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ORIGINAL ARTICLE

Comparison of endocervical curettage and endocervical brush during unsatisfactory colposcopy for endocervical sampling in human papillomaviruses positive women

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ABSTRACT

Objective: Comparison of endocervical curettage (ECC) and endocervical brush (ECB) in women with human papillomaviruses (HPV) positive who had unsatisfactory colposcopy for endocervical sampling.

Material and Methods: Women who underwent ECC and ECB during an unsatisfactory colposcopy were retrospectively investigated. The results were classified as normal, inadequate, low, and high-grade lesions for compiling the two methods.

Results: In the 44 cases, the mean age was 45.75±9.71; seven of the 44 cases were low-risk HPV, while 37 were high-risk HPV. Normal results were reported in 19.4% of ECB and 32.8% of ECC (p>0.05). Unsatisfactory results were observed in 56.3% of ECB and 37.5% of ECC (p>0.05). Low-grade epithelial abnormalities were detected more in the ECB (p=0.001). ECB was not superior to ECC in high-grade lesion detection (p>0.05).

Conclusion: Low-grade lesions were diagnosed with ECB, while high-grade lesions were detected with ECC. ECB is a simple and less painful technique and can be used during unsatisfactory colposcopy in low-grade lesions, but more studies are needed.

Keywords: Cervix uteri, curettage, papanicolaou test, *papillomaviridae*.

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INTRODUCTION

Cervical intraepithelial neoplasia (CIN) or squamous intraepithelial lesions (SIL) and cervical malignancy are primarily caused by human papillomaviruses (HPV), and their cytologic effect is detected with Papanicolau pap smear.[1–3] Most HPV infections generally clear with time, but 10–15% of them can be permanent; therefore, CIN and invasive cervical carcinoma can occur if the infection is unclear or untreated.[4,5]

According to the American Society of Cervical Colposcopy Pathology (ASCCP) guidelines, women with abnormal cytology are suggested for colposcopic examination.[6] Satisfactory colposcopy is determined by the visualization of the squamocolumnar junction (SCJ), as cervical carcinoma 7 frequently originates from this location and the borders of any visible lesions.[7,8] The SCJ location is proximal to the ectocervix in younger women but is displaced higher in the endocervical canal, known as the type 3 transformation zone (TZ3), with increased age, trauma, surgery, and stenosis.[8–10] During the colposcopic evaluation, SCJ must be seen completely; otherwise, unsatisfactory colposcopy is determined, and it is generally seen in 20% of cases, endocervical sampling (endocervical brush [ECB]/endocervical curettage [ECC]) is required.[6,11–13]

The accuracy of ECC and ECB is still a matter of debate.[6] The ECB sample inadequacy is lower than the ECC, and the false positivity is higher than the ECC.[14,15] However, some studies do not have significant differences between the two methods in diagnostic accuracy.[15] In addition, ECB leads to less minor discomfort in women, especially women with TZ3, but undergoing ECC can be challenging for these women.[15]

Our study aimed to compare the outcomes of ECB and ECC in women with HPV positive who had unsatisfactory colposcopy.

MATERIAL AND METHODS

The records of HPV-positive women between 30 and 65 years of age were retrospectively evaluated from January 2018 to January 2019 in the Department of Obstetrics and Gynecology of the Uşak Training and Research Hospital. In this study, these women who were referred to colposcopy due to abnormal or unsatisfactory cytology and had ECC and ECB performed at the same time during unsatisfactory colposcopy within a few months were included. Women who were pregnant, virgin, HPV negative, and underwent the excisional procedure were excluded from the study. This study was approved by the Ethics Committee of the Faculty of Medicine of Uşak University with the number 20 February 2019 and 131-04-15.

The demographic findings of the patients included; age, body mass index (BMI), gravity, parity, curettage, mode of delivery, and smoking. According to the Turkish Cancer Department report, women were evaluated according to HPV type with high and low risk.[16] Furthermore, the reflex cytology and ECB reported by Bethesda and the pathological results[17] were evaluated. Standard endocervical brushing and '0' no Sims curette were used in the operation reports during endocervical sampling (Fig. 1).

