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ORIGINAL ARTICLE

Pathological patterns of endometrial curettage samples in women referred with abnormal uterine bleeding: A descriptive study

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Abstract

Introduction: Abnormal uterine bleeding (AUB) is among the most complex gynecological problems, especially during the middle and old age. The aim of this study was to assess the pathological findings in endometrial curettage samples of abnormal uterine bleeding and the risk factors associated with them.

Methods: In our cross-sectional study, we included all the referring women with AUB complaint to Birjand's Vali-e-Asr hospital gynecology clinic from August 2014 to February 2014. The data were collected via interviews and dilatation and curettage (D&C) pathologically evaluated.

Results: A total of 152 patients were enrolled. The mean age of participants was 44.09 years. The most common manifestations were menorrhagia, metrorrhagia, and menometrorrhagia with frequencies of 66 (43.4%), 53 (34.9%), and 160 (10.5%), respectively. The most frequent pathological findings were normal pattern (51.7%, n=78), polyps and abnormal endometrial proliferation (29.1%, n=44), and hyperplasia (14.6%, n=22). No significant association was found between the pathologic results and age, bleeding on admission, number of pregnancies, contraception procedure, occupation, history of endometrial hyperplasia, history of ovarian cysts, hypothyroidism, hyperthyroidism, hyperprolactinemia, hypertension, and diabetes.

Conclusions: Overall, the most common causes of AUB involve non-organic causes, that is, natural causes although curettage is still an acceptable method for assessment of AUB, given the importance of AUB in diagnosis of endometrial cancers in women over 40 years old.

Key Words: Metrorrhagia; Dilatation and Curettage; Endometrial Hyperplasia

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Introduction

Abnormal uterine bleeding (AUB) is one of the most common and most complex gynecological problems [1]. It is defined as any bleeding that does not involve normal cyclical pattern and consists of several clinical features such as oligomenorrhea, polymenorrhea, menorrhagia, menometrorrhagia, metrorrhagia and spotting between cycles with dysfunctional uterine bleeding [2-5].

AUB is of a considerable prevalence, occurring at a rate of 9-14% in women throughout life, and accounts for about 25% of surgeries on women [5, 6]. The pathogeneses can be attributed to organic causes (endometrial polyps, hyperplasia, myomas, atrophy and cancer) or non-organic causes (functional uterine bleeding) [7].

Dilatation and curettage (D&C) is a valuable and highly effective technique for intrauterine pathological assessment that can clearly show endometriosis, hormonal response and provide invaluable information about atrophy, uterine infection or other problems [8, 9]. D&C is a method of choice to obtain an endometrial sample, and has remained the gold standard for the detection of endometrial pathology [10].

Any occurrence of AUB, especially after the age of 40, requires further examination in order to prevent the proliferation of endometrial polyps, fibroids, hyperplasia or carcinoma [4]. AUB is the most common sign and symptom of endometrial cancer that can be found in 90% of patients with endometrial carcinoma [11]. Therefore, a histopathological study of patients with AUB may indirectly reflect malignant or pre-malignant uterine cavity lesions in a population.

The aim of this study is to assess the prevalence of histopathologic findings using D&C among a sample of Iranian patients with AUB.

Methods

In this cross-sectional study, the data were collected prospectively. Sampling was by census and the population included all the patients referring with AUB complaint to gynecology clinic of Birjand's Vali-e-Asr hospital from august to February 2014. Inclusion criteria is any admitted women with chief complaint of AUB, and exclusion criteria were being below 20 years old of age, being single and not willing to participate in the study,

Those who had inclusion criteria and who referred within the specified time period to Vali-Asr Hospital of Birjand were selected as the sample (n=152). The research project was approved in the Research Council, and the research protocol was confirmed in the Ethics Committee of Birjand University of Medical Sciences. The centers were visited for further coordination, and a list was obtained of patients whose endometrium was assessed pathologically.

