Evaluation of the surgical treatment outcomes for abnormal uterine bleeding in menopausal women

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Abstract

Background: Menopause is determined after 12 consecutive months of amenorrhoea in women with regular menstruation. During this period, women often encounter many health disorders that affect quality of life such as vascular disorders, insomnia, migraines, breast pain, menstrual disorders, and urogenital symptoms,…This study aims to survey the causes of abnormal uterine bleeding in postmenopausal women undergoing surgery and the surgical treatment outcomes in menopausal women. **Materials and method:** A cross-sectional descriptive study was constructed in 32 women of menopausal age hospitalized for abnormal uterine bleeding at the Center of Obstetrics and Gynecology, Hue Central Hospital, from December 2022 to December 2023. The questionnaire is designed to collect general information, menstrual history, reason for hospitalization, etc. Clinical examination to evaluate abnormal uterine bleeding. Uterus and adnexal ultrasound, sonohysterography (if possible) to evaluate the reason and to evaluate endometrial thickness. Treatment methods include curettage of the uterine cavity to obtain specimens for pathology to rule out malignant originations or/and surgery to eliminate the cause. For endometrial cancer, cancer staging according to FIGO (Federation Internationale de Gynecologie et d'Obstetrique). **Results:** The mean age and standard deviation of the patients was 56.2 ± 7.8 years. Endometrial hyperplasia and uterine polyps were the main causes with 56.3% and 21.9%, respectively. The major treatment method was uterine curettage and biopsy accounted for 46.8%, following with hysteroscopy and hysterectomy (open/laparoscopic) with 37.5% and 15.7%, respectively. 96.9% of cases had no complications after treatment, the only complication obtained in the study was bleeding, accounting for 3.1%. **Conclusion:** Endometrial hyperplasia is one of the main causes of abnormal uterine bleeding in menopausal women. Uterine curettage/biopsy and hysteroscopy are safe and reliable methods for evaluating and treating these lesions. The surgical treatment results are relatively safe and only mild complications occur.

Keywords: *Abnormal uterine bleeding (AUB), menopausal, hysterectomy, PALM-COEIN.*

1. INTRODUCTION

Menopause is determined after 12 consecutive months of amenorrhoea in women with regular menstruation [1]. This period marks the end of menstruation and fertility which is a normal physiological stage related to a decline in ovarian function, leading to reduced hormone concentrations from the ovaries (mainly estrogen). The median age at menopause among white women from industrialized countries ranges between 50 and 52 years [2].

Abnormal uterine bleeding (AUB) occurs in approximately 5% of postmenopausal women [3]. Particularly, this symptom has been proven to be the cardinal symptom of all types of uterine cancer, accounting for over 90% of uterine cancer in menopausal women (92% of uterine cancer originates from the endometrium) [4]. Postmenopausal bleeding is usually due to vaginal and endometrial atrophy. However, based on age and risk factors, about 1 - 14% of AUB circumstances face endometrial cancer. Therefore, the clinical approach for postmenopausal bleeding requires rapid and effective assessment, to diagnose or rule out endometrial cancer and endometrial hyperplasia.

The definition of AUB was proposed by the International Federation of Gynecology and Obstetrics (FIGO) in 2011 to replace previously used terms such as menorrhagia, oligomenorrhea, hypermenorrhea, amenorrhea, dysmenorrhea... With the diagnosis based on reasons of uterine bleeding, in recent years, gynecologists have been capable of grouping physical causes (PALM) including endometrial polyps, uterine adenoma, uterine fibroids, endometrial hyperplasia/cancer or functional causes (COEIN) encompassing coagulation disorders, ovulatory disorders, due to treatment/

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drugs or other causes [5]. Cause identification can help choosing an appropriate treatment, leading to a more effective treatment.

In endometrial cancer, surgery is the main treatment method including a total hysterectomy and bilateral salpingo-oophrectomy, pelvic and para–aortic lymphadenectomy. Open surgery, vaginal-assisted laparoscopic surgery, or robot-assisted laparoscopy can also be performed. In addition, other structural causes such as uterine fibroids and endometrial polyps can lead to abnormal uterine bleeding. In these instances, there are many treatment options based on the clinical context, complications, tumor size and location, surgeon's experience, etc.

Therefore, we conducted this project with two purposes:

1. To survey the causes of abnormal uterine bleeding in postmenopausal women undergoing surgery.

2. To evaluate the treatment results of these circumstances.

2. MATERIALS AND METHOD

2.1. Subjects

The inclusion criteria were as follows:

- Menopausal women hospitalized because of AUB.
- The patient is indicated for surgery.
- Patients voluntarily participate in the study

The exclusion criteria were:

- The patient does not agree to participate in the study.