Women were classified as normal, unsatisfactory results, intraepithelial lesions: Low grade = Atypic squamous cell-un significant (ASCUS), atypic squamous cell-high grade, grade squamous intraepithelial lesion (LSIL), and high grade=High-grade cytology (HSIL), CIN: 1, 2, 3 and reports were grouped, and ECB and ECC were compared.[15] Reflex cytology and ECB results were effectively compared with brush type in endocervical sampling. We detected that the same pathologist evaluated the ECB and ECC specimens.

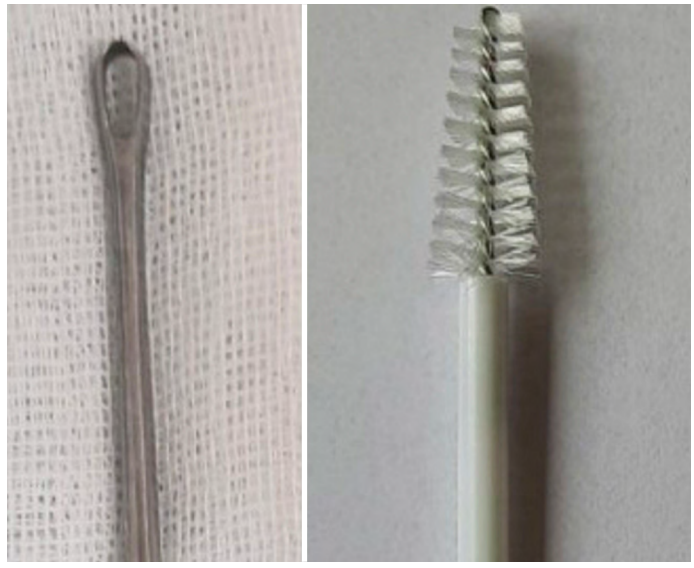

Figure 1: Endometrial sampling methods.

According to Cohen, the effect size as 0.5, power as 95%, α error as 0.05 were taken into account, and the G-Power program was used; thus, the sample size was found to be 44. Number Cruncher Statistical System 2007 program (Kaysville, Utah, USA) program was used for statistical analysis. Chi-square analyses were performed for qualitative data. The significance level was evaluated as $p<0.01$ and $p<0.05$.

RESULTS

In 44 cases, the mean age was 45.75±9.71, and the mean BMI was 26.79±4.43. Other demographic findings are shown in Table 1. Seven out of 44 cases were LR-HPV, and 37 were HR-HPV. Epithelial cell abnormalities are shown in Table 2.

Normal results were reported in 47.8% in reflex cytology, 19.4% in ECB, and 32.8% in the ECC groups. There were no observed significant differences between ECC and ECB and reflex cytology ($p>0.05$).

Unsatisfactory cytology was less seen in reflex cytology at 6.3% than in ECB at 56.3% and in ECC at 37.5%. There were no observed significant differences between ECC and reflex cytology and ECB ($p>0.05$).

Low-grade cytology was reported as 21.2% in reflex cytology, 57.5% in ECB, and 18.1% in ECC as low-grade intraepithelial neoplasia. The detection of low-grade lesions was more seen in ECB than in reflex cytology and ECC; therefore, it was assessed as a significant correlation ($p=0.001$).

High-grade cytology (HSIL) was seen 18.7% in reflex cytology, 18.7% in ECB, and 62.5% in ECC as high-grade intraepithelial neoplasia. High-grade lesion detection in ECC than ECB and reflex cytology were found to be statistically significant ($p=0.001$).

The abnormalities of the epithelial cells are shown in Table 3 and Figure 2.

Table 1: Demographic findings of women

	n	%
Gravidity		
No	1	2.3
1	14	31.8
≥2	29	65.9
Parity		
No	1	2.3
1	14	31.8
≥2	29	65.9
Mode of delivery		
Vaginal	35	79.5
Caesarean	9	20.5
Curettage		
Yes	8	18.2
No	35	81.8
Smoking		
Yes	5	11.4
No	39	88.6

Table 2: Epithelial cell abnormalities

	RC (n)	ECB (n)		ECC (n)
Low grade lesion			Low grade lesion	
ASCUS	6	16	CIN1	6
ASCH	1	1		
LSIL	1	2		
High grade lesion			High grade lesion	
HSIL	3	3	CIN2	8
			CIN3	2

RC: Reflex cytology; ECB: Endocervical brush; ECC: Endocervical curettage; ASC-US: Atypic squamous cell-un significant; ASCH: Atypic squamous cell-high grade; LSIL: Low-grade squamous intraepithelial lesion; HSIL: High-grade squamous intraepithelial lesion; CIN: Cervical intraepithelial neoplasm 1-3.

