Journal of Cardiovascular Disease Research

ISSN: 0975-3583,0976-2833 VOL 16, ISSUE 7, 2025

DIAGNOSIS OF ABNORMAL UTERINE BLEEDING IN PERIMENOPAUSAL AND POSTMENOPAUSAL WOMEN WITH HISTOPATHOLOGICAL ANALYSIS AND CORRELATING WITH FIGO PALM COEIN CLASSIFICATION OF AUB IN A TERTIARY CARE CENTRE

1) **DR .SREELEKSHMI SURESH BABU**

2)**DR.RAJAN G**

Department(s) and institution(s)

Corresponding Author: Dr Sreelekshmi Suresh Babu

Senior resident, Department of Pathology

Sreemookambika institute of medical science

E mail – abhiramsreelekshmi@gmail.com

Abstract:

Abnormal uterine bleeding (AUB) is defined as any change in the frequency of menstruation, flow duration, or amount of blood loss.[1] The spectrum of AUB includes menorrhagia, metrorrhagia, polymenorrhea, and oligomenorrhea. To standardize the terminology used to describe AUB, PALM–COEIN (polyp, adenomyosis, leiomyoma, malignancy and hyperplasia, coagulopathy, ovulatory dysfunction, endometrial, iatrogenic, and not yet classified), known by the acronym PALM–COEIN), Inter developed nomenclature system- national Federation of Gynecology and Obstetrics (FIGO).[2]The study aimed to analyze the histopathological patterns of the endometrium in perimenopausal and post-menopausal patients presenting with AUB and correlating with FIGO PALM COEIN classification of AUB.The present study was conducted in the Department of Pathology, tertiary care hospital, Kanyakumari, Tamil Nadu, India over a period of one and half years. A total patients aged 30 years & above, presenting with AUB were included. Endometrial samples were analysed, and histopathological patterns were identified and classified and compared with FIGO PALM -COEIN classification. In the present Histopathological examination revealed most cases pertained to the PALM component indicating aetiologies responsible for AUB were structural causes. In the present study AUB-L (leiomyoma) was found to be the most common etiological factor for AUB in both perimenopausal and postmenopausal women. The FIGO PALM-COEIN classification along with histopathological examination aids in better diagnosis and provides better patient care

KEYWORDS: Abnormal uterine bleeding, disordered proliferation, proliferative and secretory endometrium.

ISSN: 0975-3583,0976-2833 VOL 16, ISSUE 7, 2025

INTRODUCTION

AUB is any change in the normal frequency of menstruation, flow duration, or amount of blood loss. AUB is regarded as the earliest sign of endometrial pathology and the most common presenting symptom. Patients usually present with menorrhagia, polymenorrhea, metrorrhagia, and intermenstrual bleeding. Aetiology for AUB can be caused by structural or functional causes.[3]

Endometrial sampling - Dilatation and curettage is regarded as an effective diagnostic technique. It is simple, cost-effective method which provides a diagnostic aid and helps to guide the management. It provides information about the hormonal status, presence of polyps, hyperplasia or malignancy.

Initial management of AUB is done using medications. Procedures like endometrial ablation, thermal balloon therapy, and uterine artery embolization are minimally invasive procedures that can aid in the management but are quite expensive and availability is restricted. Henceforth hysterectomy is widely used in the management of AUB. PALM COEIN system of classification for AUB consists of both structural and functional division of causes for AUB.The present study was conducted with aim to assessing the histopathological lesions and their frequencies occurring in perimenopausal and post-menopausal women presenting with AUB and to correlating with structural and functional components of the PALM-COEIN system of AUB.

RESULTS

The present study deals with histopathological analysis of endometrial lesions in patients who presented with AUB in the gynecology OPD.A total of 124 patients were evaluated during the time period of January 2023 to December 2023.

