group, a polyp was identified in 76/80 (95%) of cases ($p=0.62$). The 4 cases with no polyp in the combined group were diagnosed as proliferative endometrium, adenocarcinoma, complex hyperplasia without atypia (Fig. 1) and leiomyoma.

Frequency of background endometrium evaluation

Table 1 summarizes the frequency of background evaluation in each group. The background endometrium was evaluable in 63/80 cases (79%) in the combined group, and 55/61 (90%) of the separate group cases ($p=0.07$). In the separate group, the background was evaluable in the polyp and curettage container in 20% and 89% of cases, respectively.

Frequency of hyperplasia/malignancy in cases diagnosed with endometrial polyps

Thirteen out of 137 cases (9.5%) with a diagnosis of endometrial polyp were associated with hyperplasia and/or malignancy in our cohort. The frequency of hyperplasia without atypia, hyperplasia with atypia and carcinoma was 6/137 (4.4%), 5/137 (3.6%) and 2/137 (1.5%), respectively. Hyperplasia or malignancy was detected in the curettage container in 6/8 (75%) of cases and in the polyp container in 6/8 (75%). In the combined group, hyperplasia and/or malignancy was detected in 5/76 (7%) of cases with an endometrial polyp and included the following diagnoses: 3 hyperplasia without atypia, 1 hyperplasia with atypia and 1 carcinoma. In the separate group, hyperplasia and/or malignancy was detected in 8/61 (13%) of cases with an endometrial polyp and included 3 cases of hyperplasia without atypia, 4 cases of hyperplasia with atypia and 1 carcinoma case. (Table 1).

Demographics of benign versus hyperplasia/malignancy cases

The median age in the hyperplasia/malignancy cases was 55 (interquartile range (IQR) 37–55), compared to 48 (IQR 40–56) in the benign cases, with no statistically significant difference in age between the groups ($P=0.15$).

Tissue volume submitted in the benign versus hyperplasia/malignancy cases

The number of paraffin blocks per case was used as an indirect measure of the volume of tissue submitted for histopathologic evaluation. The median number of paraffin blocks submitted in cases with hyperplasia/malignancy was 2 (IQR 2–4), whereas the median number of blocks in benign cases was 2 (IQR 2–3), with no statistically significant difference in the number of paraffin blocks submitted between the two groups ($P=0.62$).

Discussion

With increasing efforts to minimize health care costs, the results of this study provide a possible avenue through which costs can be decreased in the surgical pathology laboratory. This study compared the effectiveness of polyp detection and evaluation of background endometrium of two different methods used by clinicians to submit endometrial specimens, namely polyps and curettings placed in two separate containers or placed in the same container. Practices for submitting clinically suspected endometrial polyps vary among clinicians even at the same institution. In the time frame of this study, we identified 61 separate and 80 combined cases, demonstrating this variation in submission methods used by clinicians. A possible motive for submitting polyps in a separate container from the curettings is to decrease the likelihood of misdiagnosis as there are several mimickers for endometrial polyps including exogenous hormone effect, chronic endometritis, adenomyomatous polyp, atypical polypoid adenomyoma, adenosarcoma and endometrial stromal sarcoma⁶.

In this study, we identified that the frequency of polyp detection and evaluation of the background endometrium in specimens submitted in separate versus combined containers is minimal with no statistically significant difference (100% vs. 95% and 90% vs 79%, respectively).

In our cohort, the frequency of hyperplasia without atypia, hyperplasia with atypia and carcinoma was 4.4%, 3.6% and 1.5%, respectively in cases with a final interpretation of endometrial polyp. These lesions were identified within the polyp, in the background endometrium or both. Various frequencies of the association of hyperplasia without atypia, atypical hyperplasia and carcinoma with endometrial polyps have been reported in the literature, ranging from 11.4–25.7%, 1.1–12% and 0.8% to 3.5%, respectively^{7–11}. Interestingly, in our study there was no significant difference in the age or volume of tissue submitted when comparing benign and hyperplasia/carcinoma cases.

At the VUMC, the cost for the pathologic evaluation of a single case at the time of writing this manuscript is \$179 per part submitted. When applying this cost to the two methods of submission evaluated in this study, the cost of submitting endometrial polyps combined with curettings would be \$179 compared to \$358 if submitted separately. Thus, submitting the two tissues into a single container would decrease cost without adversely affecting pathologic diagnosis. Additionally, container handling including accessioning and storage and the amount of fixative used would be reduced.

In conclusion, the frequency of polyp detection and evaluation of the background endometrium in specimens submitted in separate versus combined containers is minimal with no statistically significant difference. This supports the recommendation of a protocol for submitting endometrial polyps and curetting combined in one container.

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Figure 1. Representative cases with clinically suspected endometrial polyp(s) with no polyp identified on final microscopic examination. The final diagnoses rendered were A) proliferative endometrium, B) complex hyperplasia without atypia and C) Endometrioid adenocarcinoma.

Table 1

Frequency of polyp detection, evaluation of the background endometrium and associated hyperplasia/ carcinoma in the combined and separate groups.

	Combined Container (n=80)	Separate Container (n=61 cases)	
		Polyp container	Curettage Container
Polyp Detected	76/80 (95%)	59/61 (97%)	26/61 (43%)
Background Evaluable	63/80 (79%)	12/61 (20%)	54/61 (89%)
Hyperplasia/carcinoma	5/76 (7%)*	8/61 (13%)	

* No endometrial polyp identified in the remaining 4 cases.