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Original Article

A study on abnormal uterine bleeding among reproductive women presenting to tertiary health care hospital, Andhra Pradesh

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ABSTRACT

Background: Abnormal Uterine Bleeding (AUB) is a common gynecological condition affecting women of reproductive age, often necessitating tertiary care. AUB can occur at any age in various forms and has different modes of presentation. AUB has a major impact on a woman's quality of life including the consequences such as anaemia and genital malignancy..This study aimed to find out what factors associated with abnormal uterine bleeding (AUB) using the FIGO PALMCOEIN system, examining both structural and non-structural causes.
Methods: The study was conducted over a period of six months, involving 102 women aged 20–50 years presenting with abnormal uterine bleeding to the Department of Obstetrics and Gynaecology. Data were collected from the women on socio demographic profile, clinical presentation, histopathological findings and distributed the cases using PALM-COEIN classification
Results: According to the PALM-COEIN classification, AUB-L (leiomyoma) was the most prevalent type (46.1%). The most affected age group was 41–50 years (73.50%). Proliferative endometrium was the most common histopathological finding(42.2%). Significant associations were observed between PALM-COEIN classification and age groups ($p < 0.05$) as well as between PALM-COEIN classification and parity ($p < 0.05$).
Conclusion.

Keywords: Abnormal Uterine Bleeding (AUB),PALM-COEIN classification, histopathology, parity, age groups, tertiary care.

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INTRODUCTION

Abnormal uterine bleeding (AUB) is a pervasive gynecological issue affecting women globally, with significant regional variations in etiology and management. In India, AUB accounts for approximately 32.7% of gynecological consultations, with premenopausal women (40–50 years) constituting a high-risk demographic group, due to hormonal fluctuations and structural uterine changes.1Prevalence of AUB in Indian studies suggest that 10-30% of womenofreproductiveageexperienceAUBatsomepointintheirlives.2InIndia,thistranslatestomillionsofwomen annually, given the country's large population of women in the reproductive age group (approximately 360 million women aged 15-49 years).3 The International Federation of Gynecology and Obstetrics (FIGO) has developed the PALM-COEIN classification system to standardize the diagnosis and management of AUB, categorizing its causes into structural (Polyp, Adenomyosis, Leiomyoma, Malignancy) and non-structural (Coagulopathy, Ovulatory dysfunction, Endometrial, Iatrogenic, not otherwise classified) factors.4 This system has been instrumental in improving diagnostic accuracy and guiding evidence-based treatment strategies.

Abnormaluterine bleeding (AUB)is a prevalent gynecological condition affecting approximately 10-30%of women of reproductive age, withsignificantimplicationsfortheirhealthandqualityoflife.Theeconomic burden of AUB is substantial, with direct and indirect costs estimated to be in the billions annually, significantly impacting healthcare systems and patients' quality of life.11Early screening, intervention, and prompt treatment will ensure better outcomes for the condition. This study was designed with an aim to determine the distribution of causes of AUB, based on PALM-COEIN in patients attending tertiary care hospital and to treat them eventually, in a more evidence-based way as per the good clinical practice recommendations on AUB in reproductive period by the Federation of Obstetric and Gynaecological Societies of India (FOGSI).

MATERIAL AND METHODS

The study was conducted among 102 women aged 20–50 years attending a tertiary care hospital with complaints of abnormal uterine bleeding (AUB) in Andhra Pradesh, India, over a period of 6monthsfrom March 2023 to September 2023 after taking informed consent.

Inclusion criteria: Non gravid women of 20-50 age group with chief complaint of AUB and willing to give informed consent were included in the study

Exclusion criteria: Pregnant women with bleeding and women with cervical cause and with local lesions on vagina and vulva for bleeding per vagina were excluded.

After taking informed consent Data were collected using a structured Telugu-language questionnaire, clinical evaluations, trans vaginal sonography, and endometrial biopsy. The causes of abnormal uterine bleeding (AUB) were categorized according to the PALMCOEIN classification system.13. The collected data entered in excel master chart, were analyzed using SPSS version 27 software. The chi-square test was applied to assess the statistical significance between dependent and independent variables. A p-value of <0.05 was considered statistically significant, with a 95% confidence level