2.2. Research location

- Department of Obstetrics and Gynecology, Hue Central Hospital, from 12/2022 to 12/2023.

2.3. Research methods

- Research design: cross-sectional descriptive study
- Sample size: 32 menopausal women with AUB.
- Research steps:

The research steps included administrative interviews, medical histories, and clinical examinations conducted by gynecologists (such as menstrual history, reason for hospitalization, etc.). Evaluate the causes of AUB based on the PALM-COEIN classification system [9].

Subsequently, transabdominal pelvic and transvaginal ultrasounds were performed by a gynecologist/radiologist to evaluate uterus and adnex, sonohysterography (if possible) to detect lesions in the uterine cavity. The endometrium should be measured in the long axis or sagittal plane, ideally on transvaginal scanning, with the entirety of the endometrial lining through to the endocervical canal. The measurement is of the thickest echogenic area from one basal endometrial interface across the endometrial canal to the other basal surface [6]. The postmenopausal endometrial thickness is typically less than 5 mm in a postmenopausal woman [7].

Intervention: curettage of the uterine cavity to obtain specimens for pathology to rule out malignant originations. Surgical removal or tumor resection was indicated on a case-by-case basis. Surgical staging provides important prognostic information in the management of endometrial cancer and is based on the FIGO (2019) staging system [8].

Research variables:

- Classification by age group
- Classification by geography: Rural, urban, mountainous.
- Characteristics of obstetric and gynecological history:
  + Number of pregnancies: Never pregnant, pregnant once, twice, more than twice.
  + Menopause time: < 5 years, 5 - 10 years, ≥ 10 years.
- Clinical symptoms: Abdominal pain, digestive disorders, urinary disorders, rapid abdominal growth, weight loss, vaginal bleeding, menorrhagia, other,...
- Survey the causes of abnormal uterine bleeding: Endometrial polyps, uterine fibroids, endometrial hyperplasia, endometrial cancer,...

Table 1. PALM-COEIN classification [9]

Structural causes (PALM)	Nonstructural causes (COEIN)
Polyps	**C**oagulopathy
Adenomyosis	**O**vulatory dysfunction
Leiomyomas	**E**ndometrial
Malignancy and hyperplasia	**I**atrogenic
	Not yet specified

- Examination of endometrial thickness on ultrasound: < 5 mm, > 5 mm.

- Survey the size of uterine fibroids.

- Survey the location of uterine fibroids: submucosal tumors, interstitial tumors and subserosal tumors.

- Histopathological classification of endometrial cancer.

- Surgical methods: Open surgery, laparoscopic surgery, myomectomy, total hysterectomy, Lymph node dissection (in case of cancer).

- Postoperative complications: surgical wound infection, bleeding, ureteral damage, ...

2.4. Overview of national and international research situation

In 2016, a study by Le Minh Toan et al. to evaluate the results of uterine fibroid surgery showed that total abdominal hysterectomy accounted for 81.2%, vaginal and transvaginal. Endoscopy accounts for 9.4%. The average number of days of treatment after surgery was 6.8 ± 3.0 days. The average surgical time for total abdominal hysterectomy is 78.8 ± 19.8 minutes, vaginal is 73.9 ± 18.1 minutes, and laparoscopic is 97.3 ± 17.9 minutes. The rate of complications after total hysterectomy is 5.8% [10].

In 2017, research by Kikelomo T Adesina and Beatrice O Owolabi on abdominal uterine fibroid removal surgery in women of reproductive age showed that major and minor complications occurred in 43.6% and 32.9% respectively, while 23.5% of patients had no complications. The most common complication is bleeding during surgery requiring a blood transfusion. The average estimated blood loss was 630.88 ± 392.42 mL. There were no conversions to hysterectomy, and no deaths were recorded. Uterine size equivalent to a gestational age of 16 weeks or more was significantly associated with greater blood loss, transfusion, and fever (P = 0.034). Other significant determinants of major bleeding in surgery with blood transfusion or not are menstrual bleeding lasting 6 days or more, preoperative anemia, previous surgery, post–operative incision, and duration. surgery lasted more than 4 hours (P < 0.05) [11].

