

Clinico-Pathological Evaluation of Abnormal Uterine Bleeding and Its Management in a Tertiary Level Hospital

Dr. Shrabanti Mala^{1*}, Dr. Ananna Sharmin Smita², Dr. Nazma Akter Ripa³, Dr. Anamika Zaman⁴, Dr. Momtaj Jahan Baby⁵, Dr. Musarat Shameem⁶

¹Assistant Registrar, Department of Obstetrics and Gynecology, Shaheed Suhrawardy Medical College Hospital, Dhaka, Bangladesh

²Residential Surgeon, Department of Obstetrics and Gynecology, Shaheed Suhrawardy Medical College Hospital, Dhaka, Bangladesh

³Medical Officer, Department of Obstetrics and Gynecology, Dhaka Medical College Hospital, Dhaka, Bangladesh

⁴Clinical Pathologist, Department of Clinical Pathology, Shaheed Suhrawardy Medical College Hospital, Dhaka, Bangladesh

⁵Medical Officer, Department of Obstetrics and Gynecology, Shaheed Suhrawardy Medical College Hospital, Dhaka, Bangladesh

⁶Medical Officer, Department of Obstetrics and Gynecology, Shaheed Suhrawardy Medical College Hospital, Dhaka, Bangladesh

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*Corresponding author: Dr. Shrabanti Mala

Assistant Registrar, Department of Obstetrics and Gynecology, Shaheed Suhrawardy Medical College Hospital, Dhaka, Bangladesh

Abstract

Background: Abnormal uterine bleeding describes any variation from normal bleeding patterns in nonpregnant, reproductive-aged women beyond menarche lasting for at least 6 months. The management of abnormal bleeding can involve many decisions about diagnosis, aetiology and treatment, which often occur simultaneously and without the benefit of comprehensive, evidence-based guidelines. The purpose of the study was to evaluate and detect the causes of Abnormal Uterine Bleeding and its Management in a Tertiary Level Hospital. **Methods:** This is a cross-sectional type of descriptive study, conducted in Shaheed Suhrawardy Medical College Hospital over six-month duration. Sample was selected by purposive sampling technique. Women with abnormal uterine bleeding admitted in Obstetrics and Gynaecology Department, Shaheed Suhrawardy Medical College Hospital were included. Total 100 patients were included. **Results:** In this study, the maximum numbers of cases (52.0%) were between 36-45 years age group. Mean age was 34.57 ± 9.27 years. Per vaginal bleeding was most common symptoms, present in 100% cases; next common symptoms were abdominal pain (76%), lump in lower abdomen (26%). On evaluation of types & causes of AUB, maximum patient belongs to AUB-L (leiomyoma) group (40%) followed by AUB-A (adenomyosis) (20%); AUB-P (polyp) (8%); AUB-O (ovulatory) (30%) and AUB-M (malignancy) (2%). Total abdominal hysterectomy only done in 31.0% patients, total abdominal hysterectomy with unilateral salpingo-oophorectomy was done in 9.0% patients and total abdominal hysterectomy with bilateral salpingo-oophorectomy was done in 60% patients. **Conclusion:** Present study concluded that most common cause of AUB was leiomyoma followed by adenomyosis. This classification system helps in understanding various exact etiological causes of AUB and can be used by the clinicians, investigators and even patients themselves to facilitate communication, clinical care and research. For this reason we strongly recommend adoption of this classification for AUB and HMB.

Keywords: Abnormal uterine bleeding (AUB), PALM-COEIN classification, Leiomyoma, Adenomyosis, Endometrial polyp, Hysterectomy.

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INTRODUCTION

Abnormal uterine bleeding (AUB) may be acute or chronic and is defined as bleeding from the uterine corpus that is abnormal in regularity, frequency or duration and occurs in the absence of pregnancy. Abnormal uterine bleeding (AUB) is a common crippling gynaecological condition with vast financial implications. A structured approach for establishing the

cause using the FIGO defined PALMCOEIN (Polyp, Adenomyosis, Leiomyoma, Malignancy (and hyperplasia), Coagulopathy, Ovulatory disorders, Endometrial, Iatrogenic and Not otherwise classified) classification system will facilitate accurate diagnosis and inform treatment options [1]. AUB frequently co-exists with fibroids, but the relationship between the two remains incompletely understood and in many women

