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ORIGINAL RESEARCH

Medicine Science International Medical Journal

Medicine Science 2018;7(3):613-6

Sociodemographic and pathological characteristics of women who underwent endometrial curettage for abnormal uterine bleeding in a university referral center

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Received 21 February 2018; Accepted 26 March 2018
Available online 06.07.2018 with doi: 10.5455/medscience.2018.07.8834

Abstract

Abnormal uterine bleeding (AUB) is an important clinical concern among reproductive-aged women, and is usually associated with benign or malignant gynecologic conditions. The aim of the present study is to determine the clinical spectrum of AUB patients and to investigate the relationship between indications and histopathological results of AUB patients undergoing endometrial sampling. A total of 625 female patients who presented to Canakkale Onsekiz Mart University Hospital between October 2013 and October 2017 due to non-obstetric gynecological causes and underwent endometrial sampling included in the present study. The median age of patients was 46 years (min-max: 28-90 years) and the most common clinical presentation was represented by menometrorrhagia/menorrhagia (50.4%) followed by postmenopausal bleeding (38.6%), and myoma uteri (9.3%). Endometrial sampling evaluation revealed various patterns on histopathology. The most common encountered diagnosis was proliferative-secretory endometrium (41.3%), followed by endometrial polyp (20.2%) and simple hyperplasia without atypia (9.6%). Endometrial cancer was observed more frequently in the post-menopausal bleeding. AUB which often prevails as an important and common gynecological ailment in perimenopausal women is commonly due to dysfunctional in origin. Therefore routine endometrial biopsy should not be an initial clinical investigation for menorrhagia. It should be preferred in case of persistent menorrhagia in conjunction with presence of additional risk factors.

Keywords: Abnormal uterine bleeding, endometrial sampling, histopathology

Introduction

Abnormal uterine bleeding (AUB) is a common and debilitiating condition defined as any bleeding from uterus other than menstrual bleeding which differs in frequency, duration and pattern of bleeding observed during a normal menstrual cycle [1,2]. In fact AUB reflects a disruption in the normal cyclic pattern of ovulatory hormonal stimulation to the uterine endometrial lining. AUB covers majorly two important disease states including functional uterine bleeding and bleeding from structural gynecologic abnormalities like cancer, inflammation, pregnancy complications, fibroids and polyps. In order to achieve a differential diagnosis adequate endometrial tissue is required for patients under 35 years of age with ovulatory bleeding or for patients above 35 years of age with abnormal bleeding [3]. Although methods for endometrial sampling differ from centers, it can be performed blindly or directed towards selected endometrial areas with direct visualization [4].

Using endometrial sampling tools for early detection of endometrial carcinoma (EC) in AUB patients can lead to a decline in morbidity and mortality rates, which in turn create social andeconomic social and economic benefits [5]. In this context, widely used methods for early diagnosis of endometrial lesions are Pipelle, Dilatation and curettage (D&C), Tao brush, vabra aspirator and SAP-1 device [5]. From all these methods, D&C had been the standard procedure for decades for evaluating endometrial pathologies despite its requirement of anesthesia, high morbidity and risk of perforation [3]. Currently, the Pipelle is the most studied biopsy device in the literature [6]. It allows the clinician to obtain endometrial biopsy without cervical dilatation in the outpatient department with greater acceptability, minimum discomfort and less consuming time [7,8]. Moreover, in a meta-analysis by Dijkhuizen and colleagues [9] it has been demonstrated that endometrial biopsy with the Pipelle was superior to other endometrial sampling techniques including D&C, hysteroscopy, or hysterectomy in the detection of atypical hyperplasia and EC. The accuracy of the Pipelle was also found to be higher in postmenopausal women compared with premenopausal women.

We undertook this study to determine the indications of endometrial sampling and histological types and frequencies social and economic benefits university hospital between October 2013 and October 2017.