Age distribution:

The patients' ages ranged from 20 to 80. The commonest age range of presentation in the present study was between 41 and 50, which accounted for 52% of the cases. This was followed by the age group of more than 51-60, which accounted for 17% of the cases (Figure 1).

Majority of women had symptoms of AUB for a duration ranging from 6 months to more than 1 year. Most common symptom manifested by the patients was heavy menstrual bleeding 78% of cases followed by intermenstrual bleeding in 20% of cases.

Cases were distributed according to clinical diagnosis into PALM and COEIN components. The PALM component constituted about 93.53%, and the COEIN component constituted about 6.45% (Table 1). AUB-L(leiomyoma) constituted about 58.03% in PALM, being the major

ISSN: 0975-3583,0976-2833 VOL 16, ISSUE 7, 2025

aetiology of AUB, followed by AUB-A(adenomyosis), which accounted for 11.51%. AUB-E (ovulatory disorders) constitutes 6.45% of the COEIN category (Figure 2).

Table 3 shows the histopathological changes of endometrium, with proliferative changes in 38% of cases (followed by secretory changes in 21% of the case population (Table 3).

Table 4 shows the distribution of cases as per histopathology-based diagnosis into PALM COEIN classification. On histology-based diagnosis, the PALM component accounts for 58.87% which was similar to the number of cases assigned in clinical criteria.

DISCUSSION

Abnormal uterine bleeding (AUB) is a common issue that affects women at various stages of life, especially during the perimenopausal and postmenopausal periods. These bleeding patterns can be a result of both benign and malignant conditions, and diagnosing the underlying cause is crucial for effective treatment. The FIGO, PALM-COEIN classification system provides a standardized approach to classify the causes of AUB based on structural and non-structural aetiologies, helping clinicians pinpoint the source of bleeding and guide treatment decisions.

The study aimed to investigate the causes of AUB in perimenopausal and postmenopausal women, particularly through histopathological analysis, and correlate findings with the FIGO PALM-COEIN classification in a tertiary care center setting. It was a time-bound study, including 124 cases of AUB. The patients' ages ranged from 30 to 80. The Maximum incidence of AUB was in the 41- 50 age range which was in concordance with a study done by Betha et al in which the majority of patients were in the age group 41-45 years[4].

AUB is common in the perimenopausal age group mainly due to the variation in etradiol level and declining number of ovarian follicles as they approach menopause due to an increase in FSH leading to chronic anovulatory cycles [5]. The most common presentation in this study was heavy menstrual bleeding (78%), which concord with the study done by Nair R et al (64%)[6].

In the present study most common aetiology of AUB was found to be the structural cause (PALM- L). The histopathological pattern of endometrium was proliferative pattern (55%) followed by secretory pattern (26%) which was in accordance with the study done by Shah RJ et al [7]. Studies have shown that causes of AUB like leiomyoma , polyps , hyperplasia and malignancy occurs in the background of proliferative endometrium[7]. The atrophic endometrial pattern accounted for 13%. Atrophic endometrium is considered as a reason for post-menopausal bleeding due to the prolonged absence of estrogenic stimulation leading to thin endometrium being more s susceptible to bleeding .[8]

On histopathology-based diagnosis, the PALM component accounted for 97.6% of cases of AUB, which was close to the percentage of cases of AUB clinically analyzed. The study was statically significant ($p=<0.005$) on clinical and histopathological correlation.

In analyzing AUB- P (polyp), clinical and histopathological analysis was significant as most cases were diagnosed as polyps clinically but not evaluating whether it was cervical polyp or endometrial polyp in particular. Clinically cervical polyps could be diagnosed by per speculum examination. In the present study, seven cases of endometrial polyp (Figure: 4) were histologically proven, which concord with the study done by Mishra et al[5].