RESULTS

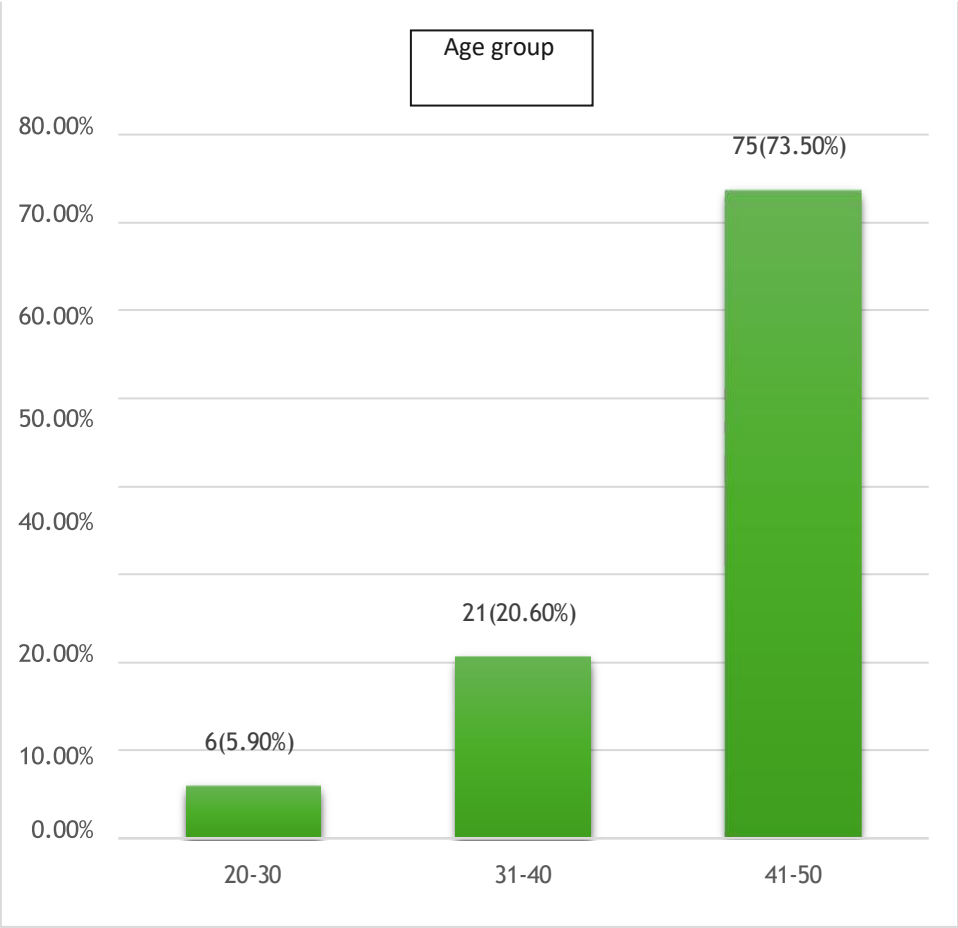
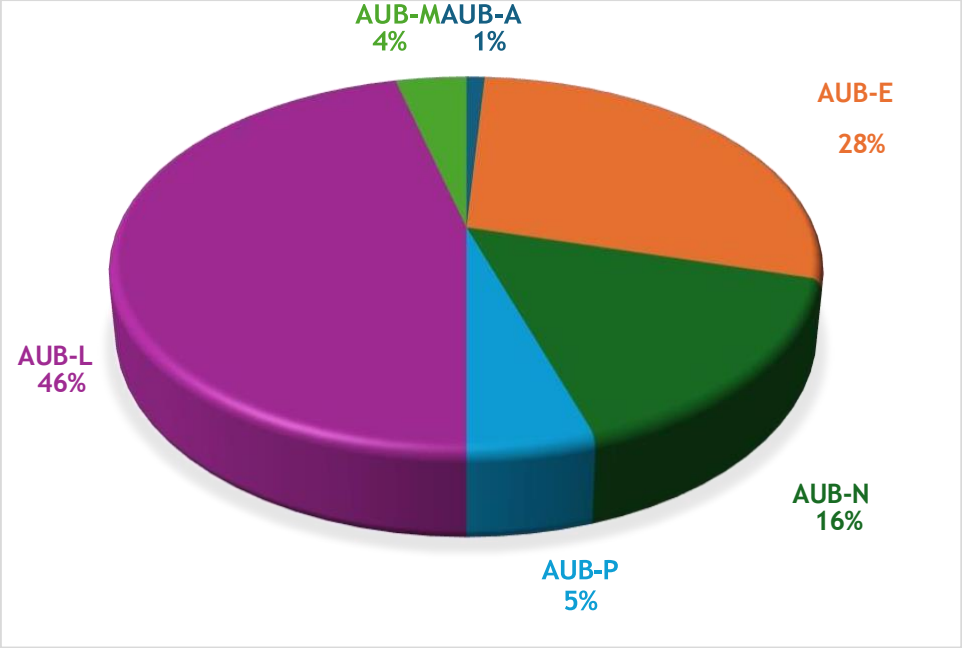


Figure1: Distribution of age groups. (n=102).