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Material and Methods

Characteristics of the Patients

Endometrial curetting results of 625 patients who had undergone endometrial tissue sampling due to AUB between October 2013 and October 2017 were retrospectively evaluated. The medical data of each patient including age, gravida, parity, the cause of AUB and biopsy results were obtained from the hospital electronic records, discharge summaries and operation notes.

The indications for endometrial sampling were classified as menometrorrhagia/menorrhagia, postmenopausal bleeding, myoma uteri and cervical polyp. Specimens considered inadequate for various reasons, remnants of pregnancy and related curettage and hysterectomy specimens were excluded from this analysis. Histopathological results of patients that underwent endometrial sampling were classified as proliferative-secretory endometrium, simple or complex hyperplasia with or without atypia, endometritis, EC, atrophic endometrium, endometrial polyp, and insufficient material.

This retrospective study was approved by the institutional review board of Canakkale Onsekiz Mart University (KAEK 2017-19-04) and was performed in accordance with the guidelines of the Helsinki Declaration on human experimentation.

Statistical analysis

Statistical Package for Social Sciences (SPSS) for Windows version 18.0 (SPSS for Windows, SPSS, Chicago) was used for statistical analysis. The statistical process involved descriptive statistics.

Results

During the study period of 4 years, a total of 625 AUB patients underwent endometrial sampling in our university hospital. Age of the patients in our study ranged from 28 years to 90 years with a median of 46 years. The most common indication for endometrial biopsy was menometrorrhagia/menorrhagia [n=318 (50.4%)], followed by postmenopausal bleeding [n=241 (38.6%)], myoma uteri [n=58 (9.3%)] and cervical polyp [n=8 (1.7%)] (Table 1).

According to histopathologic results, the most common encountered diagnosis was proliferative-secretory endometrium [n=258 (41.3%)], followed by endometrial polyp [n=126 (20.2%)], insufficient material [n=87 (13.8%)], simple hyperplasia without atypia [n=60 (9.6%)]. endometrial cancer [n=23 (3.7%)], and endometritis [n=23 (3.7%)]. In patients with menometrorrhagia/menorrhagia the most common encountered histopathologic finding was proliferative– secretory endometrium [n=160 (50.3%)]. In postmenopausal bleeding group proliferative–secretory endometrium [n=54 (22.4%)] was closely followed by endometrial polyps [n=44 (18.3%)]. Out of 23 EC patients, 20 patients were presented with postmenopausal bleeding. Table 2 shows all histopathological biopsy results according to sampling indications.

Ages of the study participants were also analyzed according to histopathological sampling results. The median age of patients with endometrial cancer in this study was 61 years (min-max: 35-82), atrophic endometrium was 62 years (min-max:46-90) and complex hyperplasia without atypia was 59 years (min-max:40-76) (Table 2). The median age of these 3 subtypes was found to be higher compared with the other endometrial biopsy subtypes.

Table 1. Demographics and initial hemoglobin levels of study participants according to endometrial biopsy indications.

	Menometrorrhagia/ menorrhagia	Post-menopausal bleeding	Myoma uteri	Cervical polyp
Age (years)	43 (28-53)	57 (41-90)	47 (28-56)	49 (42-52)
Gravidity (n)	2 (0-7)	3 (0-7)	2 (0-6)	2 (1-4)
Parity (n)	2 (0-5)	2 (0-6)	2 (0-4)	2 (1-2)
Hemoglobin (g/dL)	11.7±1.8	12.6±1.4	11.6±1.3	12.1±1.8

