

## ORIGINAL RESEARCH


### Abnormal Uterine Bleeding (AUB) at Haji Adam Malik General Hospital, Medan, North Sumatera, Indonesia

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Article Info	ABSTRACT
<p>Received Sep 7, 2022 Revised Jan 6, 2023 Accepted Jan 20, 2023 Published Apr 1, 2023</p> <p><b>*Corresponding author:</b> Muhammad Rusda mrusdaharahap@yahoo.com</p> <p><b>Keywords:</b> Abnormal Uterine Bleeding Risk factors PALM-COEIN Leiomyoma</p> <p>This is an open access article under the CC BY-NC-SA license (<a href="https://creativecommons.org/licenses/by-nc-sa/4.0/">https://creativecommons.org/licenses/by-nc-sa/4.0/</a>)</p> 	<p><b>Objective:</b> This study identified the incidence of Abnormal Uterine Bleeding (AUB) at Haji Adam Malik General Hospital, Medan, Indonesia, in 2020-2021.</p> <p><b>Materials and Methods:</b> This was a descriptive study with a cross-sectional design. Sampling was taken using total sampling and using retrospective data in the form of medical records with a diagnosis of AUB at Haji Adam Malik General Hospital Medan in 2020–2021.</p> <p><b>Results:</b> There were 197 cases of AUB, with the highest distribution in the age group of 41–50 years with 84 people (42.6%). The most cases of AUB with an obese BMI were 91 people (46.2%), married status as many as 176 people (89.3%), had the last education level of senior high school as many as 99 people (50.3%), 144 people (73.1%) got their first menstruation when they were &gt;12 years old, 80 people (40.6%) had multiparity, 90 people (45.7%) received medical therapy. Based on the PALM-COEIN classification, the most AUB cases were AUB-L with 99 people (50.3%). Based on the classification of AUB-L locations, most locations were submucosa with 38.6%.</p> <p><b>Conclusion:</b> AUB-L cases were still the most common cases at Haji Adam Malik General Hospital, Medan, Indonesia, in 2020–2021.</p>

**How to cite:** Nainggolan PAS, Rusda M, Faradina D, et al. Abnormal Uterine Bleeding (AUB) at Haji Adam Malik General Hospital, Medan, North Sumatera, Indonesia. *Majalah Obstetri & Ginekologi*. 2023;31(1):30-35. doi: 10.20473/mog.V31I12023.30-35.

#### Highlights:

1. Leiomyoma is still the most common case in women aged 41–50 years.
2. Women who have an obese BMI are the main risk factor for abnormal uterine bleeding, so it is urged for women to maintain an ideal weight because it can be bad for health.

#### INTRODUCTION

Abnormal Uterine Bleeding (AUB) is one of the most common gynecological conditions in women of reproductive age. AUB is described as menstrual complaints in regularity, frequency, duration, and

volume that occurs outside pregnancy.<sup>1</sup> Acute AUB can be interpreted as heavy bleeding that requires quick treatment to prevent blood loss.<sup>2</sup> The International Federation of Gynecology and Obstetrics (FIGO) divides AUB's causes into nine main categories according to the acronym PALM-COEIN: polyps,

adenomyosis, leiomyoma, malignancy and hyperplasia, coagulopathy, ovulatory dysfunction, endometrial, iatrogenic, and not yet classified. In general, the PALM group is a structural component that can be measured visually by imaging and/or histopathology techniques, while the COEIN group is a non-structural component which means it cannot be measured by imaging or histopathology techniques.<sup>3</sup>

The incidence of leiomyoma is estimated to occur in 70%–80% of women aged 50 years and older. Leiomyoma is also known as uterine myoma and uterine fibroids. Leiomyoma is a benign tumor in myometrial muscle cells and connective tissue.<sup>4</sup> Generally, women with leiomyoma are asymptomatic. However, about 30% of them will show severe symptoms, including AUB, pelvic pain, back pain, constipation, frequent urination, and infertility.<sup>5</sup>