Table 3: Comparision of smear and endocervical sampling thecniques

	Bethesda classification				Pathology			p
	RC		ECB			ECC		
	n	%	n	%		n	%	
Unsatisfactory cytology	1	6.3	9	56.3	Unsatisfactory specimen	6	37.5	0.001
Normal	32	47.8	13	19.4	Normal	22	32.8	
LSIL	8	21.2	19	57.5	CIN1	6	18.1	
HSIL	3	18.7	3	18.7	CIN2/CIN3	10	62.5	

RC: Reflex cytology; ECB: Endocervical brush; ECC: Endocervical curettage.

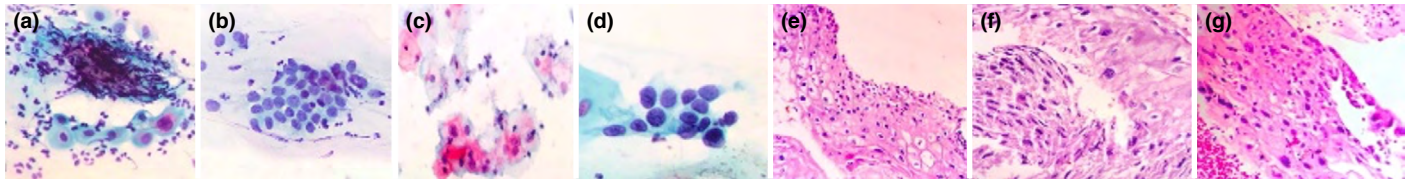

Figure 2: Cytologic and pathologic view of cervical epithelial lesions. **(a)** Atypic Squamous Cell-Un Significant (ASCUS), **(b)** Atypic Squamous Cell-High Grade (ASCH), **(c)** Low-Grade Squamous Intraepithelial Lesion (LSIL), **(d)** High-Grade Squamous Intraepithelial Lesion(HSIL), **(e–g)** Cervical Intraepithelial Neoplasm (CIN)1-3.

DISCUSSION

Our study found that low-grade lesions were more detected with ECB sampling. However, ECB was not superior to ECC in high-grade lesion detection.

The endocervical lesion is related to CIN grade, and the low-grade lesions contain 15.9% precancerous cells with 0.1% cervical malignancy. A different ratio is seen in high-grade lesions at 82% and 2.6%, respectively.[11,13]

Saltzman et al.[18] concluded that ECC was more positive in women with CIN3 than in women with CIN1-2. Moniak et al.[19] showed that 12.5% of high-grade endocervical lesions were seen in women with CIN2-CIN3. There are valid arguments for per-

forming ECC between unsatisfactory colposcopy and high-grade lesions.[11] There is insufficient information on unsatisfactory colposcopy and hidden >CIN-2 lesion in the endocervical canal of women with low-grade lesions.[20] In the literature, only 2.5% of women with ASCUS and LSIL were ECC positive.[21] However, Anderson et al.[22] pointed out that ECC could not identify 45% of lesions in the endocervical canal in the conization specimen. ECC can be done at the time of colposcopy with Kevorkian, Sims, or Novak curettes, but 20% of inadequate material is obtained with ECC.[11,12] The researchers mentioned that the false negative rate of ECC could be reduced to 16.7% with a large volume of endocervical material by curettage of the four quadrants and dilation of the cervical os.[15,23,24] Our study observed that the positivity for ECC was lower within the low-grade but high in the high-grade lesions, which could be classifying the lesion.