Table 2. Endometrial sampling results according to clinical indications

	Age (years)	Menometrorrhagia/ menorrhagia	Post-menopausal bleeding	Myoma uteri	Cervical polyp	Total
Simple hyperplasia with atypia (n,%)	54 (28-78)	4 (1.3)	15 (6.2)	-	-	19 (3.0)
Simple hyperplasia without atypia (n,%)	47 (28-83)	35 (11)	18 (7.5)	7 (12.1)	-	60 (9.6)
Complex hyperplasia with atypia (n,%)	56 (30-84)	3 (0.9)	5 (2.1)	-	-	8 (1.3)
Complex hyperplasia without atypia (n,%)	59 (40-76)	1 (0.3)	6 (2.5)	1 (1.7)	-	8 (1.3)
Proliferative– secretory endometrium (n,%)	46 (28-80)	160 (50.3)	54 (22.4)	38 (65.5)	6 (75)	258 (41.3)
Atrophic endometrium (n,%)	62 (46-90)	2 (0.6)	10 (4.1)	1 (1.7)	-	13 (2.1)
Endometrial polyp (n,%)	47 (29-79)	77 (24.2)	44 (18.3)	4 (6.9)	1 (12.5)	126 (20.2)
Endometrial cancer (n,%)	61 (35-82)	3 (0.9)	20 (8.3)	-	-	23 (3.7)
Endometritis (n,%)	49 (39-75)	10 (3.1)	10 (4.2)	2 (3.5)	1 (12.5)	23 (3.7)
Insufficient sample (n,%)	54 (35-83)	23 (7.4)	59 (24.4)	5 (8.6)	-	87 (13.8)
Total (%)		318 (50.9)	241 (38.6)	58 (9.3)	8 (1.2)	625

Patients with endometrial hyperplasia (n=95) were divided into two subtypes (simple vs complex). Both of these subtypes were further subdivided into two groups according to atypia presence. In patients with menometrorrhagia/ menorrhagia, the most common encountered endometrial hyperplasia type was found to be simple hyperplasia without atypia (n=35; 89.7%). Similarly, in postmenopausal bleeding patients, simple hyperplasia without atypia was also the most common encountered histopathologic result (n=18; 54.6%) (Table 3).

Table 3. Endometrial hyperplasia in patients with abnormal uterine bleeding

	Simple hyperplasia (n=79)			Complex hyperplasia (n=16)		
	Atypia (+)	Atypia (-)	Total (n,%)	Atypia (+)	Atypia (-)	Total (n,%)
Menometrorrhagia/ menorrhagia (n, %)	4 (10.3)	35 (89.7)	39 (100)	3 (75)	1 (25)	4 (100)
Post-menopausal bleeding (n, %)	15 (45.4)	18 (54.6)	33 (100)	5 (45.4)	6 (54.6)	11 (100)
Myoma uteri (n, %)	-	7 (100)	7 (100)	-	1 (100)	1 (100)
Cervical polyp (n, %)	-	-	-	-	-	-
Total	19	60	79	8	8	16

Discussion

In this retrospective study, it was found that the majority of AUB patients that were admitted to our center had benign findings including proliferative-secretory endometrium (41.3%), endometrial polyp (20.2%) and simple hyperplasia without (9.6%) and with (3.0%) atypia. Endometrial polyp (20.2%) and endometrial adenocarcinoma (3.7%) were also two important cause of AUB that was found in our patient population. Another important finding in this study was the ages of the patients which were within the premenopausal age group (median age:46).

Endometrial sampling in order to diagnose endometrial lesions is of great importance for evaluating peri- and postmenopausal abnormal bleedings [10]. Until recently, the standard endometrial assessment tool for endometrial sampling was dilatation of the cervix and curettage of the uterine cavity under general anesthesia [11,12]. This method has several serious disadvantages including uterine perforation, hemorrhage, and infection [13]. Currently, the two most commonly used endometrial sampling devices are the Pipelle and the Vabra aspiration biopsy. In our center, the Pipelle sampler is the preferred method, because it can obtain an adequate endometrial tissue in 80% of postmenopausal women and 90% of pre- and postmenopausal women' [14]. Overall in this retrospective analysis, 318 (50.9%) endometrial sampling procedures were performed with the indication of menometrorrhagia/ menorrhagia followed postmenopausal bleeding (38.6%), myoma uteri (9.3%) and cervical polyp (1.2%). Although similar results exist in the literature, Inal et al. study [3] is one of the biggest and vigorous study in this context which was reported an incidence of 70.6% for menometrorrhagia/menorrhagia, 10.7% for myoma uteri, 9.6 for post-menopausal bleeding and 1.3% for cervical polyp. In a relatively small group of patients with AUB, Çintesun et al. [15] demonstrated a high incidence of menometrorrhagia/menorrhagia (82.6%) in their study population.