The age group 41- 50 is the most represented, with 75(73.50%) individuals of the total study population. The 31-40 age group follows with 21 (20.60%) individuals, making up of participants. Lastly, the 20-30 age group has the fewest participants, consisting of 6 (5.90%) individuals and representing of the total.

Figure2: Distribution of cases according to the PALM-COEIN classification.(n=102)



The (Fig 2) illustrates the distribution of cases using the PALM-COEIN classification for abnormal uterine bleeding (AUB). AUB-L (Leiomyoma) accounts for 46%, being the largest portion. AUB-E (Endometrial) represents 28%. AUB-N (Not Classified) comprises 16%. Meanwhile, AUB-P (Polyp) is 5%, AUB-M (Malignancy) makes up 4%, and AUB-A (Adenomyosis) is 1%. This classification system aids in diagnosing the causes of AUB.

Table1:Association between parity and PALM-COIEN classification of abnormal uterine bleeding.(n=102)

	AUB-A	AUB-E	AUB-N	AUB-P	AUB-L	AUB-M	Total	p-value
Nulli gravida	0	0	2(40.0%)	0	1(20.0%)	240.0%	5(100.0%)	
Parity1	1(50.0%)	0	0	0	1(50.0%)	0	2(100.0%)	
Parity2	0	12(30.8%)	6(15.4%)	2(5.1%)	18(46.2%)	1(2.6%)	39(100.0%)	
Parity3	0	12(31.6%)	7(18.4%)	2(5.3%)	17(44.7%)	0	38(100.0%)	
Parity4	0	5(29.4%)	1(5.9%)	1(5.9%)	9(52.9%)	1(5.9%)	17(100.0%)	
Parity5	0	0	0	0	1(100.0%)	0	1(100.0%)	<0.001
Total	1(1.0%)	29(28.4%)	16(15.7%)	5(4.9%)	47(46.1%)	4(3.9%)	102 (100.0%)	**(<0.05)**

***Chisquaretest used**

The present study analyzed 102subjects on parity and abnormal uterine bleeding using the PALM-COIEN framework. Table 1 illustrates that AUB-L(leiomyoma) is the most common type with 47 (46.1%) cases, mainly in women with Parity2and3.StrongassociationsexistinParity2and3,withp-valuesunder0.001.FewerAUBcasesappearamong Nulligravida,Parity1,4,and5. Significant associations are noted betweenParity2, 3,and AUB, particularlyAUBL, with a p-value <0.001.

Table2: Association between age group and PALM-COIEN classification of abnormal uterine bleeding. (n=102)

Age group	AUB-A	AUB-E	AUB-N	AUB-P	AUB-L	AUB-M	Total	p-value
20-30	1(16.7%)	2(33.3%)	1(16.7%)	1(16.7%)	0	1(16.7%)	6(100%)	
31-40	0	10(47.6%)	2(9.5%)	1(4.8%)	8(38.1%)	0	21(100%)	
41-50	0	17(22.7%)	13(17.3%)	3(4.0%)	39(52.0%)	3(4.0%)	75(100%)	

Total	1(1.0%)	29(28.4%)	16(15.7%)	5(4.9%)	47(46.1%)	4(3.9%)	102(100%)	0.001 **(<0.05)**

Fisher Chisquare test used

Table 2 illustrates that majority of cases and most types of AUB are in the 41-50 age group. AUB-L (Leiomyoma) is the most common type across all age groups, most cases (75) occuring the 41-50 age group. There are fewer cases in the 20-30 age group compared to older groups. The p-value is 0.001. This indicates a statistically significant relationship between age groups and types of abnormal uterine bleeding age seems to be an important factor affecting the type of uterine bleeding.

Table3:Distribution of cases of abnormal uterine bleeding with isolated endometrial lesions based on HPE reports according to age groups. (n=102)

Agegroups	Atrophic	Chroniccervicitis	Polyp	Proliferative	Secretory	Total
20-30	0	1(16.7%)	1(16.7%)	1(16.7%)	3(50.0%)	6(100.0%)
31-40	1(4.8%)	3(14.3%)	1(4.8%)	11(52.4%)	5(23.8%)	21(100.0%)
41-50	3(4.0%)	14(18.7%)	1(1.3%)	31(41.3%)	26(34.7%)	75(100.0%)
Total	4(3.9%)	18(17.6%)	3(2.9%)	43(42.2%)	34(33.3%)	102 (100.0%)

The table no. reveals that “Proliferative” lesions are the most common, constituting 42.2% of total cases. The 41-50 age group exhibits the highest number of cases, especially for “Proliferative” and “Secretory” lesions. In contrast, “Atrophic” and “Polyp” lesions are the least common, comprising only 3.9% and 2.9% of cases, respectively, across all age groups