The sensitivity and specificity of the Pap smear in cervical pathology are 30–87% and 86–100%, respectively.[25] However, an adequate smear average of 5000 to 10000 squamous cells must be obtained, and visibility of TZ cells is essential.[9] The inadequate smear has insufficient cellularity, is not well fixed, and is contaminated with blood and inflammatory cells that spread densely onto the slide.[26] Furthermore, dyskaryosis is better detected if more endocervical cells are seen in the Pap-smear, especially in high-grade lesions, but the efficiency of the Pap-smear is almost 30% when the transformation zone is within the endocervical canal.[10,26]

In our study, we concluded that although a standard smear brush is used in reflex cytology and increased cellularity (ectocervical cell), it is not sufficient for endocervical sampling, but ECB is very effective in terms of diagnosis of SIL within the endocervical zone in terms of the conventional Pap smear technique. On the other hand, some researchers elucidate that ECB did not provide a more additive effect than standard smear brush in terms of endo cervical sampling in women with TZ3.[9] This could be related to liquid-based cytology because ASCCP recommends enhancing diagnostic accuracy.[6]

The sensitivity of the ECB and the ECC ranged from 77–93% and 36–64%, while the specificities were 26–95% and 82–100%, respectively.[6,12] There are conflicting studies on the precision of ECC and ECB in women with abnormal cervical cytology.[6] Broadman et al.[12] compared ECC and ECB specimens with conization or hysterectomy materials and concluded that ECB is more sensitive than ECC (odds ratio [OR]=2.04, 95% confidence interval [CI]=0.98–4.22). In terms of SIL grade, Bestel et al.[15] reported a low agreement between ECC and ECB in high-grade cervical lesions. Similarly, the sensitivity and specificity of ECB were higher than those of ECC in women with LSIL.[27] On the other hand, due to unsatisfactory colposcopy, Anderson et al.[22] inferred that the sensitivity of ECC and ECB was 56%, with unreliable results. In another study, the sensitivities of ECC and ECB were 49% and 93%, and the specificities were 82% and 26%, respectively (p<0.001).[28] Similarly, Hoffman et al.[29] concluded that ECB is more sensitive than ECC because negative results are more significant in women with abnormal cytology. In the current study, more low-grade lesions with ECB were detected than in ECC sampling.

It is not known if the low-grade lesion detected in the endocervical canal will have any effect in the current scenario. Generally, LSIL spontaneous regression is 7–95% in a year.[30] The risks at one and 5 years for LSIL and ASCUS were 0.7% to 2.3% and 0.5% to 2.6%, respectively.[31] But the existence of multiple or high-risk HPV infections can lead to the progression of low-grade lesions.[30] Therefore, it may be important to follow-up. Since high-risk types, including multiple HPV infections, show an 8 times greater progression of high-grade lesions (OR=7.94, 95% CI=2.55–24.73).[32] On the other hand, the decision to treat low-grade lesions is the problem.[21,32] Due to diagnostic disagreement between the pathologist, sensitivity, specificity of the screening test, and the characteristics and preferences of the patient, the risk of excisional procedures related to pregnancy outcomes is an important problem in the management of low-grade lesions.[21,33,34] The American Society for lower genital tract disorders recommends that women with low-grade cytology should not be treated unless high-grade CIN is detected on biopsy.[35] Similarly, ASCCP recommends unsatisfactory colposcopy in HPV-positive women with low-grade lesions if endocervical sampling is normal after a 1-year co-test.[36]

There Were Some Limitations in Our Study

The number of low- and high-grade lesions was lower and was not compared with excisional procedures or hysterectomy materials. In our study, the time between the referred colposcopy and endo-cervical sampling is a few months. As a matter of fact, cervical lesions take a long time to progress to high-grade lesions.[6]

CONCLUSIONS

Low-grade lesions were more diagnosed with ECB sampling, but high-grade lesions were not. ECB is a more straightforward and less painful technique, and it may be used at the time of unsatisfactory colposcopy in low-grade lesions. However, it is still uncertain whether recognizing low-grade lesions with ECB are an advantage or disadvantage for follow-up and performing excisional procedures. It is also not clear whether ECB in low-grade or ECC in high-grade lesions is better in unsatisfactory colposcopy. Therefore, we recommend that further large series of studies are needed.

Statement

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