AUB is a problem that women often experience around the world. AUB is not a disease but a symptom that is a marker of a problem in the female reproductive organs. The research conducted at Prof. Dr. R.D. Kandou Hospital, Manado, Indonesia, obtained 62 AUB cases. The incidence of AUB by age is highest at the age of 41–50 years (33.87%). The incidence of AUB is based on BMI. Most of them occur in overweight individuals, which is 6 cases (30%). According to the PALM-COEIN classification, most cases of AUB were in AUB-L, with 8 cases (40%). The incidence of AUB was found in 8 patients (30.76%) who underwent a histopathological examination and 18 other patients (69.24%) who did not perform such examination. Based on the treatment, AUB incidence was found in patients with medicaments, dilation, and curettage treatment. The last treatment was the predominant one of 9 cases (34.62%).<sup>6</sup>

Haji Adam Malik General Hospital is a place for education, research, and health services and is a referral center for the North Sumatra region and its surroundings, so this can be a reflection on public health conditions, especially women's gynecological health in North Sumatra. Research linked to the characteristics, therapies, and types of AUB actions is still minimally carried out. This research was expected to be a reference that adds insight for both women and healthcare providers so that they can find out about and deal with AUB incidence earlier. A preliminary survey that was conducted at Haji Adam Malik General Hospital from 2020 to 2021 found that there were 224 patients diagnosed with AUB, and based on the AUB etiological classification, most cases of leiomyoma were obtained. In addition, leiomyoma was the second most common gynecological tumor in Indonesia after cervical cancer. Therefore, the aim of this study was to investigate the

incidence of abnormal uterine bleeding (AUB) based on age, BMI, marital status, education level, menarche age, parity, etiology, therapy, and type of action at Haji Adam Malik General Hospital, Medan, Indonesia.

## MATERIALS AND METHODS

This research was a descriptive study with a cross-sectional design to determine the characteristics and management of Abnormal Uterine Bleeding (AUB) events in Haji Adam Malik General Hospital. This study used retrospective data in the form of medical records. The research sample was selected using total sampling method, where the sample was a medical record diagnosed with AUB at Haji Adam Malik General Hospital for the period January 1, 2020–December 31, 2021, which met the inclusion criteria, ie. patients with complete and legible medical records that included variables to be studied such as age, BMI, marital status, education level, menarche age, parity, PALM-COEIN classification, therapy, and type of action. This study has obtained ethical approval with the number of ethical clearance 160/UN5.2.1.1.2.6/SPB/2022.

## RESULTS AND DISCUSSION

The number of cases of abnormal uterine bleeding at Haji Adam Malik General Hospital in 2020–2021 was 224, and those that met the inclusion criteria were 197. Twenty-seven cases fell under the exclusion criteria, such as multiple diagnoses (pregnancy, HIV, uterine prolapse, heart disease, liver disease, etc.) and incomplete medical records (interpretation of ultrasound test results, menstrual history, pregnancy history, BMI, etc.).

Women with AUB aged 41–50 years had the highest percentage (42.6%), and an obese BMI (46.2%). The majority of AUB patients had married (89.3%), had the last education level of senior high school (50.3%), had their first menstruation when they were >12 years old (73.1%), and the most parity was found in women with multiparity (40.6%).

The increasing prevalence of AUB in the age group of 41–50 years may be due to the fact that when women approach menopause, there will be a decrease in the number of ovarian follicles and an increase in resistance to gonadotropin stimulation, which can lead to a decrease in estradiol levels so that the endometrium cannot maintain its normal growth.<sup>7</sup> The occurrence of a high prevalence of leiomyoma at the age of 35–50 years is due to estrogen levels decreasing before menarche and increasing during reproductive age.<sup>8</sup> The American

