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Research

Endometrial Sampling Outcomes in A Tertiary Care Centre: October 2023-October 2024

Üçüncü Basamak Bir Sağlık Merkezindeki Endometrial Örnekleme Sonuçları: Ekim 2023-Ekim 2024

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ABSTRACT

Objective: We evaluated the association between pathological findings, menopausal status, and indications for endometrial biopsy.

Methods: We included 931 patients who underwent endometrial biopsy for various gynaecological indications at our clinic between October 2023-October 2024. Medical data were retrieved from patient records. Patients were evaluated according to age, menopausal status (premenopausal or postmenopausal), endometrial thickness, biopsy indication, and pathological findings. Pathological findings were compared across biopsy indications and menopausal status.

Results: The mean age of patients was 47.1±9.1 years, and the mean endometrial thickness was 9.8±5.2 mm. Of the total, 695 (74.7%) were premenopausal and 236 (25.3%) were postmenopausal. Menometrorrhagia was the most common indication for biopsy (32.8%) and endometrial polyps were the most frequent histopathological finding (32%). Of the 15 patients diagnosed with malignancy, 2 underwent biopsy for menometrorrhagia and 13 for postmenopausal bleeding; these correspond to 0.7% and 5.7% of the total cohort, respectively. Secretory endometrium, proliferative endometrium, and endometrial polyps were significantly more common in premenopausal women ($p<0.001$), whereas malignancy and endometrial atrophy were significantly more common in postmenopausal women ($p<0.001$).

Conclusion: Because endometrial cancer is more prevalent in older women, malignancy should be considered in the histopathological evaluation of endometrial samples obtained from women with postmenopausal bleeding.

Keywords: Endometrial biopsy, endometrial cancer, malignancy, postmenopausal, endometrial sampling, histopathological diagnosis

ÖZ

Amaç: Endometrial biyopsi endikasyonları ile patoloji sonuçlarının menopozal durum ile ilişkisini araştırmaktır.

Gereç ve Yöntem: Bu çalışmaya Ekim 2023-Ekim 2024 tarihleri arasında kliniğimize başvurmuş farklı jinekolojik endikasyonlarla endometrial biyopsi yapılmış 931 hasta dahil edildi. Tıbbi veriler hasta dosyalarından elde edildi. Hastalar yaş, menopoz durumu (premenopoz/postmenopoz), endometrial kalınlık, biyopsi endikasyonları ve patoloji sonuçları açısından incelendi. Hastaların patoloji sonuçları; endometrial biyopsi endikasyonları ve menopozal durum ile karşılaştırıldı.

Bulgular: Hastaların yaş ortalaması 47,1±9,1; endometrial kalınlık ortalaması 9,8±5,2 mm idi. Hastaların 695'i (%74,7) premenopoz, 236'sı (%25,3) postmenopozal dönemdeydi. Endometrial biyopsi endikasyonlarında en sık (%32,8) menometroraji görülürken; histopatoloji sonuçlarında en sık (%32) endometrial polip olduğu görüldü. Malign tanı görülen 15 hastanın 2'sinde (%0,7) menometroraji sebepli biyopsi yapılırken; 13'ünde (%5,7) postmenopozal kanama nedeniyle endometrial biyopsi yapıldığı gözlendi. Premenopozal dönemde sekretuar endometrium, proliferatif endometrium, endometrial polip daha sık görülürken ($p<0,001$); postmenopozal dönemde malignite ve endometrial atrofinin daha sık olduğu görüldü ($p<0,001$).

Sonuç: Endometrium kanseri ileri yaşta daha sık görüldüğü için postmenopozal kanama sebebiyle yapılan endometrial örnekleme sonuçlarında malignite ile karşılaşılabileceği akılda tutulmalıdır.

Anahtar Kelimeler: Endometrial biyopsi, endometrium kanseri, malignite, postmenopoz, endometrial örnekleme, histopatolojik tanı

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INTRODUCTION

Abnormal uterine bleeding (AUB) is defined as irregular bleeding that occurs outside the normal menstrual cycle (1). The PALM-COEIN (polyp; adenomyosis; leiomyoma; malignancy and hyperplasia; coagulopathy; ovulatory dysfunction; endometrial; iatrogenic; and not yet classified) classification system, introduced by the International Federation of Gynecology and Obstetrics in 2011, categorises the causes of AUB into structural and non-structural aetiologies (2). Haemorrhage during the postmenopausal period is a critical finding for the early diagnosis of malignancy (3). Endometrial biopsy performed in women presenting with postmenopausal bleeding detects endometrial cancer in 10-15% of cases (4). According to the American College of Obstetricians and Gynecologists 2013 guidelines, endometrial biopsy is recommended in women aged >45 years presenting with AUB and in women under 45 years with unopposed oestrogen exposure, to exclude underlying malignancies (5).

Endometrial sampling is commonly used for histopathological diagnosis of AUB, a frequent gynaecological presentation during the perimenopausal and postmenopausal periods (6). Sampling techniques include aspiration biopsy, hysteroscopy-guided biopsy, and dilatation and curettage (7). In contrast, an endocervical brush or endocervical curettage is used to diagnose endocervical cancer, another cause of abnormal bleeding (8).