ISSN: 0975-3583,0976-2833 VOL 16, ISSUE 7, 2025

AUB-A (Adenomyosis), constituted the second most common (17.74%) etiological factor for AUB in the present study. There is statistical significance in clinical and histopathological diagnosis, mostly due to the similarities in the signs and symptoms of adenomyosis with other etiological factors like leiomyoma and hyperplasia, making it difficult to differentiate clinically. Histopathological examination is the gold standard in the diagnosis of adenomyosis.

In AUB-L(Leiomyoma), is not statistically significant as leiomyomas can be clinically diagnosed with the help of clinical examination and radiological examination. Leiomyoma (51%) was found to be the major contributing factor for AUB in both perimenopausal and postmenopausal women, which was in concordance with the study done by Mishra et al[5]and Qureshi et al[9]. Studies have suggested that submucosal leiomyomas contribute more to AUB when compare to intramural and subserosal leiomyomas. Leiomyomas frequently manifest as heavy menstrual bleeding. On ultrasonography, uncomplicated leiomyomas are usually hypoechoic when compared to normal myometrium. Calcification usually echogenic foci with shadowing.[10]

In AUB -M (Malignancy), there is statistical significance between clinical and histopathological correlation. Malignancies and hyperplasia are underdiagnosed due to overlapping signs and symptoms which leads to misdiagnosing the condition. Radiological analysis using ultrasound sonography provides information regarding the endometrial thickness and presence of any lesions within the endometrium but endometrial thickness can vary depending on the hormonal fluctuations. USG gives hints to differentiate between endometrial hyperplasia and malignancy. Features like heterogeneous and irregular endometrial thickening, polypoid mass lesion, intrauterine fluid collection, and frank myometrial invasion suggest malignant nature of the lesion in USG[11]. In the present study, endometrial carcinoma accounted for 12.2% cases which was in concordance with study done by Mishra et al.[5] Endometroid endometrial carcinoma was the most common subtype (Figure: 5) followed by carcinosarcoma (Figure 6 a & b).

AUB-O (ovulatory disorders) usually occurs due to anovulatory cycles and corpus lutuem formations. The spectrum of conditions occurring in ovulatory disorders include polycystic ovarian syndrome (POS), prolactin and thyroid disorders, or premature ovarian failure. In cases suspicious of ovulatory disorders, the initial work up focus on blood tests for various hormonal studies pertaining to ovulatory disorders.[12] In the present study clinical and histopathological difference was significant as anovulatory cycles in perimenopausal women could be a cause of AUB and diagnosed mostly by proper menstrual history[5].Usually in AUB- O, the endometrium is fragile , insufficient stromal support and highly vascular which results in irregular heavy menstrual bleeding or acute haemorrhage.

CONCLUSION

Histopathological examination revealed most cases pertained to the PALM component indicating most common aetiologies responsible for AUB were structural causes. In the present study AUB-L (leiomyoma) was found to be the most common etiological factor for AUB in both perimenopausal and postmenopausal women. The FIGO PALM-COEIN classification along with histopathological examination aids in better diagnosis and provides better patient care