College of Obstetricians and Gynecologists (ACOG) recommends that women over the age of 35 who have abnormal uterine bleeding perform an endometrial examination by biopsy. This is because a woman's risk of developing endometrial cancer is increasing along with age. The overall incidence of cancer was 10.2 cases per 100,000 in women aged 19–39 years, and in women aged 40–49 years the incidence of endometrial carcinoma was 36.5 cases per 100,000.<sup>9</sup>

Table 1. Characteristics distribution of women with AUB at Haji Adam Malik General Hospital

Characteristics	n	%
<b>Age</b>		
< 20 years old	6	3
21-30 years old	25	12.7
31-40 years old	50	25.4
41-50 years old	84	42.6
51-60 years old	23	11.7
> 60 years old	9	4.6
<b>BMI</b>		
Underweight	9	4.6
Normoweight	66	33.5
Overweight	31	15.7
Obesity	91	46.2
<b>Marital status</b>		
Married	176	89.3
Unmarried	21	10.7
<b>Education level</b>		
Unschooling	3	1.5
Elementary school	32	16.2
Junior high school	35	17.8
Senior high school	99	50.3
College Student	28	14.2
<b>Menarche Age</b>		
≤ 12 years old	53	26.9
> 12 years old	144	73.1
<b>Parity</b>		
Nulliparity	76	38.6
Primiparity	24	12.2
Multiparity	80	40.6
Grandmultiparity	17	8.6

A high level of education can support patient awareness and encourage them to undergo examinations and treatment at health facilities,<sup>10</sup> and it is also related to knowledge about the reproductive system, the menstrual cycle, early diagnosis, and better management of AUB.<sup>11</sup>

A study conducted by Anupamaresh et al.<sup>12</sup> found a significant relationship between BMI with endometrial hyperplasia and malignancy. High estrogen levels in the blood due to peripheral aromatization of subcutaneous fats cause hormonal imbalances in the blood, causing a higher rate of endometrial proliferation without being

counteracted by progesterone. This can lead to the appearance of AUB complaints due to the formation of a fragile and easily bloody endometrial layer. This can also increase the risk of malignancy in obese menopausal patients.<sup>13</sup> Women who are at high risk of hyperplasia or malignancy, over 45 years old, obese, or have Polycystic Ovarian Syndrome (PCOS), failed in treatment, or have persistent bleeding are recommended to have a biopsy or endometrial tissue sampling as a first-stage examination.<sup>14</sup>

A study by Barrett et al.<sup>15</sup> found differences in ovarian function concerning parity and the time of the last birth. The study mentioned that the follicular phase in multiparity women lasted one day longer than in nullipara women. If estrogen levels decrease, there will be no excessive endometrial hyperproliferation, which can result in AUB. A continued decrease in ovarian function after childbirth and a reduction in exposure to free estradiol can reduce the risk of malignancy that can lead to AUB. Increased ovarian steroid levels coincide with the increase in the time of the last birth, so it can be assumed that a multiparity state can reduce the risk of AUB incidence.

Table 2. Characteristics distribution of women with AUB by PALM-COEIN classification

Diagnosis	n	%
AUB-P	2	1
AUB-A	7	3.6
AUB-L	99	50.3
AUB-M	86	43.7
AUB-C	0	0
AUB-O	0	0
AUB-E	1	0.5
AUB-I	0	0
AUB-N	2	1

Based on the PALM-COEIN classification, the highest proportion of AUB incidence at Haji Adam Malik General Hospital was caused by the PALM (structural) group (98.5%), mostly AUB-L cases (50.3%) and AUB-M (43.7%). A study conducted by Rifki et al.<sup>16</sup> at Prof. Dr. R.D. Kandou Hospital, Manado, Indonesia for the period of January 2013–December 2014 showed the same results, in which the majority of AUB patients were AUB-L (56.86%),

The high number of AUB-L and AUB-M cases at Haji Adam Malik General Hospital was likely because the patients were generally referred from regional hospitals. Haji Adam Malik General Hospital is a class A general hospital and serves as a referral center for the North Sumatra region and its surroundings, along with the



development of the medical profession because there are more and more obstetrics and gynecology specialists in the area who play a role in early diagnosis of cases of both AUB and malignancy, so that referrals are made to more competent health facilities when screening patients in regional hospitals.<sup>13</sup>

Table 3. Characteristics distribution of women with AUB-L by location classification.