We evaluated the associations among indications for endometrial biopsy, pathological findings, and menopausal status.

METHODS

This retrospective study included 931 patients who underwent an endometrial biopsy for various gynaecological indications between October 2023-October 2024. Seven patients were excluded due to insufficient biopsy specimens. Medical data were retrieved from patient records.

After comprehensive gynaecological examination and detailed history-taking, written informed consent was obtained, and an endometrial biopsy was performed. Biopsies were conducted either in the operating theatre under general anaesthesia or in the outpatient clinic using a paracervical block and a Karman cannula.

Indications for endometrial sampling included menometrorrhagia, menorrhagia, increased endometrial thickness, uterine myoma, and postmenopausal bleeding. Histopathological findings from endometrial biopsies were categorised as endometrial polyp, secretory endometrium, proliferative endometrium, endometrial intraepithelial neoplasia (EIN), endometrial hyperplasia (EH) without atypia, endometrial malignancy, and endometrial atrophy. Patients were analysed according to age, menopausal status (premenopausal or postmenopausal), endometrial thickness, biopsy indications, and pathological outcomes. Associations between pathological findings, biopsy indications, and menopausal status were evaluated.

Ethics Committee

The University of Health Sciences Türkiye, Gaziantep City Hospital Non-Interventional Clinical Research Ethics Committee approved the study protocol (approval no: 91/2024, date: 18.12.2024). The study was conducted in accordance with the Declaration of Helsinki and the principles of good clinical practice.

Statistical Analysis

Statistical analyses were performed using SPSS (version 22.0; IBM Corp., Armonk, NY, USA). Parametric data were compared using the independent t-test, whereas categorical variables were analysed using Pearson's chi-square test or Fisher's exact test, as appropriate. Categorical variables are presented as numbers and percentages, whereas continuous variables are expressed as mean±standard deviation. P-values <0.05 were considered statistically significant.

RESULTS

We included 931 patients with a mean age of 47.1±9.1 years and mean endometrial thickness of 9.8±5.2 mm. Of these patients, 695 (74.7%) were premenopausal and 236 (25.3%) were postmenopausal. Indications for endometrial biopsy included menometrorrhagia in 305 (32.8%) patients, menorrhagia in 298 (32.0%), postmenopausal bleeding in 229 (24.6%), increased endometrial thickness in 75 (8.1%), and uterine leiomyoma in 24 (2.6%).

Histopathological analysis revealed: endometrial polyps in 298 (32.0%) patients, secretory endometrium in 262 patients (28.1%), atrophic endometrium in 171 patients (18.4%), proliferative endometrium in 168 patients (18.0%), malignancy in 15 patients (1.6%), EH without atypia in 11 patients (1.2%), and EIN in 6 patients (0.6%) (Table 1).

When histopathological findings were analyzed by biopsy indication, endometrial polyp was the most frequent diagnosis among patients biopsied for menorrhagia. Secretory endometrium was the predominant finding in biopsies performed for menometrorrhagia, whereas an endometrial polyp was the most common diagnosis in biopsies performed for increased endometrial thickness.

Endometrial atrophy was the leading diagnosis among patients with postmenopausal bleeding and among those with myoma uteri. Of the 15 patients diagnosed with malignancy, 2 (0.7%) underwent biopsy for menometrorrhagia and 13 (5.7%) for postmenopausal bleeding (Table 2).

Analysis of biopsy results stratified by menopausal status revealed that proliferative endometrium, secretory endometrium, and endometrial polyps were significantly more frequent among premenopausal patients. Conversely, malignancies and endometrial atrophy were more common in the postmenopausal group, reflecting hormonal influences during the reproductive period ($p<0.001$). No significant differences were observed between premenopausal and postmenopausal groups regarding non-atypical EH and EIN ($p>0.05$; Table 3).

DISCUSSION

AUB is the most frequent presenting complaint among women attending gynaecology outpatient clinics (9). The underlying causes of AUB may be organic (e.g., fibroids, polyps, EH, and endometrial carcinoma) or systemic, hormonal, or iatrogenic (2). Consequently, in patients with AUB, endometrial biopsy is routinely performed for diagnostic purposes after a thorough history, physical examination, and ultrasonography. However, outpatient endometrial biopsy may yield false-negative results, with a reported post-test probability of 0.9% for endometrial carcinoma after a negative biopsy (10). Therefore, adequate tissue sampling is essential when performing an

Table 1. Distribution of biopsy indications and histopathological findings

		Number (n)	Percentage (%)
Indications	Menorrhagia	298	32.0
	Menometrorrhagia	305	32.8
	Endometrium thickness	75	8.1
	Postmenopausal bleeding	229	24.6
	Myoma uteri	24	2.6
Histopathological findings	Proliferative endometrium	168	18.0
	Secretory endometrium	262	28.1
	Endometrial polyp	298	32.0
	EH without atypia	11	1.2
	EIN	6	0.6
	Malignancy	15	1.6
	Endometrial atrophy	171	18.4

EH: Endometrial hyperplasia, EIN: Endometrial intraepithelial neoplasia

Table 2. Distribution of histopathological findings according to biopsy indication