In 2018, research by Vu Ba Quyet et al. at the National Obstetrics Hospital included 55 cases of endometrial cancer diagnosed and treated with laparoscopic surgery. The results showed: 7 patients with in situ cancer, and 39 patients with stage I endometrial cancer. The average surgery time was 53.18 minutes. The average number of pelvic lymph nodes removed was 2.35 right iliac lymph nodes and 2.31 left iliac lymph nodes. The average hospital stay was 4.9 days. There were no blood transfusion complications or complications during surgery. There were no cases of lymph node metastasis. Conclusion: Laparoscopic surgery in cervical cancer is feasible, safe and effective [12].

2.5. Statiscal analysis and ethical approval

Data analysis was performed using the statistical software SPSS (version 20.0; SPSS, Inc., Chicago, IL, USA). Classification variables were reported as numeric (percentage) and continuous variables as medians (SD, standard deviation; CI, confidence interval). Categorical data were compared using the chi-square test. p < 0.05 was considered statistically significant.

Ethical approval for this research was obtained from the Ethical Committee for Biomedical Research at Hue University of Medicine and Pharmacy, Hue, Vietnam. Written informed consent was obtained from all the study subjects.

3. RESULTS

Table 1. General characteristics of research subjects

Characteristics		**Result**	
Age (years)	Mean ± SD (Min-Max)	56.2 ± 7.8 (48 - 64)	
Occupation (N = 32)	Housewife	11	34.3
	Pensioners	12	37.5
	Business	7	21.9
	Others	2	6.3
Location (N = 32)	Countryside	17	53.1
	City	11	34.4
	Mountainous region	4	12.5

Medical and surgical history	Diabetes	3	9.4
	Hypertension	5	15.6
	Other medical diseases	2	6.3
	Pelvic area surgery	3	9.4

The average age of women with abnormal bleeding after menopause is 56.2 ± 7.8. The main occupation is pensioners with 37.5%, followed by housewives with 34.3%. Most patients live in rural areas, accounting for 53.1%, with only a few living in mountainous areas, accounting for 12.5%. 15.6% of patients had a history of hypertension, while diabetes and pelvic surgery had a rate of 9.4%.

Table 2. Obstetric and gynecological history

Characteristics		**n**	**%**
Number of pregnancies (N = 32)	Never pregnant	0	0
	Once	6	18.7
	Twice	18	56.3
	≥ 03 times	8	25.0
Contraceptives used (N = 32)	Condoms	14	43.7
	Intrauterine devices	7	21.9
	External ejaculation	10	32.3
	Others	1	3.1
History of gynecological diseases treatment (N = 32)	None	17	53.1
	Medical treatment	13	40.6
	Surgical treatment	2	6.3

75% of patients have been pregnant 1 - 2 times, the remaining have been pregnant 3 times or more, there are no cases in the study that have never been pregnant. The most commonly used contraceptive method is condoms, accounting for 43.7%, this figure for external ejaculation and intrauterine devices is 32.3% and 21.9%, respectively. 15/32 cases had a treatment history for gynecological diseases.

Table 3. Diagnosis of pathology

Diagnosis		**n**	**%**
Uterine pathology	Endometrial hyperplasia	18	56.3
	Uterine polyps	7	21.9
	Endometrial cancer	4	12.4
	Submucosal uterine fibroids	2	6.3
Extrauterine pathology	Cervical polyps	1	3.1
Total		**32**	**100**

Uterine pathology accounts for the majority with a rate of 96.9%, of which endometrial hyperplasia accounts for 56.3% with 18 cases, followed by uterine polyps with 21.9%. Extrauterine pathology had only 1 case of cervical polyp.

Table 4. Treatment method for abnormal uterine bleeding in menopausal women

Method	**n**	**%**
Uterine curettage and biopsy	15	46.8
Open total hysterectomy	2	6.3
Hysteroscopy	12	37.5
Laparoscopic total hysterectomy	3	9.4
Total	**32**	**100.0**

The most commonly used treatment methods are uterine curettage biopsy and hysteroscopy with rates of 46.8% and 37.5%, respectively.

Table 5. Evaluate the surgical treatment results

Treatment result	n	%
No complications	31	96.9
Complications (bleeding)	1	3.1
Total	**32**	**100.0**

The rate of complications after surgery is very low, only 3.1% while the rate of no complications is 96.9%.

