Effect of Tissue Fragments Remain in the Karman Cannula on the Histopathological Diagnosis of Abnormal Uterine Bleeding

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ABSTRACT

The aim of this study was to perform histopathological analysis of residual material in the cannula by endometrial sampling using a Carmen injector, and to compare the results. The study was conducted in the Department of Gynaecology, Mardin Training and Research Hospital, Artuklu/Mardin, Turkiye, from December 2021 to June 2022. The study group consisted of 104 patients who presented to the outpatient clinic with complaints of abnormal uterine bleeding. Endometrial curettage material was collected from all patients using a Carmen injector. The collected material was discharged into the pathology container (Group 1). Subsequently, the residual material remaining in the injector was placed in a separate pathology container (Group 2). Specimens were sent to the pathology laboratory with buffered formol. The pathological evaluation was performed by the same pathologist without revealing the patients' names. Comparative histopathological results of the patients in Group 1 and Group 2 were found to be fully compatible in 64.4% of the patients. In 35.6% of the patients, the histopathological results were different from each other between Group 1 and Group 2. Pathological results were different from each other in 21.2% of patients with incompatible pathology results. In Group 1, 16.7% of the patients were over-diagnosed, while 7.7% of the patients were over-diagnosed in Group 2. It would be beneficial to carefully remove the material remaining in the cannula and send it for pathological examination as it may affect the histopathological results.

Key Words: *Abnormal uterine bleeding, Probe curettage, Karman cannula, Histopathological evaluation.*

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Abnormal uterine bleeding (AUB) accounts for one-third of the reasons for women's admission to the gynaecology outpatient clinic during their reproductive life and postmenopause. In 80% of patients, there is no underlying organic pathology.[1] Endometrial biopsy or endometrial probe curettage is a safe and effective diagnostic method for the diagnosis of AUB. For this purpose, many surgical instruments, such as curettes, pipettes, and carmine cannula injectors, are used. Today, one of the most commonly used methods is endometrial sampling through dilation and curettag (D&C) taken with a Karman cannula and hysterectomy, and tissues collected with carbide curettes have similar histological findings.[2] However, after the collected material is discharged into the pathology container, some tissues remain in the cannula. This raises concerns about the use of this method.

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This study aimed to remove and examine the residual tissue in the cannula, and to investigate whether there is a difference between the results of material in the main pathology container and the residual tissue.

The study group consisted of 104 patients with AUB who presented to the gyanecology outpatient clinic of Mardin Training and Research Hospital, Mardin, Turkiye, between December 2021 and June 2022. The Ethical Committee of Harran University approved the study.

In this retrospective study, data were obtained by scanning the files of pre- and postmenopausal patients, aged 40-65 years, with AUB. Patients who did not want their files to be scanned were not included in the study.

All patients underwent curettage with the Carmen injection probe in the lithotomy position under sterile conditions and general intravenous anaesthesia. After the specimens were discharged into the pathology container (Group 1), the remaining material in the cannula was removed with a swab. It was then placed in a separate pathology container (Group 2). Both materials were sent to the pathology department with the patient numbers. The pathological examination was performed by the same pathologist without knowing

the names of the patients, and the results were reported under the patient number. Subsequently, patient numbers and patient names were combined and compared by the researcher who conducted the study. SPSS 15.0 for Windows was used for statistical analysis. Descriptive statistics were expressed as numbers and percentages for categorical variables; mean, standard deviation, minimum, maximum, and median values were determined for numerical variables.

Histopathological results of patients in Group 1 and Group 2 were found to be fully compatible in 64.4%. Histopathological results were different between Group 1 and Group 2 in 35.6% of the patients. The pathological results were different from each other in 21.2% of the patients with discordance with the pathological results. In Group 1, 6.7% of patients were not diagnosed compared to Group 2. In Group 2, 7.7% of patients were diagnosed differently than in Group 1.

The histopathological results of the patients who were found to be fully compatible as a result of the pathology are presented in Table I.

Table I: Distribution of pathological materials.

Karman materials, etc. pathology:	n	%
Full fit	67	64
Endometrial polyps	16	24
Glandular and stromal destruction	12	18
Proliferative endometrium	11	16
Secretory endometrium	9	13
Irregular proliferative endometrium	8	12
Endometrioid type adenocarcinoma, Figo Grade 1	3	4
Early secretory late proliferative endometrium	3	4
Proliferative endometrium	3	4
Atrophic endometrium	1	1
Gestagen-induced endometrium	1	1
Incompatible	37	36
Fully incompatible	22	21
Half incompatible	15	14
Carmen incomplete diagnosis	7	7

Diagnosis of endometrial pathologies may assist in instrument selection. That is, some modalities are more sensitive to the detection of focal diseases, while others are more sensitive to global pathology.

The diagnostic accuracy of endometrial sampling is positively correlated with the amount of endometrial tissue collected.[3] Therefore, a preferred screening tool collects as much tissues as possible for evaluation. Additionally, both focal and global lesions are ideally identified. In this study, the pathology material taken using the Carmen injector due to 104 AUBs was evaluated adequately and effectively.

D&C has been used for endometrial sampling for years. It provides high access to the endometrial cavity, and the rate of biopsy failure is only 0.5% in studies.[4] The sensitivity for endometrial hyperplasia or cancer exceeds 90%.[5] However, there is a possibility that blind sampling may be incomplete and pathologies may be overlooked. This is especially true for focal lesions.

A meta-analysis was performed by Dijkhuizen *et al*. to evaluate the accuracy of endometrial sampling devices in the detection of endometrial carcinoma and atypical hyperplasia.[6] They concluded that endometrial biopsy with pipette extraction is superior to other endometrial techniques in detecting endometrial carcinoma and atypical hyperplasia in pre- and postmenopausal women. In this study, all pathologies taken with the Carmen syringe were evaluated, but 64.4% of the residual pathological materials taken with the Carmen and remaining in the Carmen were fully compatible and 35.6% were incompatible. In this study, the pathology sample taken with Carmen injector were compared with the residual pathology remaining in the Carmen syringe and found a completely incompatible pathology rate of 21.2% in these results.

As a result, the authors think that it would be beneficial to carefully remove the material remaining in the cannula and send it for pathological examination, as it may affect the histopathological results.

ETHICAL APPROVAL:

The study was designed in accordance with the ethical principles of the Declaration of Helsinki. Ethical approval of this study was obtained from the Ethics Committee of Harran University Training and Research Hospital (Study Ethics Committee No: HRU/23.09.37).

PATIENTS' CONSENT:

The patients included in the study were informed and informed consent forms were obtained.

COMPETING INTEREST:

The authors declared no conflict of interest.

AUTHORS' CONTRIBUTION:

OT: Conception and design investigations of the work and write-up.
EC: Supervision, critical analysis, and data analysis and interpretation.
EC: Histological slide making, gross examination, and handling of the specimen.
DB, SY: Data analysis, SPSS analysis, and proofreading.
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