REFERENCE

1. Practice bulletin number 128: diagnosis of abnormal uterine bleeding in reproductive-aged women. Obstet Gynecol. 2012;120(1):197-206.
2. Munro MG, Critchley HO, Broder MS, Fraser IS. FIGO classification system (PALM-COEIN) for causes of abnormal uterine bleeding in nongravid women of reproductive age. FIGO Working Group on Menstrual Disorders. Int J Gynaecol Obstet 2011;113:3–13.
3. Bhat R, Sudhamani S, Roplekar P. Histopathological study of endometrium in abnormal uterine bleeding in perimenopausal and postmenopausal women. J Sci Soc 2019;46:95-8.
4. BethaK, MalavatuL, TalasaniS.Distribution of causes of abnormal uterine bleeding using new FIGO classification system-PALM COEIN: a rural tertiary hospital based study.Int J Reprod Contracept Obstet Gynecol2017;6:3523-7.
5. Mishra, D., & Sultan, S. (2017). FIGO's PALM-COEIN Classification of Abnormal Uterine Bleeding: A Clinico-histopathological Correlation in Indian Setting. *Journal of obstetrics and gynaecology of India*, *67*(2), 119–125.
6. Nair R, Mallikarjuna M. Clinical profile of patients with abnormal uterine bleeding at a tertiary care hospital. Int J Reprod Contracept Obstet Gynecol 2015;4:1753-7.
7. Shukla M, Fonseca MN, Kharat D, Tekale P. A study to correlate histopathological findings in patients with abnormal uterine bleeding. Int J Reprod Contracept Obstet Gynecol 2017;6:654-7.
8. Shah RJ, Dayal A, Kothari SL, Patel SM, Dalal B. Histopathological interpretation of endometrium in abnormal uterine bleeding. Int J Med Sci Public Health 2014;3:452-456
9. Qureshi FU, Yusuf AW. Distribution of causes of abnormal uterine bleeding using the new FIGO classification system. JPMA. 2013;63(973).
10. Farooq S, Verikios N, Sharma R, et al. Uterine leiomyoma. Reference article, Radiopaedia.org (Accessed on 06 Dec 2024) https://doi.org/10.53347/rID-10915
11. Weerakkody Y, Becker D, Alhusseiny K, et al. Endometrial carcinoma. Reference article, Radiopaedia.org (Accessed on 06 Dec 2024) https://doi.org/10.53347/rID-13098
12. Khrouf, M., & Terras, K. (2014). Diagnosis and Management of Formerly Called "Dysfunctional Uterine Bleeding" According to PALM-COEIN FIGO Classification and the New Guidelines. *Journal of obstetrics and gynaecology of India*, *64*(6), 388–393. https://doi.org/10.1007/s13224-014-0641-1

ISSN: 0975-3583,0976-2833 VOL 16, ISSUE 7, 2025

Figure 1: Age wise distribution of the patients with AUB (n=124)

