Original Article

Endocervical Histopathology Specimen Adequacy in Fractional Curettage

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Objective: To evaluate the adequacy of endocervical histopathology specimen from fractional curettage (FC) and impact of clinical factors.

Materials and Methods: A retrospective descriptive study involving women underwent FCs gathering normal cervical cytology in Ramathibodi Hospital between January 2012 and December 2016.

Results: Three hundred eighty-seven participants underwent FC. The indications of FC were 58.4% pre-menopausal abnormal uterine bleeding, 31% post-menopausal bleeding, 10.6% other indications. The overall adequacy of endocervical specimens obtained by endocervical curettage (ECC) was 45.5%, which was higher in pre-menopausal group [48.0% pre-menopause versus 40.9% post-menopause, OR 0.74 (95% CI 0.49 to 1.14)]. There were no statistically significant differences in adequacy of ECC specimens with respect to baseline characteristics. Pathological report of one patient indicated malignancy from both endometrial tissue and ECC (0.2%). The complications rate was 1.3% from procedure and anesthetic complication.

Conclusion: ECC provided 45.5% adequacy in women with normal cervical cytology. There was no identified clinical risk factor regarding adequate endocervical specimens.

Keywords: Fractional and curettage, Endocervical curettage, Abnormal uterine bleeding, Specimen adequacy

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Fractional curettage (FC) is an attempt to remove tissue samples from the endocervical canal apart from the endometrial cavity. Endocervical curettage (ECC) is curettage of endocervical canal to retrieve sample tissue material for histopathology examination[1,2]. According to the European guidelines and the American Society for Colposcopy and Cervical Pathology (ASCCP), ECC should be performed only in case of abnormal cytology result or unsatisfactory colposcope. In addition, ECC may be performed to evaluate ectocervical squamous cell lesion extending to the endocervical canal, detect endocervical adenocarcinoma and its precursor lesions, and determine cervical involvement of the others malignancies[2-4].

On the other hand, the disadvantages of ECC are potential complications such as uterine perforation, infection, intrauterine adhesion, cervical stenosis, cervical tears, and bleeding[5].

A previous study reported that the adequacy of ECC specimen in Thailand was 45%[6]. In a study of Piatek et al[7], the adequacy was higher in women suspected of having uterine cervix dysplasia including abnormal cervical cytology (96%) compared with women without abnormal cervical cytology (88%). In everyday clinical practice, some women with normal cervical cytology still underwent routine ECC in the part of FC procedure whereas the advantage of ECC in this group was questionable.

The primary objective of the present study was to evaluate the adequacy of endocervical histopathology specimen from FC in women with normal cervical cytology.

The secondary objective was to determine the clinical factors of endocervical histopathology

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specimen adequacy from ECC.

Materials and Methods

A retrospective study included women that underwent FC at a tertiary care hospital (Ramathibodi Hospital) between January 1, 2012 and December 31, 2016. The protocol was approved by the Human Research Committee of Ramathibodi Hospital, Mahidol University.

In Ramathibodi Hospital, ECC procedure is performed using sharp curettes, Norvak's curettes initiated from the internal cervical canal to the external cervical canal. Before performing ECC, a gauze was placed at the posterior valve of the speculum to collect the tissue sample[8].

All data from medical records were collected including subject age, body weight, height, body mass index, parity, route of delivery, indication for FC such as abnormal uterine bleeding (AUB), post-menopausal bleeding (PMB), or other indications (i.e., endometrial thickening, intrauterine lesion, pyometra, or follow-up endometrial hyperplasia treatment), proficiency level of operator, office or operating room setting, duration of operation, amount of endometrial and endocervical tissues collected, pathology report of endometrial and endocervical tissues, cervical cytology results, and any complications. The amount of tissues collected was recorded in the operation note. If a patient had undergone multiple FC, data collected during the earliest episode was used.

Adequacy of tissue retrieved from ECCs was categorized into adequate and inadequate. Adequate was defined as adequate amount of tissues from ECCs and pathological report. Inadequate was defined as either lack of tissues from ECCs or insufficient tissues from pathological report. All histopathology specimens were reviewed by a pathologist.