the identification of fibroids may be incidental to a menstrual bleeding complaint [2]. It includes oligomenorrhoea, polymenorrhoea, hypomenorrhoea, menorrhagia, metrorrhagia and abnormal uterine bleeding. Abnormal uterine bleeding (AUB) is a common problem in women and its management can be complex. Previous study reported that among 7471 patients 1362 (18.23%) patients were found with Abnormal Uterine Bleeding (AUB) and out of 1362 patients of Abnormal Uterine Bleeding highest were with menorrhagia i.e. 450 (33%) and least were with hypomenorrhoea i.e. 162 (11.89%). Prevalence of menorrhagia was highest between the ages of 25-34 years [3].

The FIGO classification for AUB refers to reproductive-aged, nonpregnant women, so the first step is to evaluate for pregnancy and address whether a woman is premenopausal and postmenarche. Bleeding before menarche, after menopause, and during pregnancy requires different evaluations. In addition, a thorough history will help distinguish gynecologic causes of bleeding from those with urinary or gastrointestinal etiologies [4]. Structural causes include fibroids, polyps, endometrial carcinoma, and pregnancy complications.

FIGO System 1 describes the 4 parameters of menstrual bleeding: regularity, frequency, duration, and volume. Normal menstrual bleeding is defined as cycles that occur every 24 to 38 days. Regular menstrual bleeding should be 4-5 days or less in variation from the beginning of one menses to the beginning of the next one; however, this is age dependent so that women between 26 and 41 years old should have variation of 7 days or less in menstrual cycle length [5]. For frequency terminology, amenorrhea is when menses are absent or a woman experiences no bleeding, frequent menstrual bleeding is when menses occur less than 21 days apart, and infrequent menses is when menses occur more than 35 days apart. For duration, more than 8 days of bleeding is considered prolonged menses. Volume is harder to measure: menses are determined by women to be heavy, normal, or light. Heavy menstrual bleeding is defined as excessive menstrual blood loss that interferes with a woman's physical, social, emotional quality of life [6]. It can occur alone or with other symptoms. Intermenstrual bleeding is bleeding between spontaneous, predictable menses and may occur randomly through the cycle or predictably and cyclically in early, mid, or late cycle. Breakthrough bleeding may occur on hormone medications such as birth control pills/patches/rings or progesterone-only contraceptives [7]. Menstrual history can be assessed using the previously listed criteria to distinguish normal menstrual bleeding from abnormal bleeding. Next, physical examination, including speculum and bimanual examinations, with or without rectal examination, can help isolate the cause of bleeding to the uterus rather than to vulvar, vaginal, cervical, or rectal sources. The PALM-COEIN classification is used

herein as a systematic approach to clarifying AUB, focusing on specific evaluation and management strategies [7, 8].

Objective

The objective of the study is to evaluate and detect the causes of Abnormal Uterine Bleeding and its Management in a Tertiary Level Hospital.

METHODOLOGY & MATERIALS

This cross-sectional study was conducted in the Department of Obstetrics and Gynaecology, Shaheed Suhrawardy Medical College Hospital, Dhaka, over a period of six months from 27th February 2020 to 26th August 2020. A total of 100 women presenting with abnormal uterine bleeding (AUB) were included using purposive sampling. Women from puberty to menopause who presented with AUB and provided informed consent were enrolled, while those on hormonal therapy or drugs affecting menstruation, intrauterine device users, and patients with a history of bleeding disorders were excluded.

AUB was defined and classified according to the International Federation of Gynecology and Obstetrics (FIGO) PALM-COEIN system. Detailed history regarding age, socioeconomic status, menstrual pattern, onset, duration and amount of bleeding, associated symptoms including thyroid dysfunction, and obstetric history were recorded in a pre-structured case record form. General physical, systemic, and gynecological examinations were carried out meticulously. Socioeconomic status was assessed based on household income following national and international reports.

All patients underwent routine laboratory investigations including hemoglobin, ESR, liver function test, random blood sugar, urine analysis, bleeding and clotting time, chest X-ray, and ultrasonography of abdomen and pelvis. Where indicated, Pap smear, hormonal profile, and endometrial biopsy were performed. The clinical, laboratory, and histopathological findings were correlated to establish the underlying causes of AUB. Management protocols, either medical or surgical, were documented.