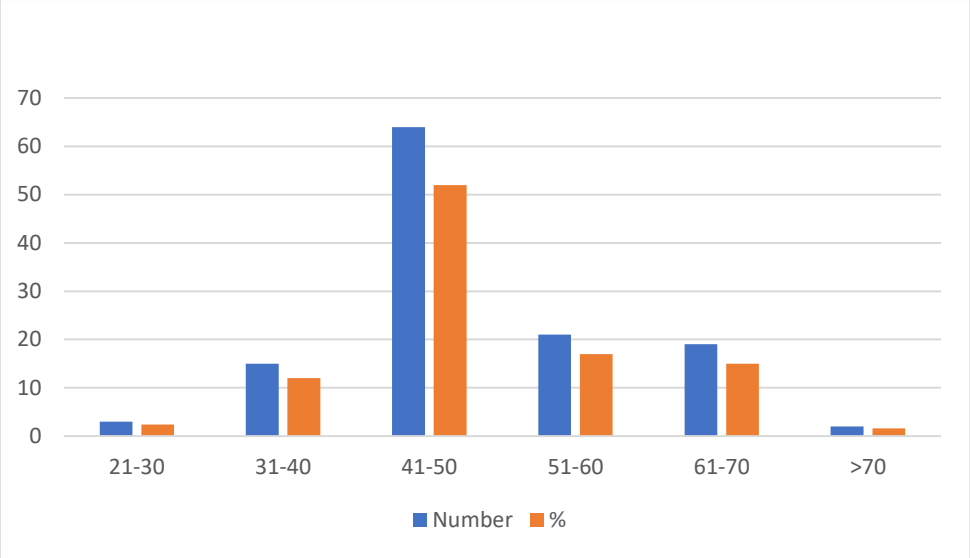
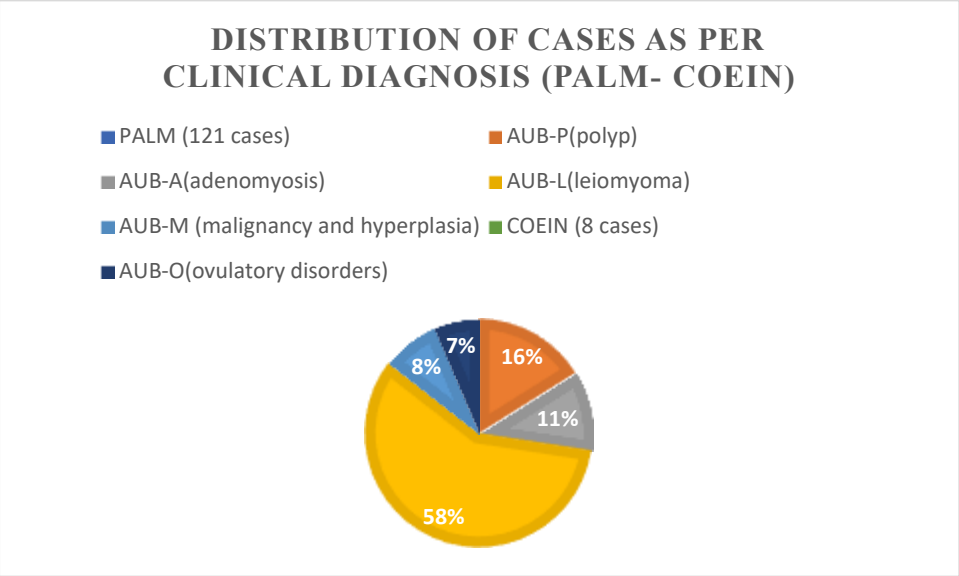
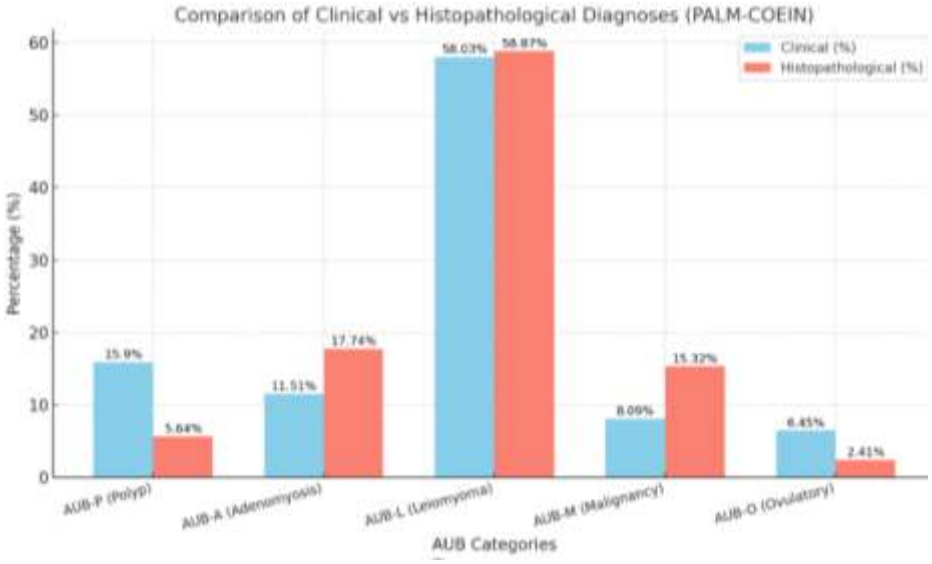


Figure 2 : Distribution of cases as per clinical diagnosis (PALM)