Patients were contacted on the phone and explanations were given to them concerning the objectives of the study. They were asked to bring all their documents to the gynecological clinic at Vali-Asr Hospital. At this stage, the patients presented their written informed consent. The researcher completed a demographics form and an already designed laboratory checklist for each of the patients. The checklist used in the study covered demographic characteristics such as age and employment status (household/employed) as well as information concerning number of pregnancies, use of contraceptive methods and its type (mechanical/permanent/hormone/other methods), menstruation status, history of thyroid dysfunction (according to the patient and medication history and thyroid function tests performed in the hospital), history of diabetes and hypertension (according to the patient and medication history, physical examination and fasting blood sugar level in hospital admission), history of ovarian cysts (based on ultrasound or biopsy confirmed interpretation) and history of endometrial proliferative lesions (based on ultrasound or biopsy confirmed interpretation) accompanied finally by the current sample pathology results (according to the pathology interpretation).

The collected data were analyzed in SPSS software (version 21) using descriptive statistics (mean, standard deviation, and frequency/percentage) and inferential statistics (Fisher's Exact Test). The significant level was considered 0.05.

Results

A total of 152 patient records were examined. The mean age of participants was 44.09 ± 8.98 years (age range of 21-75 years). The majority of the patients were in the age group of 40-50 years (44.1 percent, n=67), >50 years of age (30.3 percent, n=46), and 30-40 years age group (17.1%, n=26), respectively. They had on average a history of 3.80 ± 1.87 (0-11) number of pregnancies. They

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were mainly housewives (84.2 percent, n=128).and 87.4 percent of the participants (n=132) had a history of contraception. Table 1 displays the frequency distribution of the demographic characteristics of the study participants.

The most common manifestations in the participants included menorrhagia, menometrorrhagia, and metrorrhagia with frequencies of 43.4 percent (n=66 patients), 34.9 percent (n=53 patients) and 10.5 percent (n=16 patients), respectively. Table 2 presents the distribution of participants by abnormal uterine manifestations.

Table 1: Percentage Demographic data of study cases

Variable		N(%)
Age (year	20-30	13(8.6)
	30-40	26(17.1)
	40-50	67(44.1)
	>50	46(30.3)
	Total	152(100)
Occupation	Housewife	128(84.2)
	Employed	24(15.8)
	Total	152(100)
Use of contraception method	Positive	132(87.4)
	Negative	19(12.6)
	Total	152)100)
Method of contraception	Mechanical	32(23.5)
	Permanent	26(19.1)
	Hormonal	17(19.1)
	Others	61(44.9)
	Total	152(100)

Table 2: Percentage frequency distribution of participants' abnormal uterine distribution

Variable	N(%)
Menorrhagia	66(43.4)
Menometrorrhagia	53(34.9)
Metrorrhagia	16(10.5)
Others	17(11.2)
Total	152(100)

The prevalence of hypothyroidism, hyperthyroidism and hyperprolactinemia were respectively 9.9%, 0.7%, and 0.7%. Prevalence of diabetes and hypertension were 9.9% and 17.1, respectively. Concerning the history of ovarian cysts, this disease prevailed in 19.7% of the participants. A total of 46.1% of the patients had a history of endometrial hyperplasia. Table 3 shows the frequency of background diseases among the participants.

The results regarding the prevalence of pathological findings in the participants showed that the most common findings were normal pattern (51.7%, n=78), polyps and disordered proliferation (29.1%, n=44), hyperplasia (14.6%, n=22), and malignancies (1.3%, n=2) (Table 4).

The comparison of the pathologic results by age, bleeding on admission, number of pregnancies, contraception procedure, occupation, history of endometrial hyperplasia, history of ovarian cysts, hypothyroidism, hyperthyroidism, hyperprolactinemia, hypertension and diabetes did not show a significant association (Table 5).