The sample size was based on proportion test using adequacy of ECC (45%)[6]. A study with power of 80% with a type I error 5% required a sample of 304 participants. In addition, sample size was increased by 15% for data loss, thus, 350 participants were required. The power calculation was carried out using OpenEpi version 3.01. Data were analyzed using the chi-test and Fisher's exact test for categorical data. Student's t-test and the Mann-Whitney U test were used for analyzing continuous data. Stata version 15.0 software (Stata Corp., College Station, TX, USA) was used for analyses reported herein.

Results

Five hundred seven women underwent FC,

Table 1. Baseline characteristics (n=387)

Baseline characteristics	n (%)
Age (years), Mean±SD	50±9.5
BMI (kg/m^2), Mean±SD	25±5.0
Parity	
0	155 (40.1)
1	63 (16.3)
2	124 (32.0)
≥3	45 (11.6)
Vaginal delivery	
Yes	148 (38.2)
No	239 (61.8)
Menopausal status	
Premenopausal	250 (64.6)
Postmenopausal	137 (35.4)
Indication for fractional curettages	
AUB	226 (58.4)
PMB	120 (31.0)
Other than bleedings	41 (10.6)
Level of experience	
Resident 1	104 (26.9)
Resident 2	178 (46.0)
Resident 3	85 (22.0)
Fellow/staff	20 (5.1)
HRT used	
Yes	3 (0.8)
No	384 (99.2)
Place	
OPD	278 (71.8)
OR	109 (28.2)
Operative time (minutes), Median (P25, P75)	15 (10, 20)
Amount of tissues (g), Median (P25, P75)	
Endometrium	3 (1, 5)
Endocervix	0.1 (0, 0.5)
Adverse reaction	
No adverse reaction	382 (98.7)
Perforation	1 (0.3)
Revisit in 1 week	3 (0.7)
Others	1 (0.3)

BMI=body mass index; AUB=abnormal uterine bleeding; PMB= postmenopausal bleeding; HRT=hormonal replacement therapy; OPD=outpatient department; OR=operating Room; SD=standard deviation

Table 2. Clinical factors of tissue adequacy

Patient characteristic	Adequate (n=176) n (%)	Inadequate (n=211) n (%)	p-value	Odd ratio (95% CI)
Age (years), Mean±SD	49.7±9.6	50.6±9.4	0.34	0.99 (0.97 to 1.01)
BMI (kg/m^2), Mean±SD	25.5±4.4	25.3±5.5	0.76	1.00 (0.97 to 1.05)
Parity			0.23	
0	77 (49.7)	78 (50.3)		Reference
1	30 (47.6)	33 (52.4)		0.92 (0.51 to 1.65)
2	47 (37.9)	77 (62.1)		0.62 (0.38 to 1.00)
≥3	22 (48.9)	23 (51.1)		0.97 (0.50 to 1.88)
Vaginal delivery	67 (45.3)	81 (54.7)	0.95	0.99 (0.65 to 1.49)
Menopausal status			0.17	
Premenopausal	120 (48.0)	130 (52.0)		0.74 (0.49 to 1.14)
Postmenopausal	56 (40.9)	81 (59.1)		Reference
Indication for fractional curettages			0.15	
AUB	111 (63.1)	115 (50.9)		0.64 (0.41 to 1.01)
PMB	46 (38.3)	74 (61.7)		Reference
Other than bleedings	19 (46.3)	22 (53.7)		0.89 (0.46 to 1.74)
Level of experience			0.07	
Resident 1	57 (54.8)	47 (45.2)		Reference
Resident 2	73 (41.0)	105 (58.9)		0.57 (0.35 to 0.93)
Resident 3	40 (47.1)	45 (52.9)		0.73 (0.41 to 1.30)
Fellow/staff	6 (30.0)	14 (70.0)		0.35 (0.13 to 1.00)
HRT used	1 (33.3)	2 (66.7)	0.67	1.67 (0.15 to 18.62)
Place			0.43	
OPD	123 (44.8)	155 (55.8)		Reference
OR	53 (48.6)	56 (51.4)		1.20 (0.76 to 1.85)

