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Hysteroscopic Evaluation of the Uterus in Obese Female with Post-Menopausal Bleeding

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ABSTRACT

Background: The causes of postmenopausal vaginal bleeding included endometrial atrophy, hyperplasia, polyps, submucosal myoma, and cancer. Every woman with postmenopausal bleeding (PMB) needs a meticulous clinical investigation since it has a 10 to 15 % of endometrial cancer.

Objective: The aim of this work was to achieve an accurate evaluation of the uterine cavity in obese females with post-menopausal bleeding.

Patient and Methods: A case-control study that was carried out over 6 months from March 2022 to August 2022 on 68 cases at Gynecology Outpatients in Obstetrics and Gynecology Department, Zagazig University Maternity Hospital where office hysteroscopy is performed. All patients were divided into two groups: Group A included 34 obese patients with post-menopausal uterine bleeding, while group B included 34 non-obese patients with post-menopausal uterine bleeding. All patients were subjected to full history taking, routine clinical examination, laboratory investigations and hysteroscopic evaluation.

Results: There was no significant difference between the studied groups concerning the endometrial thickness, time, and amount of bleeding or histological sample distribution. They also revealed that endometrial polyps were significantly associated with non-obese group, but endometrial polyps + fibroids and proliferative endometrial hyperplasia were significantly associated with obese group.

Conclusions: Obesity is a risk factor for the development of abnormal uterine bleeding in postmenopausal women considering its association with several uterine and endometrial pathologies causing postmenopausal bleeding.

Keywords: Hysteroscopy, Post-menopausal, Bleeding.

INTRODUCTION

The World Health Organization (WHO) defines menopause as the permanent cessation of menstruation caused by the reduction of ovarian follicular activity. Postmenopausal bleeding (PMB) is an anomaly that occurs after menopause. After at least a year of amenorrhea, it is characterized as uterine bleeding. PMB is a prevalent complaint among gynecology patients, accounting for about 5-10% of total patient turnover in a gynecological clinic during the postmenopausal time [(1)].

The causes of postmenopausal vaginal bleeding included endometrial atrophy, hyperplasia, polyps, submucosal myoma, and cancer. Every woman with PMB needs a meticulous clinical investigation since it has a 10 to 15 % of endometrial cancer. The burden of endometrial cancer is increasing worldwide, therefore increasing the need for early diagnosis and treatment [(2)].

Although in almost half the cases, clinical assessment, transvaginal sonography (TVS), and/or saline infusion sonography are able to diagnose and detect the cause of PMB yet in a large proportion of cases, the diagnosis remains uncertain and needs to be validated. A high body mass index (BMI) has been linked to an increased risk of endometrial disease. In affluent cultures, obesity is thought to be responsible for around 40% of endometrial cancer cases [(3)].

When managing postmenopausal bleeding in women, the BMI standard for obesity at 25 kg/m^2 identified 51% of endometrial disease in this group and denoted a 57% increased endometrial risk factor. Thus, obesity could be used to triage women presenting with postmenopausal bleeding for prioritized investigations [(4)]. Hysteroscopy enables to directly visualize the uterine cavity completely and in case of any abnormal visualization, the representative tissue can be collected for histopathological examination [(5)]. The aim of this study was to explore the relationship between hysteroscopy findings of abnormal uterine bleeding and body mass index in women with postmenopausal bleeding.

PATIENTS AND METHODS

Patients fulfilling inclusion criteria were recruited to the study from the attendants at the Department of Obstetrics and Gynecology, Zagazig University Hospitals until the fulfillment of the needed sample.

The number of patients included in the study was 68 cases at Gynecology Outpatients where office hysteroscopy was performed. All patients were divided into two groups; Group A included 34 obese patients with post-menopausal uterine bleeding while Group B included 34 non-obese patients with post-menopausal uterine bleeding.

Inclusion criteria:

Women age 45 - 70 years old. Women that have reached menopause with bleeding after menopause ≥ 12 months. Patients with postmenopausal bleeding.

Obese and non-obese women with postmenopausal bleeding. BMI ≥ 30 kg/m^2. Endometrial thickness by transvaginal ultrasound (TVUS) ≥ 5 mm.

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Exclusion criteria: Bleeding from cervix and vagina. History of bleeding dyscrasias. Use of anticoagulant medications. Use of hormone replacement therapy. Clinical examination showing other pelvic organ pathology.

All patients were subjected to full history taking, routine clinical examination, ultrasound evaluation that were performed as the initial examination to evaluate the endometrium. The endometrial thickness was measured from the reflective interface of the basal layer of endometrium at its thickest part in a midline sagittal plane perpendicular to the long axis of the endometrium. Any fluid present within the endometrial cavity was excluded from the measurement.

Laboratory investigation included Complete blood count (CBC), hemoglobin concentration (Hb %), red blood cells (RBCs), white blood cells (WBCs), platelet count. Renal function test: serum creatinine. Liver tests profile: Serum aspartate and alanine aminotransferases (AST and ALT). International normalized ratio (INR). Fasting and postprandial blood sugar.