Table 3: Frequency distribution of background diseases among the participants

Variable		N(%)
Hypothyroidism	Positive	15(9.9)
	Negative	137(90.1)
	Total	152(100)
Hyperthyroidism	Positive	1(0.7)
	Negative	151(99.3)
	Total	152(100)
Hyperprolactinemia	Positive	1(0.7)
	Negative	151(99.3)
	Total	152(100)
Diabetes	Positive	15(9.9)
	Negative	137(90.1)
	Total	152(100)
Hypertension	Positive	26(17.1)
	Negative	126(82.9)
	Total	152(100)
Ovarian Cysts	Positive	30(19.7)
	Negative	122(80.3)
	Total	152(100)
History of endometrial hyperplasia	Positive	45(29.6)
	Negative	107(70.4)
	Total	152(100)

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Table 4: Frequency distribution of pathological findings among the participants

Variable		N(%)	Persons N(%)
Normal pattern	Proliferative endometrium	44(29.2)	78(51.7)
	Secretory endometrium	28(18.5)	
	Endometrial menopause	6(4)	
Polyps	Endometrial polyp	8(5.3)	44(28.9)
Disordered proliferation	Disordered proliferation	36(23.9)	
Hyperplasia	Simple	22(14.6)	22(14.5)
	Complex	0(0)	
Malignity	Adenocarcinoma	2(1.3)	3(1.3)
Inflammation	Inflammation	5(3.3)	5(3.3)
Total			152(100)

Table 5: Frequencies of pathological findings according to study variables

Variable		Normal Pattern N(%)	Polyps and abnormal endometrial N(%)	Hyperplasia N(%)	Malignity N(%)	Infection N(%)
Age (year)	20-30	10 (76.9)	3 (23.1)	0 (0)	0 (0)	0 (0)
	30-40	12 (46.2)	7 (29.6)	4 (15.4)	1 (3.8)	2 (7.7)
	40-50	33 (50)	18 (27.3)	12 (18.2)	0 (0)	3 (4.5)
	>50	23 (50)	16 (34.8)	6 (2.2)	1 (13)	0 (0)
	Total	78 (51.7)	44 (28.9)	22 (14.5)	2 (1.3)	5 (3.3)
Method of contraception	Mechanical	13 (40.6)	10 (31.2)	6 (18.8)	1 (3.1)	2 (6.2)
	Permanent	16 (64)	8 (32)	1 (4)	0 (0)	0 (0)
	Hormonal	14 (82.4)	1 (5.9)	1 (5.9)	0 (0)	1 (5.9)
	Others	30 (49.2)	17 (27.9)	11 (18)	1 (1.6)	5 (3.3)
	Total	78 (51.7)	44 (28.9)	22 (14.5)	2 (1.3)	5 (3.3)
Occupation	Housewife	67 (53.5)	37 (29.1)	16 (12.6)	2 (1.6)	4 (3.1)
	Employed	10 (41.7)	7 (29.2)	6 (5)	0 (0)	1 (4.2)
	Total	78 (51.7)	44 (28.9)	22 (14.5)	2 (1.3)	5 (3.3)
Hypertension	Positive	11 (42.3)	12 (46.2)	2 (7.7)	1 (3.8)	0 (0)
	Negative	67 (53.6)	32 (25.6)	20 (16)	1 (0.8)	5 (4)
	Total	78 (51.7)	44 (28.9)	22 (14.5)	2 (1.3)	5 (3.3)
History of ovarian cysts	Positive	12 (41.4)	11 (37.9)	5 (17.2)	0 (6.9)	1 (3.4)
	Negative	66 (54.1)	33 (27)	17 (13.9)	2 (1.6)	4 (3.3)
	Total	78 (51.7)	44 (28.9)	22 (14.5)	2 (1.3)	5 (3.3)
History of endometrial hyperplasia	Positive	32 (46.4)	26 (37.7)	9 (13)	1 (1.4)	1 (1.4)
	Negative	46 (56.1)	18 (22)	13 (15.9)	4 (1.2)	4 (4.9)
	Total	78 (51.7)	44 (28.9)	22 (14.5)	2 (1.3)	5 (3.3)
Time of pregnancy	Primigravida	11 (58.8)	4 (23.5)	1 (5.9)	0 (0)	1 (5.9)
	Multigravida	67 (50)	40 (15.7)	21 (15.7)	2 (1.5)	4 (3)
	Total	78 (51.7)	44 (28.9)	22 (14.5)	2 (1.3)	5 (3.3)
Clinical manifestations	Menorrhagia	35 (53.8)	17 (26.2)	8 (12.3)	1 (1.5)	4 (6.2)
	Menometrorrhagia	28 (52.8)	14 (26.4)	10 (18.9)	1 (1.9)	0 (0)
	Metrorrhagia	7 (43.8)	7 (43.8)	2 (12.5)	0 (0)	0 (0)
	Others	8 (41.1)	6 (35.3)	2 (19.8)	0 (0)	1 (5.9)
	Total	78 (51.7)	44 (14.5)	44 (14.5)	2 (1.3)	5 (3.3)