Data were collected through direct interviews and clinical records, checked for completeness, coded, and entered into SPSS version 22 for analysis. Quantitative variables were expressed as mean and standard deviation, while categorical variables were presented as frequencies and percentages. The Chi-square test was applied to assess associations, and a p-value <0.05 was considered statistically significant. Ethical approval was obtained from the Institutional Review Board, and informed written consent was taken from each participant, ensuring confidentiality throughout the study.

RESULTS

Table 1: Age distribution of the study subject (n=100)

Age (years)	Frequency	Percentage (%)	Mean±SD
15-25	12	12.0	34.57±9.27
26-35	34	34.0	
36-45	52	52.0	
>45	15	2.0	

According to the questionnaire, history of all the 100 selected cases were taken, the clinical examination was carried out meticulously. In this series,

the maximum numbers of cases (52%) were between 36-45 years age group, next (34%) were 26-45 years age group (Table 1).

Table 2: Distribution of the patients according to clinical manifestation (n=100)

Clinical manifestation	Frequency	Percentage (%)
P/V bleeding	100	100.0
Lump in lower abdomen	26	26.0
Pain in the abdomen	76	76.0
Feeling of heaviness in lower abdomen	54	54.0
Weight loss	18	18.0
Weight gain	28	28.0
Altered bowel habit	36	36.0
Loss of appetite, dyspepsia	50	50.0
Nausea, vomiting	68	68.0

Among all the symptoms of AUB pathology, per vaginal bleeding was most common symptoms, present in 100% cases; next common symptoms were abdominal pain (76%), lump in lower abdomen (26%),

Feeling of heaviness in lower abdomen (54%), loss of appetite, dyspepsia (50%), and weight gain (28% of cases) (Table 2).

Table 3: Distribution of the patients according to physical signs(n=100)

Physical sign	Frequency	Percentage (%)
Anemia	60	60%
Palpable abdominal mass	30	30%
Respiratory distress	10	10%

Anaemia was the most common physical sign of AUB, present in 60% cases; followed by abdominal mass 30% and respiratory distress 10% cases (Table 3).

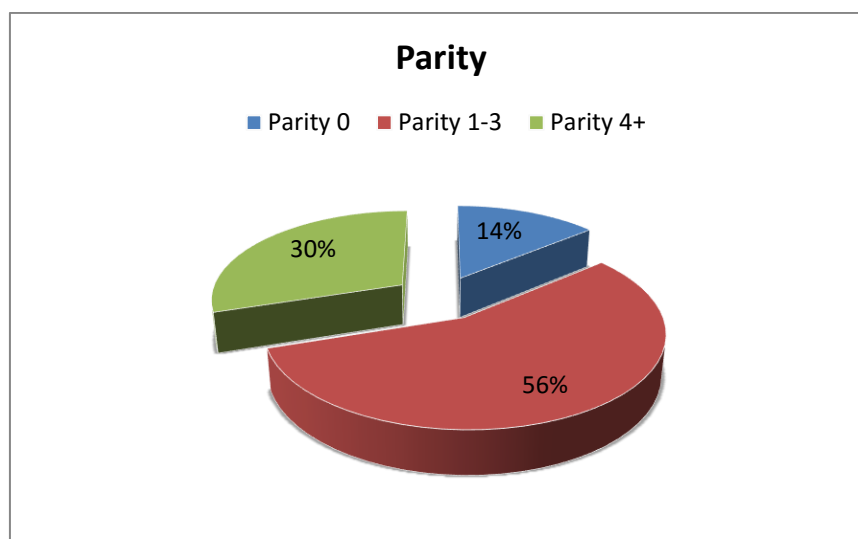


Figure 1: Obstetrics history (parity) of mothers (n=100)

Most of the women were multiparous (56.0%). Parity 4+ or grand multipara was 14.0% (Figure 1).

Table 4: Pattern of bleeding (n=100)

Pattern of bleeding	Frequency	Percentage (%)
Heavy menstrual bleeding	73	73.0
Intermenstrual bleeding	15	15.0
Irregular bleeding	12	12.0

Table 4 showing maximum number of patients were suffering from heavy menstrual bleeding (73%)

followed by irregular bleeding (15%) and intermenstrual bleeding (12%).