Location Classification	n	%
Subserous	11	25
Intramural	16	36.4
Submucous	17	38.6

Based on this study, it was found that out of 99 cases of leiomyoma at Haji Adam Malik General Hospital, only 44 of them had a location interpretation determined from ultrasound, MRI, or hysteroscopy examinations. The majority of AUB-L patients had the highest percentage in the submucosa (38.6%). Research conducted by Tochie et al.<sup>17</sup> in Cameroon showed similar results and found that the majority of leiomyoma locations were submucosal (89.4%).

A study conducted at RS Tentara Tingkat II dr. Soepraen Malang showed the same results and obtained the most locations in the submucosal (46.3%). This happens because the submucosal AUB-L is generally located below the endometrium and protrudes into the uterine cavity, so it most often shows complaints of bleeding disorders when compared to other types of leiomyomas that are larger in size and do not show complaints of bleeding.<sup>18</sup>

Table 4. Characteristics distribution of women with AUB by therapy and type of action

Therapy and type of action	n	%
Medicaments	90	45.7
Curettage dilatation	7	3.6
Myomectomy	20	10.2
Hysterectomy	80	40.6

In this study, the highest percentage of AUB patients received medicaments therapy (45.7%) and hysterectomy (40.6%). This was related to first-line management for AUB with medicaments such as iron supplements, combination of oral contraceptives (COCs), progesterone, nonsteroidal anti-inflammatory drugs, antifibrinolytics, desmopressin, and GnRH analogs that can provide hemodynamic stability, improve anemia, and maintain the normal menstrual cycle.<sup>1</sup> However, if medicaments therapy fails or there are pathologies in the uterus such as large uterine fibroids, endometrial hyperplasia, and carcinoma, then surgery is an option, such as polypectomy, hysteros-

copy, endometrial resection and ablation, myomectomy, uterine artery embolization, and hysterectomy.<sup>19</sup> Hysterectomy is the most common surgical procedure performed in gynecology. Although it is invasive, it was the definitive therapy for heavy menstrual bleeding.<sup>20</sup> In addition, this procedure is permanent, so it is only indicated for women who do not need fertility in the future. It requires a longer recovery time and a higher rate of postoperative complications compared to endometrial resection and ablation.<sup>19</sup>

## CONCLUSION

The majority of patients with AUB at Haji Adam Malik General Hospital, Medan, Indonesia in 2020–2021 were those who have the following characteristics: aged 41–50 years, had an obese BMI, married status, had the last education level of senior high school, had their first menstruation when they were >12 years old, multiparous, and received medicaments therapy. Based on the PALM-COEIN classification, the most AUB cases was AUB-L. Based on the classification of AUB-L locations, most locations were submucosa. Therefore, it is urged for women who are >40 years old to be able to maintain their ideal weight because this is the main risk factor for AUB. This research is expected to be a reference for future research as well as for healthcare providers to fill in complete medical records because this is important to display a comprehensive prevalence of AUB.

## DISCLOSURES

### Acknowledgment

We would like to express our gratitude to Haji Adam Malik General Hospital and Faculty of Medicine, Universitas Sumatera Utara who have facilitated this study. We would also like to thank all the staff of the Medical Record Center and the installation of education and training at Haji Adam Malik General Hospital who have helped in obtaining the medical records.

### Conflict of interest

The authors declare no conflict of interest

### Funding

The authors received no financial support for this work

### Author Contribution

All authors have contributed to all processes in this research, including preparation, data gathering and analysis, drafting, and approval for publication of this manuscript.

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