	Proliferative endometrium	Secretory endometrium	Endometrial polyp	EH without atypia	EIN	Malignancy	Endometrial atrophy
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)
Menorrhagia	86 (28.9)	78 (26.2)	112 (37.6)	8 (2.7)	2 (0.7)	0 (0.0)	12 (4.0)
Menometrorrhagia	47 (15.4)	138 (45.2)	89 (29.2)	2 (0.7)	0 (0.0)	2 (0.7)	27 (8.9)
Endometrium thickness	9 (12.0)	16 (21.3)	44 (58.7)	1 (1.3)	1 (1.3)	0 (0.0)	4 (5.3)
Postmenopausal bleeding	20 (8.7)	25 (10.9)	49 (21.4)	0 (0.0)	3 (1.3)	13 (5.7)	119 (52.0)
Myoma uteri	6 (25.0)	5 (20.8)	5 (16.7)	0 (0.0)	0 (0.0)	0 (0.0)	9 (37.5)

EH: Endometrial hyperplasia, EIN: Endometrial intraepithelial neoplasia

Table 3. Histopathological findings according to menopausal status

	Premenopausal	Postmenopausal	p-value
	n=695 (%)	n=236 (%)	
Proliferative endometrium	147 (21.2)	21 (8.9)	**<0.001**
Secretory endometrium	237 (34.1)	25 (10.6)	**<0.001**
Endometrial polyp	245 (35.3)	53 (22.5)	**<0.001**
EH without atypia	11 (1.6)	0 (0.0)	>0.05
EIN	3 (0.4)	3 (1.3)	>0.05
Malignancy	2 (0.3)	13 (5.5)	**<0.001**
Endometrial atrophy	50 (7.2)	121 (51.3)	**<0.001**

EH: Endometrial hyperplasia, EIN: Endometrial intraepithelial neoplasia

endometrial biopsy (11). We retrospectively analysed the histopathological findings of 931 patients who underwent endometrial biopsy for various gynaecological indications, aiming to elucidate the relationships among menopausal status, biopsy indications, and these findings.

In our study, endometrial polyps were the most frequent histopathological finding, identified in 298 patients (32%), consistent with previous studies (12). Similarly, Öz and Kalelioğlu (13), Çintesun et al. (14), and Aker et al. (15) reported prevalences of 37.9%, 53.5%, and 33.3%, respectively. In our study, endometrial polyps were observed more frequently in the premenopausal group. Although previous studies have reported higher prevalence in premenopausal women, none have demonstrated statistically significant differences (15,16). In our study, proliferative and secretory endometrium were observed in 18% and 28.1% of patients, respectively, and were both significantly more frequent in the premenopausal group. In contrast, previous studies have reported rates of 72.8% and 63% for proliferative and secretory endometrium, respectively (17,18). This discrepancy is likely related to hormonal influences during the reproductive period.

In our study, endometrial atrophy was observed in 18.4% of patients and was significantly more frequent in the postmenopausal group. In contrast, Turhan Çakır et al. (16) reported a prevalence of 8.8%. Notably, the higher frequency of endometrial atrophy in the postmenopausal period is likely attributable to ovarian dysfunction. The presence of atypia in EH is recognised as a risk factor for progression to endometrial carcinoma (19). In our study, the prevalences of EH and EIN without atypia were 1.2% and 0.6%, respectively, with no significant association with menopausal status. In a study of EH patients, atypia was reported in 17 (22.9%) patients (20).

After colorectal, lung, and breast cancers, endometrial cancer is the most common gynaecological malignancy in women; increasing age is one of its most important risk factors (21). In our study, malignancy was observed in 15 patients (1.6%), with a significantly higher prevalence in the postmenopausal group. Of these, biopsies were performed in 2 patients for menometrorrhagia and in 13 patients for postmenopausal bleeding. Although malignancy has been reported in approximately 10% of biopsies performed for postmenopausal bleeding (22), the corresponding rate in our cohort was 5.7%. The higher prevalence of malignancy in the postmenopausal group is likely related to advancing age.

Study Limitations

The limitations of our study include its retrospective design, the unavailability of data on body mass index and comorbidities, and the lack of information regarding patients' treatment status. A key strength is the large sample size, which enhances the reliability of the findings.

CONCLUSION

In conclusion, because endometrial cancer is more prevalent in older women, endometrial sampling should be performed in all individuals presenting with postmenopausal bleeding, with the understanding that histopathological examination may detect malignancy.

ETHICS

Ethics Committee Approval: The University of Health Sciences Türkiye, Gaziantep City Hospital Non-Interventional Clinical Research Ethics Committee approved the study protocol (approval no: 91/2024, date: 18.12.2024). The study was conducted in accordance with the Declaration of Helsinki and the principles of good clinical practice.

Informed Consent: Written informed consent was obtained.

FOOTNOTES

Authorship Contributions

Concept: G.G., Design: G.G., Data Collection or Processing: E.Ş., Analysis or Interpretation: E.Ş., Literature Search: G.G., Writing: G.G.

Conflict of Interest: No conflict of interest was declared by the authors.

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