Ethical consent:

An approval of the study was obtained from Zagazig University Academic and Ethical Committee. Every patient signed an informed written consent for acceptance of participation in the study. This work has been carried out in accordance with The Code of Ethics of the World Medical Association (Declaration of Helsinki) for studies involving humans.

Statistical Analysis

The collected data were coded, processed and analyzed using the SPSS (Statistical Package for Social Sciences) version 22 for Windows® (IBM SPSS Inc, Chicago, IL, USA). Data were tested for normal distribution using the Shapiro Walk test. Qualitative data were represented as frequencies and relative percentages. Chi square test (χ^2) to calculate difference between two or more groups of qualitative variables. Quantitative data were expressed as mean ± SD (Standard deviation). Independent samples t-test was used to compare between two independent groups of normally distributed variables (parametric data). P value < 0.05 was considered significant.

RESULTS

Age was distributed as 50.58 ± 3.68 and 52.44 ± 7.44 years respectively with no significant difference between groups but obese group was significantly higher regarding weight and BMI **(Table 1)**.

Table (1): Demographic data distribution between studied groups

	Obese group	Non-obese group	t	P
Age (years)	50.58±3.68	52.44±7.44	1.300	0.198
Weight (kg)	82.02±7.41	66.70±3.93	10.643	0.00**
Height (cm)	164.15±7.27	162.80±8.86	1.732	0.081
BMI (kg/m^2)	29.40±7.56	25.71±1.69	2.777	0.007*

This study showed no significant difference between the studied groups concerning the endometrial thickness, time, and amount of bleeding or histological sample distribution **(Tables 2, 4)**.

Table (2): Endometrial thickness, time and amount of bleeding distribution between studied groups

	Obese group	Non-obese group	t	P
Endometrial thickness	5.92±0.57	5.72±0.70	1.311	0.194
Time	17.35±3.41	17.91±2.23	0.798	0.428
Amount of bleeding	1.82±0.68	1.91±0.72	0.389	0.698

Endometrial hyperplasia & endometrial polyp were significantly associated with non-obese group but endometrial polyp + fibroids and proliferative endometrial hyperplasia were significantly associated with obese group **(Table 3**).

Table (3): Final diagnosis distribution between studied groups

			Groups		X^2	P
			Obese group	Non-obese group		
Final diagnosis	Endometrial carcinoma	N	0	2		
		%	0.0%	5.9%		
	Endometrial hyperplasia	N	0	7		
		%	0.0%	20.6%		
	Endometrial polyp	N	5	8		
		%	14.7%	23.5%		
	Endometrial polyp + fibriod	N	11	4		
		%	32.4%	11.8%		
	Endometritis	N	2	0	16.38	0.016*
		%	5.9%	0.0%		
	proliferative endometrial hyperplasia	N	6	3		
		%	17.6%	8.8%		
	secretory endothelium	N	0	2		
		%	0.0%	5.9%		
	Submoucus fibroid	N	10	8		
		%	29.4%	23.5%		
Total		N	34	34		
		%	100.0%	100.0%		

Table (4): Histological sample distribution between studied groups

			Groups		X^2	P
			Obese group	Non-obese group		
Histological sample	NA	N	28	20		
		%	82.4%	58.8%		
	Complex hyperplasia without atypia	N	0	3		
		%	0.0%	8.8%		
	Endometrial carcinoma	N	0	2		
		%	0.0%	5.9%		
	Proliferative	N	6	5	10.42	0.064
		%	17.6%	14.7%		
	Secretory	N	0	2		
		%	0.0%	5.9%		
	Simple hyperplasia without atypia	N	0	2		
		%	0.0%	5.9%		
Total		N	34	34		
		%	100.0%	100.0%		

DISCUSSION

Regarding the demographic data in our study, age was distributed as 50.58 ± 3.68 and 52.44 ± 7.44 respectively with no significant difference between groups but obese group was significantly higher regarding weight and BMI. **Mansingh *et al.*** [6] conducted a similar prospective observational study, comprising of total number of 50 postmenopausal women. Age of patients ranged from 41 to 80 years. Maximum (n=23; 46%) were aged 51-60 years followed by those aged 61-70 years (22%), 41-50 years (20%) and >70 years (12%) respectively. Mean age of patients was 58.42 ± 8.93 years with no significant difference between groups. In addition, and against us, the median parity was P3. Against our results, **Tinelli *et al.*** [7]**,** from Italy reported that the mean age among their included subjects was 58.6 years. In addition, family history of present disease was significantly associated with the studied patients.