Table 5: Result of bimanual examination (n=100)

Bimanual examination	Finding	Frequency	Percentage (%)
Size of uterus	Normal	32	32%
	6-8 weeks	40	40%
	9-12 weeks	10	10%
	13-20 week	12	12%
	>20 weeks	6	6%
Adnexa	Palpable	8	8%
	Not palpable	92	92%

Table 5 shows the findings of bimanual examination among the study participants. The uterus was normal in size in 32% of women, while the majority (40%) had a size corresponding to 6–8 weeks.

Enlargements up to 9–12 weeks, 13–20 weeks, and >20 weeks were found in 10%, 12%, and 6% of cases respectively. Adnexal masses were palpable in only 8% of women, whereas in 92% they were not palpable.

Table 6: Ultrasonogram findings of endometrium and ovary in AUB patients (n=100)

Ultrasonogram findings		Frequency	Percentage (%)
Endometrium	Hyperplasia	6	6%
	Atrophic	0	0%
	Normal	94	94%
Ovary	Cystic	28	28%
	Normal	72	72%

Table 6 demonstrates ultrasonogram findings of the study participants. The endometrium was normal in the majority (94%), while hyperplasia was observed in

6% of cases. Regarding ovarian findings, 28% had cystic changes, whereas 72% were normal.

Table 7: Distribution of AUB patients according to order of treatment modality (n=100)

Order of treatment modality	Frequency	Percentage (%)
Medical treatment (oral progesterone, combined oral contraceptive, Tranexamic acid)	50	50%
Dilatation & curettage (D&C)	10	10%
Polypectomy followed by D&C	05	05%
Myomectomy	08	08%
Hysterectomy	25	25%
Adenomyomectomy	02	02%

Table 7 shows the distribution of AUB patients according to order of treatment modality. In this study 50% patients were treated by medical treatment, 10% by

D&C, Polypectomy followed by D&C-05%, Myomectomy 08%, Adenomyomectomy-02%and 25% by Hysterectomy.

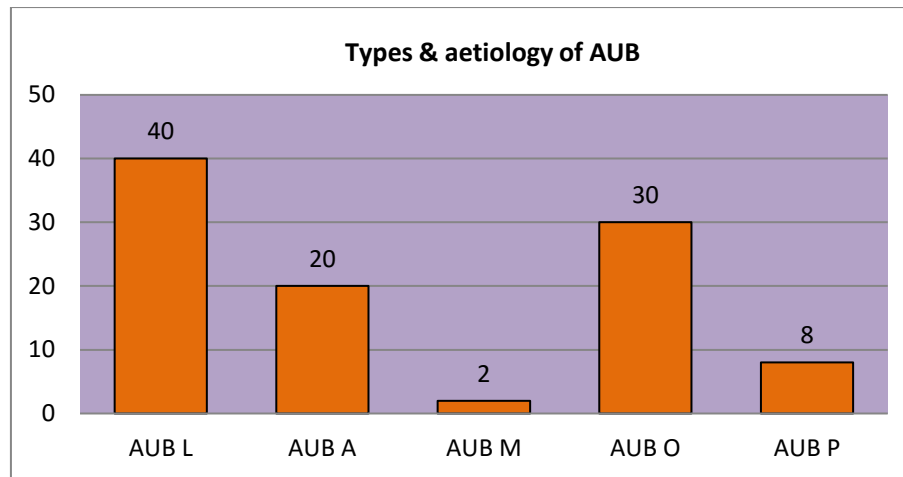


Figure 2: Types & aetiology of Abnormal Uterine Bleeding (n=100)

Figure 2 shows the types of Abnormal Uterine Bleeding. Maximum patient belongs to AUB-L (leiomyoma) group (40%) followed by AUB-A (adenomyosis) (20%); AUB-P (polyp) (8%); AUB-O (ovulatory) (30%) and AUB-M (malignancy) (2%).

DISCUSSION

Abnormal uterine bleeding (AUB) is the commonest menstrual problem during reproductive period. The International Federation of Gynaecology and Obstetrics working group on menstrual disorders has developed a classification system (PALM-COEIN) for causes of the AUB in non-gravid women. The present study was conducted with the aim to observe the clinical presentation of abnormal uterine bleeding, to assess the sociodemographic features and risk factors and to see the causes and management of Abnormal uterine bleeding.

In this study, the maximum numbers of cases (52%) were between 36-45 years age group. Large numbers of respondents came from urban area (58%).