In this study, we evaluated the histopathological results of 625 patients with AUB. Similar to several retrospective analysis [3,16,17], the most common endometrial biopsy result was proliferative-secretory endometrium. In a large series of endometrial sampling analysis by Inal et al. [3], the most common histopathological result was proliferative-secretory endometrium (63.62%) followed by endometrial polyps (10.45%). Similarly in two distinct studies by Çakmak et al. [18] and Jetley et al. [17] the incidence of proliferative-secretory endometrium was found to be 55.8% and 63.0% respectively. Contrary to these findings Çintesun et al. [15] determined an incidence of 26.1% which was considered as considerably low compared with literature findings. In this context, our results were in consistent with many previous studies carried out in Turkey by many investigators.

Endometrial cancer (EC) is the most common type of uterine cancer, and has a world-wide incidence of 9 per 100 000 women, with a 1% lifetime risk. It is the fourth most diagnosed cancer in European women aged >50 years [19,20]. Endometrial cancer prevalence determined in endometrial samplings differs across studies depending on the age, parity, and exposure to unopposed estrogen [19,21]. Although it commonly presents with post-menopausal bleeding, premenopausal AUB is an indication for biopsy regardless of accompanying additional risk factors such as obesity or PCOS [22]. In our study median age of patients with EC was found to be 61 (min-max:35-82). Only 3 out of 24 EC patients were aged below 50. This relatively low rates of EC in our young patients supports the idea that premenopausal women with AUB should first undergo conventional medical management before endometrial sampling. In accordance with our results, in a recent systematic literature review by Pennant et al. [19] studies reporting rates of EC and/or atypical hyperplasia in women with premenopausal AUB was analyzed. Authors determined a very low EC or atypical hyperplasia risk in premenopausal women with AUB and suggested a need for a practice change, where referral for biopsy in premenopausal women is only in selected cases.

One of the key findings of the present study is the determination of the prevalence of endometrial hyperplasia which may be simple, complex, or with or without atypia. This finding is important because endometrial hyperplasia is known to be a precursor of EC. It was reported that without atypia 1-3% and with atypia 8-29% cases of endometrial hyperplasia progresses to invasive cancer [3,23]. Our analysis demonstrated that 60 AUB patients had simple endometrial hyperplasia without atypia, and 19 AUB patients had simple endometrial hyperplasia with atypia. Both

complex hyperplasia with and without atypia was found to be 8. This finding is compatible with the studies of Inan et al. [3], Kucur et al. [16] and Tuncer et al. [24] which the researchers indicated that the main concern is the potential malignant transformation of the endometrial hyperplasia to the EC.

Despite a number of strengths of the present study, we are aware that this study has some limitations that have to be pointed out. First of all, the retrospective design of the study may weaken the external validity and generalizability of our findings. Moreover, it is possible that some important clinical characteristics were not recorded. Another limitation of the study is about the pathological evaluation of the biopsy specimens. Because of the long study interval, it is possible that specimens might be evaluated by different expert pathologists.

Conclusion

In conclusion, AUB which often prevails as an important and common gynecological ailment in perimenopausal women is commonly due to dysfunctional in origin. But bleeding in postmenopausal period should be evaluated with caution for the presence of EC. Endometrial curetting and biopsy is the most accurate evaluation method of endometrium to rule out focal EC. Furthermore, in perimenopausal women with AUB endometrial curettage have significant value in the timely recognition and diagnosis of preneoplastic and malignant lesions.

Competing interests
The authors declare that they have no competing interest

Financial Disclosure
The financial support for this study was provided by the investigators themselves.

Ethical approval
Before the study, permissions were obtained from local ethical committee.

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