No significant difference between our studied groups was found concerning the endometrial thickness, time, and amount of bleeding or histological sample distribution. Regarding the final diagnosis distribution between our studied groups, endometrial hyperplasia & endometrial polyps were significantly associated with non-obese group but endometrial polyp + fibroids and proliferative endometrial hyperplasia were significantly associated with obese group. **Tofiloska *et al.*** [8] cleared that obesity, hypertension, diabetes and other lifestyle and reproductive factors have been recognized as the factors associated with post-menopausal bleeding that also enhance the risk of endometrial cancer. They also cleared that endometrial hyperplasia, endometrial polyps, fibroids and proliferative endometrial hyperplasia were significantly associated with obese patients. **Mansingh *et al.*** [6] cleared that 22% of their studied women were in overweight and obese category too. No significant difference between their studied groups was found concerning the endometrial thickness, time, and amount of bleeding or histological sample distribution. Comorbid conditions like diabetes, hypertension, hypothyroidism, and obesity have often been encountered in women with postmenopausal bleeding. In a study by **Tandulwadkar *et al.*** [9]**,** diabetes, hypertension, hypothyroidism, and obesity were seen in 20%, 13.33%, 5% and 13.33% patients respectively. They also found that majority of their cases with endometrial cancer had these factors.

As such after ruling out different physiological and hormonal reasons, and a suspicious TVS finding, **Dutta *et al.*** [10] focused mainly towards finding out a pathological cause of postmenopausal bleeding. For the screening purpose, cytological evaluation using pap smear was done. However, pap smear findings were suggestive of inflammatory/non-neoplastic lesions in 44 (88%) of cases. They were unsatisfactory in 5 (10%). One case was diagnosed as CIN III. As such cytology (Pap smear) is a less reliable tool for diagnosis of postmenopausal bleeding**.** Pap smear is generally performed as a routine test and its findings need to be corroborated with advanced diagnostic tools. For this purpose, hysteroscopy was done by **Mansingh *et al.*** [6] where half the cases (n=25; 50%) were diagnosed as polyps followed by atrophic endometrium (n=8; 16%). There were 7 (14%) cases in whom the cervix was classified as unhealthy without any particular diagnosis. A total of 5 (10%) cases were diagnosed as fibroid; 2 (4%) each as hyperplasia and degenerative changes and 3 (6%) as endometrial carcinoma. While fibroid/myoma detection was only 10%. Hysteroscopic findings in different case series have shown wide diversity [6]**.**

However, some other workers detected it to be much higher, **Sarvi *et al.*** [11] detected fibroid/myoma in 18.2% cases, while **Gupta *et al.*** [12] detected in 27.14%. However, some other authors like **Sharma and Tiwari** [13] **and Junnare *et al.*** [14] did not report it in any of their cases.

On the other hand, **Junnare *et al.*** [14] found hyperplasia in 30% of their cases. The wide diversity in different pathologies in different studies could be owing to diversity in samples as well as sample size. Given a number of endometrial pathologies involved in postmenopausal bleeding, series with smaller sample size could have incidental rather than actual proportional representation.

On final diagnosis among the studied cases by **Mansingh *et al.*** [6]**,** in 1 (2%) case, no abnormality was seen. There were 13 (26%) cases diagnosed as atrophy, 22 (44%) as polyps, 5 (10%) each fibroid and endometrial carcinoma and 4 (8%) as hyperplasia. As such, except for atrophy which was diagnosed in 26% cases. Hysteroscopically, no other major change in diagnosis was observed.

However, **Junnare *et al.*** [14]**,** in their study found a major change in proportion of hyperplasia cases, which were diagnosed in 30% cases hysteroscopically but were finally confirmed in only 11% cases. In the same line with us, **Tandulwadkar *et al.*** [9] showed no significant difference between their studied groups was found concerning the endometrial thickness, time, and amount of bleeding or histological sample distribution. They also revealed excellent correlation between hysteroscopy and histopathology. **Trajkovic *et al.*** [15] on the other hand, found final diagnosis of normal endometrium and endometrial polyps by hysteroscopy in addition to hyperplasia and atrophy. Endometrial polyps, fibroids and proliferative endometrial hyperplasia were significantly associated with obese patients.

According to **Sarvi *et al.*** [11]**,** although hysteroscopy is generally comparable to the final diagnosis in most of the cases, however, the advantage of the hysteroscopy lies in the fact that it allows

endometrial biopsy through which the diagnosis could be confirmed histopathologically.

CONCLUSIONS

We concluded that menopausal bleeding is one of the most common reasons for visit to a gynaecologist by a woman who has attained menopause. Hysteroscopy helps to identify the women who with postmenopausal bleeding having an abnormal pathology from those who do not have any such pathology. Along with endometrial biopsy it is considered to be highly accurate in identification of endometrial pathologies. It has been considered to be the method of choice for evaluation of women with postmenopausal bleeding especially those aged 45 years or above.

We also concluded that obesity is a risk factor for the development of abnormal uterine bleeding in postmenopausal women considering its association with several uterine and endometrial pathologies causing postmenopausal bleeding.

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