Findings consistent with result of other study. Epidemiological study by Mishra *et al.*, reported that majority (97.46 %) of these women were less than 50 years of age, and most of the study population lived in urban area (59.7 %). Among the patients the poor class (52%) comprising the major percentage of the patients [9]. Malhotra *et al.*, noted age is the most important risk factor, with lifetime risk in women over the age of 45 years to be more than 60 % [10].

Per vaginal bleeding was the most common symptoms, present in 100% cases; next common symptoms were abdominal pain (76%), lump in lower abdomen (26%). On evaluation of pattern of bleeding, maximum number of patients were suffering from heavy menstrual bleeding (73%) followed by irregular bleeding (15%) and intermenstrual bleeding (12%).

Mishra *et al.*, demonstrated that most women experienced symptoms of abnormal uterine bleeding for

a period of 6 months to 1 year before seeking treatment (43.6 and 35.1 %, respectively). The most common presenting symptom in our study was heavy menstrual bleed (32.6 %) followed by intermenstrual heavy menstrual bleed in 28.3 % cases [9]. Kotagasti *et al.*, reported that among 7471 patients 1362 (18.23%) patients were found with Abnormal Uterine Bleeding (AUB) and out of 1362 patients of Abnormal Uterine Bleeding highest were with menorrhagia i.e. 450 (33%) and least were with hypomenorrhoea i.e. 162 (11.89%). Prevalence of menorrhagia was highest between the ages of 25-34 years [3].

American College of Obstetricians and Gynecologists guideline stated that PALM-COEIN classification has an advantage of consideration of the entire range of possible aetiologies but should be followed by further investigation to arrive at a more accurate and consistent diagnosis in perimenopausal group of women so as to rule out organic diseases particularly precancerous lesions and cancers. Chronic anovulation is a predominant phenomenon in perimenopause which is associated with an irregular and unpredictable pattern of bleeding that varies in amount, duration and character [11].

In this study clinico-etiological evaluation of abnormal uterine bleeding was done. On evaluation of types & causes of AUB, maximum patients belongs to AUB-L (leiomyoma) group (40%) followed by AUB-A (adenomyosis) (20%); AUB-P (polyp) (8%); AUB-O (ovulatory) (30%) and AUB-M (malignancy) (2%).

Mishra *et al.*, demonstrated that leiomyoma (AUB-L) was assigned to be the major aetiology of AUB (structural abnormality), whereas ovulatory disorders (AUB-O) were the proposed major contributor in the functional group accounting for 88/236 (37.28) of overall and 88/117 (75.27 %) of the later group cases [9]. Other different study noted leiomyoma as the leading cause of AUB [12-14].

In both puberty age group and perimenopausal years, ovulatory disorders are common due to derangements in the hypothalamo–pituitary–ovarian axis resulting in derangements of follicular maturation, ovulation or corpus luteum formation, and anovulatory cycles are most frequent, and chronic anovulation is associated with an irregular and unpredictable pattern of bleeding. This explains why ovulatory disorders were found to be the second most common cause of AUB in this study and most other studies [9].

The other important cause of AUB was AUB-M, i.e. malignancy and hyperplasia. The unopposed oestrogenic action on the endometrium in the anovular cycles found in perimenopausal women predisposes them to develop hyperplasia and eventually endometrial carcinoma. In the present study, AUB-M (malignancy) was detected in 2%. Similar study by Mishra *et al.*, noted endometrial hyperplasia accounted for 8.9 % cases and adenocarcinoma for 1.2 % cases [9]. The average age for women with endometrial carcinoma is 61 years, but 5–30 % cases occur in premenopausal woman [15].

Malhotra *et al* noted, in AUB-A (adenomyosis) the difference in clinical and histopathological diagnosis was significant, ($p < .05$) [10]. This is due to the fact that symptoms and signs of adenomyosis and leiomyoma can be so similar that it can be impossible to differentiate them clinically [10, 16]. This very reason explains the difference in clinical and histopathological diagnosis of a combination of AUB-A;L (adenomyosis and leiomyoma) which was highly significant ($p < .01$). This finding emphasises the importance of histological examination as a complementary diagnostic tool in PALM component of AUB. Our observation is in accordance with others [13].