BMI=body mass index; AUB=abnormal uterine bleeding; PMB=postmenopausal bleeding; HRT=hormonal replacement therapy; OPD=outpatient department; OR=operating room; SD=standard deviation

however, 120 medical records were incomplete. Therefore, 387 (76.3%) participants were enrolled in the study. Table 1 shows the baseline demographic characteristics. The mean age was 50±9.5 years. Most participants were non-obese (BMI 25±5 kg/m^2), multiparous (59.9%), and pre-menopausal (64.6%). Only 0.8% of the enrolled participants were using hormonal therapy. Common indications were AUB (58.4%), PMB (31%), and indications other than bleeding (10.6%). In terms of proficiency level of surgeons, 46% of the procedure was performed by second year residents, 26.9% by first year residents, 22.0% by third year residents, and 5.1% by attending physicians. Mean operation time was 15 minutes, and 71.8% of the procedures were performed in the office. Five participants (1.3%) had post-operative complications, including hospital re-visit within one week post-operatively (0.7%), uterine perforation (0.3%), and anesthetic complications (0.3%).

The present study showed that the overall adequacy of endocervical specimens obtained by ECC was 45.5%. Inadequate ECC, defined as insufficient or lack of tissues, was 54.5%.

Table 2 shows the unadjusted odd ratios of ECC adequacy. There were no statistically significant differences in adequacy of ECC specimens with respect to baseline characteristics. Additionally, the proficiency level of surgeon, or the office or operating room settings do not lead to statistically significant difference in adequacy of ECC specimen.

One patient was diagnosed with endometrial cancer (0.3%), which the abnormal cells were detected from both endocervical and endometrial tissue samples. No pre-malignant lesion was detected.

Discussion

Formerly, routine of ECC pre-operative evaluation of cervical involvement in endometrial cancer is deemed necessary. According to the current guidelines for surgical staging, the utility of ECC is decreased and used for evaluation of endocervical pathology, in some abnormal cervical cytology, and in inadequate colposcope[9,10]. However, there are no evidence-based guidelines on the necessity of ECC in women who are at low risk of invasive cervical cancer, even in low grade intraepithelial lesion and normal cytology[11]. In the present study, the authors conducted a retrospective study to evaluate the adequacy of endocervical histopathology specimen, specifically in the women who had a normal cervical cytology. It showed that ECC provided 45.5% adequacy of tissue histopathology, which is comparable to a prior study in Thailand that reported 45% adequacy[9]. Thus, the value of ECC prior to endometrial curettage remains questionable.

Furthermore, the cost of FC is comparatively higher than endometrial biopsy as the samples require subsequent pathological examinations. As the adequacy of endocervical specimen is less than 50%, the lower-cost endometrial biopsy may be preferred.

From the 387 participants examined in the present study, only one woman was diagnosed endometrial cancer (0.3%). This patient presented with PMB and FC was performed. The pathology reported malignancy, which was positive from both ECC and endometrial curettage. For other indications, such as AUB and other than bleeding, all ECC pathology reported benign histopathology, which was similar to previous study[6,7,11-13].

The clinical factors that may affect tissue adequacy were evaluated in the present study. Regarding baseline characteristics, level of surgeon, and office or operative room settings, there was no independent clinical risk factor of adequate ECC specimens. Because of non-significant difference between both groups, the authors cannot conclude the negative determinant for ECC adequacy. The present study result was different from the previous study where patient age, menopausal status, and level of surgeons had impacts on the adequacy of ECC in AUB patients[7].

As the strength of the present study, it provided new information of ECC adequacy in women that underwent FC with normal cervical cytology and presented with or without AUB. The limitation of the present study was its retrospective character, which cannot control exposure or outcome assessment and relied on accuracy of the medical record. For further study, a prospective cohort study to confirm the necessity of ECC should be conducted. Furthermore, clinical factors affecting ECC procedure should be evaluated to improve tissue adequacy. For clinical application, endometrial biopsy without ECC is an appropriate investigation in women with normal cervical cytology.

Conclusion

Routine ECC may not be necessary to be performed prior to endometrial curettage especially in women with normal cervical cytology because the adequacy is less than half. The presented clinical factors were not related to endocervical tissue adequacy.

What is already known on this topic?

ECC prior to endometrial curettage is useful to investigate abnormal cervical cytology and inadequate colposcopy. From a previous study conducted 10 years ago, the adequacy of endocervical tissue was 45%.

What this study adds?

The present study found a 45.5% adequacy of endocervical tissue histopathology in woman with normal cervical cytology. There was no identified clinical risk factor regarding adequate endocervical specimens. Benign endocervical histopathology was reported at 99.5%.

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Conflicts of interest

The authors declare no conflict of interest.

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