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Discussion

This study was conducted to determine the pathologic findings of AUB in curettaged women referring to the gynecology ward of Vali-e-Asr Hospital. The most common manifestations involved menorrhagia, metrorrhagia, and menometrorrhagia with frequencies of 43.4% (66 patients), 34.9 percent (n=53 patients), and 10.5 percent (n=16 patients), respectively. The results regarding the prevalence of pathological findings in the participants showed that the most common findings were normal pattern (51.7%, n=78), polyps and disordered proliferation (29.1%, n=44), hyperplasia (14.6%, n=22), and malignancies (1.3%, n=2), respectively. No significant association was found between the pathologic results by age, bleeding on admission, number of pregnancies, contraception procedure, occupation, history of endometrial hyperplasia, history of ovarian cysts, hypothyroidism, hyperthyroidism, hyperprolactinemia, hypertension, and diabetes.

The most common manifestations in the participants included menorrhagia, menometrorrhagia, and metrorrhagia with frequencies of 43.4 percent (n=66 patients), 34.9 percent (n=53 patients) and 10.5 percent (n=16 patients), respectively. In Jairajpuri et al's study, similar to the current study, the most common clinical patterns referred to menorrhagia, metrorrhagia, menometrorrhagia and polymenorrhea [12]. In line with the results of Damle et al's study, the most common symptoms were menorrhagia (48.86 percent) and metrorrhagia (31.55 percent), and in Jetley et al's study, the most common manifestations were menorrhagia (46.4 percent) and metrorrhagia (20 percent), respectively [13, 14]. Menorrhagia can be physiological by itself and in absence of a metrorrhagia component. Along with increase in parity, the endometrial cavity and bleeding will be increased. There may be a concurrent combination of menorrhagia and metrorrhagia, as for example, in a woman who has asynchronous endometrial polyp but ovulates nonetheless, or a patient who suffers from submucous myoma. In the late perimenopausal period, the ovary may function so sporadically that amenorrheic prolonged episodes, menopausal flushing, and even laboratory perimenopausal findings (increased FSH, decreased estradiol) happen simultaneously with episodes of bleeding or spotting (namely, agonal episodes of ovarian activity)[15].

The prevalence of pathological findings in the participants showed that the most common findings were normal pattern (51.7%, n=78), polyps and disordered proliferation (29.1%, n=44), hyperplasia (14.6%, n=22), and malignancies (1.3%, n=2), respectively. In line with the results of this study, where the pathology examination reported normal patterns as the most cases in women with AUB, the study by Angioni et al showed that the most common causes of AUB were endometrial polyp (41.7%), hyperplasia (17.8%), and endometrial cancer (4.7%), respectively [16]. Endometrial curettage histopathology in Riaz et al's study indicated frequency rates of 38% for proliferative endometrium, 26% for secretory endometrium, 25% for cystic hyperplasia, and one case as for endometrial carcinoma, cystic hyperplasia and prolifrative endometrium in women over 40 years [17].