In AUB-L (Leiomyoma) the difference in clinical and histopathological diagnosis was not significant. The explanation may be that most symptomatic fibroids can be easily diagnosed by history and clinical pelvic examination. In AUB-M (malignancy and hyperplasia) the difference in clinical and histopathological diagnosis was highly significant in previous literature [9]. This is due to the fact that the clinical picture including menstrual history is not specific and that bimanual examination reveals an ordinary small uterus that shows no obvious departure from the normal senile one in most cases [17].

In this study 50% patients were treated by medical treatment, 10% by D&C, Polypectomy followed by D&C-05%, Myomectomy 08%, Adenomyomectomy-02% and 25% by Hysterectomy.

Mutakha *et al.*, reported that medical management was provided for 78.7% of women in their study. Tranexamic acid (TXM) was prescribed to more than half (61.1%) of the study participants, followed by haematinics (39.8%; $n = 43$) while blood transfusion and

combined oral contraceptives (COCs) were given to 6.5% and 5.5%. Surgical management was offered to 21.3% ($n = 23$) of all the study participants, majority (69.6%) of whom got myomectomy done. This was followed by abdominal hysterectomy at 17.5%. The less frequent procedures were dilatation and curettage (D&C), polypectomy and oophorectomy at 4.3% each [18].

Clinical management for women with AUB is either medical or surgical. Medical management is the first line therapeutic option once malignancy and pelvic pathology have been ruled out. On the other hand, Surgical Management includes both minimal invasive techniques such as endometrial ablation for heavy menstrual bleeding and invasive techniques such as hysterectomy and myomectomy. Hysterectomy is the definitive solution with high rates of patient satisfaction [18].

Genital malignancies causing AUB, though clinically indistinguishable from benign causes, have a poorer prognosis, making early detection and accurate diagnosis essential. This study highlights the importance of combining clinical assessment with histopathology, as provisional clinical classification under the PALM–COEIN system often required reclassification after histological confirmation, ensuring correct diagnosis and better management. In ovulatory disorders (AUB-O), no significant difference was observed between clinical and histopathological diagnoses, likely because perimenopausal women frequently experience anovulatory cycles that can be reliably identified from menstrual history alone. However, in endometrial disorders (AUB-E), a significant disparity was noted, with more cases diagnosed clinically than histologically, as AUB-E remains a diagnosis of exclusion with no specific tissue markers currently available. Many of these cases likely reflect underlying molecular or metabolic disturbances undetectable by routine histopathology. Hence, accurate classification demands clinical correlation with histological confirmation, and as clinicians' experience with the PALM–COEIN system grows, outcomes in women's healthcare are expected to improve.

Limitations of the study

This study was not without limitation. The limitations of the studies were as follows:

- Small sample size of the study population.
- It was a single centre study. Only patients admitted in Shaheed Suhrawardy Medical College Hospital were taken for the study. So this will not reflect the overall picture of the country. A large scale study needs to be conducted to reach to a definitive conclusion
- Study was conducted in a tertiary care hospital which may not represent primary or secondary centre.

- All the units of this hospital did not follow uniform management protocol.
- Sample were taken by purposive method in which question of personal biasness might arise.

Recommendations

- PALM COEIN classification system should be used by all clinicians.
- The gaps of this system, if found, should be reported and advised for comprehensive classification system of AUB

CONCLUSION

Abnormal uterine bleeding (AUB) is the commonest menstrual problem during perimenopause. PALM and COEIN components contributed almost equally for AUB when assessed clinically. Confusion regarding the terminology, definitions and classification of AUB has been overcome by new standard terminology and universally accepted classification system, PALM-COEIN by the International Federation of Gynecology and Obstetrics (FIGO). This is a cross sectional descriptive study done to evaluate and detect the causes of Abnormal Uterine Bleeding and its Management in a Tertiary Level Hospital. In this study AUB was found to be more common in multiparous women and most of the patients presented with chronic symptoms of AUB. The most common cause of AUB was leiomyoma followed by adenomyosis. This classification system helps in understanding various exact etiological causes of AUB and can be used by the clinicians, investigators and even patients themselves to facilitate communication, clinical care and research. For this reason we strongly recommend adoption of this classification for AUB and HMB. For management part also clinical impression should be placed into proper perspective of this classification so that accurate diagnosis based on proper work up can help in optimising the treatment protocol. This dictum may require periodic modification and revision based upon further research.

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