4. DISCUSSION

Abnormal uterine bleeding (AUB) is one of health problems that affects the quality of women life, determined by four parameters: frequency, duration, volume and regularity [13]. In our study (Table 1), the average age of the study subjects was 56.2 ± 7.8 years old, of which the youngest patient was 48 years old and the oldest was 64 years old. This result is similar to Tran Thi Phuong Mai's study in 2019 with the average age of menopausal bleeding patients being 58.25 ± 6.5 years old [14]. The main occupations of these patients are housewives and pensioners with rates of 34.3% and 37.5%, respectively. Most patients live in rural areas, accounting for 53.1%, and a few live in mountainous areas, occupying of 12.5%. A study conducted by Ruby Kumari in 2024 also showed results of 68% of patients live in rural areas [15]. Regarding medical and surgical medical history, in our study, 13 cases with medical history were recorded, of which 15.6% of patients had hypertension, diabetes and a history of pelvic surgery, together accounting for 9.4% and other diseases account for 6.3%.

As we can see at the Table 2, 56.3% of patients had two pregnancies, 25.0% had three or more pregnancies, and 18.7% had one pregnancy. A study conducted in 2023 also showed that the rate of patients who were pregnant 1-2 times was 55.6% [16]. 43.7% of patients chose condoms as a contraceptive method, external ejaculation accounted for 32.3%, and intrauterine devices accounted for 21.9%. Intrauterine contraceptive devices (IUCDs) are one of the most commonly used contraceptive devices worldwide. Though quite an effective contraceptive method, it has some side effects, most common being Abnormal Uterine Bleeding, dysmenorrhea and pelvic pain [17]. Among the 32 patients studied, 15 cases had been treated for gynecological diseases, accounting for 46.9%, of which 13 cases were treated internally and 2 cases were treated surgically.

Regarding diagnosis of the cause, uterine diseases include 31 cases, accounting for 96.9%, of which the most is endometrial hyperplasia with 18/31 cases, followed by uterine polyps accounting for 7/3. This result is consistent with Nguyen Van Tuan's 2020 study with the majority of AUB cases due to endometrial hyperplasia accounting for 60.7% and 10.7% of patients having endometrial polyps [18]. Yuan Tian's research results demonstrated that the independent risk factors for AUB include benign endometrial lesions (odds ratio [OR] 5.243, 95% confidence interval [CI] 3.082 - 9.458, $P < 0.001$), endometrial thickness ≥ 10 mm (OR 1.573, 95% CI 0.984 - 3.287, $P < 0.001$), age ≥ 50 years (OR 2.045, 95% CI 1.035 - 4.762, $P = 0.001$), BMI ≥ 25 kg/m^2 (OR 2.436, 95% CI 1.43 - 4.86, $P = 0.002$), and IUD placement (OR 2.458, 95% CI 1.253 - 4.406, $P < 0.001$). Abnormal uterine bleeding during the menopausal transition is associated with several factors, including age, BMI, and IUD placement, highlighting the importance of early screening for these risk factors in the diagnosis and treatment of AUB [19].

Regarding treatment methods, the two most used methods for postmenopausal women with AUB were uterine curettage biopsy and hysteroscopy, accounting for 46.8% and 37.5%, respectively. After evaluating the treatment results, 31/32 cases had no complications after treatment, the only complication we obtained in the study was bleeding, accounting for 3.1%. Some consensus recommendations were that hysteroscopy and directed biopsy is the 'gold standard' approach for most accurate evaluation of endometrium to rule out focal endometrial cancer. Blind endometrial biopsies should no longer be performed as the sole diagnostic strategy in perimenopausal as well as in postmenopausal women with AUB. The major problem with a regular hysteroscopy was the need for general anesthesia. High blood pressure and diabetes are quite frequent in peri-menopausal age and have been a great deterrent for early diagnosis of endometrial cancer. The advent of office hysteroscopy, with no need for anesthesia, has become a boon in dealing with peri-menopausal AUB and postmenopausal uterine bleeding. One concern was also voiced about the possibility of using liquid distension medium

leading to peritoneal migration of neoplastic cells and peritoneal metastasis. This concern would be equally true for SIS also. This worry, however, has been refuted by prospective trials, showing clearly that there is no increased risk of developing cancer metastasis in this event [20].

Some limitations of our study were that the sample size was small and the collection of variables was not detailed. However, the study had provided an overview of the situation of AUB in postmenopausal women. In the future, larger sample size studies will evaluate in more detail, thereby contributing to the management of AUB in postmenopausal women.

5. CONCLUSION

Endometrial hyperplasia is one of the main causes of abnormal uterine bleeding in menopausal women. Uterine curettage/biopsy and hysteroscopy are safe and reliable methods for evaluating and treating these lesions. The surgical treatment results are relatively safe and only mild complications occur.

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