Along with the findings of the current study, Dasgupta reported frequency rates of 35.7% for normal biopsy results, 7.1% for polyps, 13.9% for fibroids, and 43.2% for abnormal pathology [18]. In addition, in studies by Behnamfar et al and Bettocchi et al, the most frequent pathology referred to proliferative endometrium, which is classified under normal patterns [19, 20]. Unlike the results in the present study, Saadia et al found that hyperplasia occurred in 40% of biopsy cases which shows a higher rate than normal in terms of abnormal pathology [21]. Consistent with the majority of the mentioned studies, this study shows in overall that the most common causes of AUB involve non-organic causes, that is, natural causes, despite the fact that the curettage is still an acceptable method for AUB assessment, given the importance of AUB in diagnosis of endometrial cancers in women over 40 years old [15, 22, 23].

The current study did not find any significant correlations between the pathologic results of age, presentations on admission, number of pregnancies, use of contraceptive methods, employment status, history of endometrial hyperplasia, history of ovarian cysts, suffering from hypothyroidism, hyperthyroidism, hyperprolactinemia, hypertension and diabetes. Soleymani et al's study showed a significant relationship between the cause of abnormal bleeding and its occurrence time (before or after menopause) such that people of post-menopausal age are at greater risk of hyperplasia lesions (5.4% vs 1.9%) and malignancies (1.8% vs. 0.4%).

Abnormal pathologies happen more in women with normal gravity 0 and 1, while normal pathologies occur more in women with gravity 2 and more than 2 (82.1% vs 60%) so that the frequencies were higher in primigravid than nulligravid women in terms of polyps and disordered proliferative endometrium (20% vs.

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15.2%), hyperplasia (15% vs. 2.1%) and cancer (5% vs. 0.5%). Normal endometrium was observed in patients without a history of hypertension (82.7% versus 69%), diabetes mellitus (82.9% vs 61.9%), hypothyroidism (82.7% vs 62.2%), and PCOS (82.5% vs 56%) [24].

Indraccolo and Barbieri's study showed that high fasting glucose levels along with old age hypertension and adenomyosis are associated with a greater incidence of polyps [25]. In the study of Baiocchi et al, malignant and premalignant features were significantly related with age, menopausal status, presence of hypertension, and AUB [26]. Friedenreich et al' study showed that endometrial carcinoma associated with metabolic syndrome, and metabolic syndrome is proposed as a risk factor for the disease [27]. After rejection of idiopathic causes and pregnancy in patients referring with AUB, systemic disorders such as disorders of thyroid function should be considered because menstrual disorders have been associated with hypothyroidism and hyperthyroidism [5, 24, 28].

Despite synchronicity of systematic disorders and AUBs in other studies, this was not observed in the current study which may be attributed to the limited frequency of participants. In this study, it was not possible to check the patients' medication history, a factor that seems important in pathologic assessment. Furthermore, given the time and cost limitations, it was not possible to check concurrently the ultrasound results for endometrial diameter assessment (and its correlation with endometrium pathologic findings) and serum levels of LH, FH, and prolactin.

The researchers suggest that future case-control studies enquire into each of the disorders accompanied by AUB, especially in women with biopsy normal interpretation. It is also suggested to investigate the effects of effective drugs on endometer and their subsequent changes in future studies. Given the increasing role of transvaginal sonography and endometrial diameter assessment in endometrial cancer screening, one could also suggest a study of sonographic evaluation of women and the relationship between endometrial diameter and its pathologic findings as intriguing research topics. Finally, researchers may find it interesting to check LH and FH serum levels and prolactin and their relationship with endometrial pathological findings.

Conclusions

This study shows that the most common causes of AUB are of non-organic origins (i.e. natural causes). Our pathologic findings didn't show any significant association with age, bleeding on admission, number of pregnancies, contraception procedure, occupation, endometrial hyperplasia, ovarian cysts, hypothyroidism, hyperthyroidism, hyperprolactinemia, hypertension and diabetes.

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