DISCUSSION

The findings of this study highlight that abnormal uterine bleeding(AUB)is most prevalent among women aged 41-50 years, constituting 73.50% of the study population. This is consistent with other studies that have identified peri menopausal women as the most affected group due to hormonal fluctuations and anovulatory cycles commonly associated with this age group.4The high representation of this age group underscores the need for targeted diagnostic and therapeutic interventions for peri menopausal women experiencing AUB. The 31-40 age group accounted for 20.60% of participants, which aligns with findings from similar studies that suggest AUB in this age range is often linked to conditions such as fibroids, polyps, or endocrine disorders.12The lower prevalence in the 20-30 age group (5.90%) is also consistent with existing literature, as younger women are less likely to experience AUB unless associated with specific pathologies such as coagulation disorders or polycystic ovary syndrome.9

The findings of our study high light the predominance of AUB-L (Leiomyoma) is the most prevalent cause, accountingfor46%ofcasesinthisstudyisconsistentwithresearchconductedbyMunroetal.(2011),whoestablished thePALM-COEINclassificationsystemandreportedleiomyomaasaleadingcauseofAUB,particularlyin reproductive-agedwomen.4Similarly,astudybyFraseretal.(2015)foundthatstructuralcauses,suchasleiomyomas and polyps, were significant contributors to AUB, with leiomyomas being the most common.12 The high prevalence of AUB-L in our study under scores the importance of early detection and management of uterine fibroids in this population. These cond most common cause, AUB-E (Endometrial), accounted for 28% of cases similar to Whitaker et al.study (2016),.17TherelativelyhighproportionofAUB-N (Not Classified) cases (16%) suggests the need for further diagnostic evaluation to identify underlying causes that may not be immediately apparent using standard diagnostic tools.

ThelowerprevalenceofAUB-P(Polyp)andAUB-M(Malignancy)inthisstudyisconsistentwithfindingsfromother studies, such as those by Clark et al. (2014),whore ported that polypsandmalignancies,arefewercommoncausesof AUBcomparedtoleiomyomasandendometrialdysfunction.7TherarityofAUB-A(Adenomyosis)inourstudy(1%) contrasts with some studies that report higher prevalence rates, possibly due to differences in diagnostic criteria or population characteristics.8 ,19,20.

The strong statistical association ($p < 0.001$) between parity 2, 3, and AUB-L underscores the role of reproductivehistoryinthedevelopmentofuterinefibroids.Similarfindingshavebeenreportedinotherstudies,where multiparity was identified as a risk factor for fibroid development due to increased exposure to estrogen and progesterone during repeated pregnancies.21,22 Conversely, fewer cases of AUB were observed among nulli gravida and women with parity 1, 4, and 5, suggesting a potential protective effect of lower parity or a different hormonal milieu in these groups.5The results of this study are consistent with GuptaS study which also identified leiomyoma as the leading cause of AUB in multi parous women.

The findings of this study highlight a significant association between age groups and the types of abnormal uterinebleeding(AUB)amongwomenattendingatertiarycarehospitalinAndhraPradesh.Themajorityofcases(75 out of 102)

wereobservedinthe41-50agegroup,withAUB-L(leiomyoma) being the most prevalent type across all age groups. This is consistent with existing literature, which suggests that the incidence of AUB, particularly due to structural causes like leiomyomas, increases with age, peaking in the perimenopausal period. 23The p-valueof 0.001 further under scores the statistical significance of this relationship, emphasizing age as a critical factor influencing the type of AUB.

CONCLUSION

In conclusion, the PALM-COEINclassificationsystemoffersastructuredframeworkfordiagnosingthecauses of Abnormal Uterine Bleeding (AUB), enabling the development of targeted management strategies. The high prevalence of AUB-L (leiomyoma) and AUB-E (endometrial) observed in this study highlights the need for focused interventions to address these specific conditions.

This study also underscores the importance of considering age and parity as a key factors in the evaluation and management of AUB, particularly AUB-L. The findings align with global trends and emphasize the need fort argeted interventions and awareness programs for elderly and multi parous women, who are at a higher risk of developing symptomatic uterine fibroids.

Limitations:

The study's limitations include it's a cross sectional study design, convenient sampling method and relatively small sample size, which may limit generalize ability. Future research should include multi-center studies with larger cohorts to validate these findings. Additionally, exploring the role of lifestyle factors, co morbidities, and environmental factors in AUB could provide further insights into its etiology and management.

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Conflict of interest: None declared

Ethical approval : The study was approved by the Institutional Ethics Committee.

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