ISSN: 0975-3583,0976-2833 VOL 16, ISSUE 7, 2025

Figure 3: Correlation of clinical and histopathology-based diagnosis



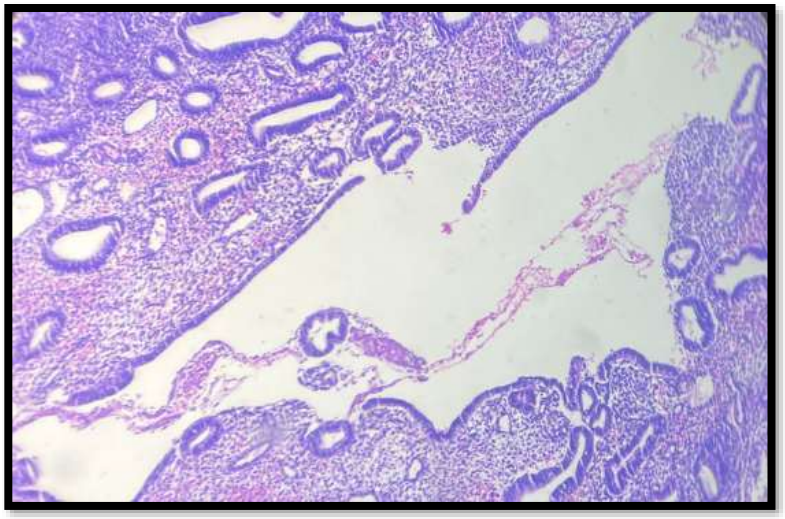


Figure 4: Benign endometrial polyp against the background of proliferative phase endometrium (H&E, 10X)

ISSN: 0975-3583,0976-2833 VOL 16, ISSUE 7, 2025

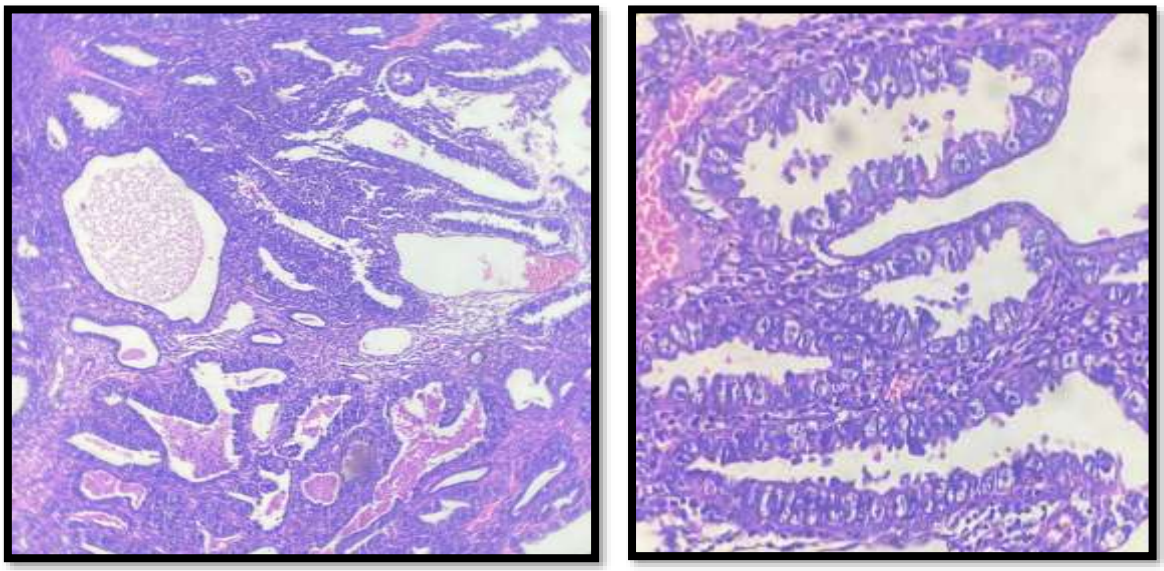


Figure 5: (5A) Histopathological examination showing endometrioid carcinoma, H&E (10x).(5B)Histopathology examination showing complex back-to-back glandular structures without intervening stroma, H & E (40x)

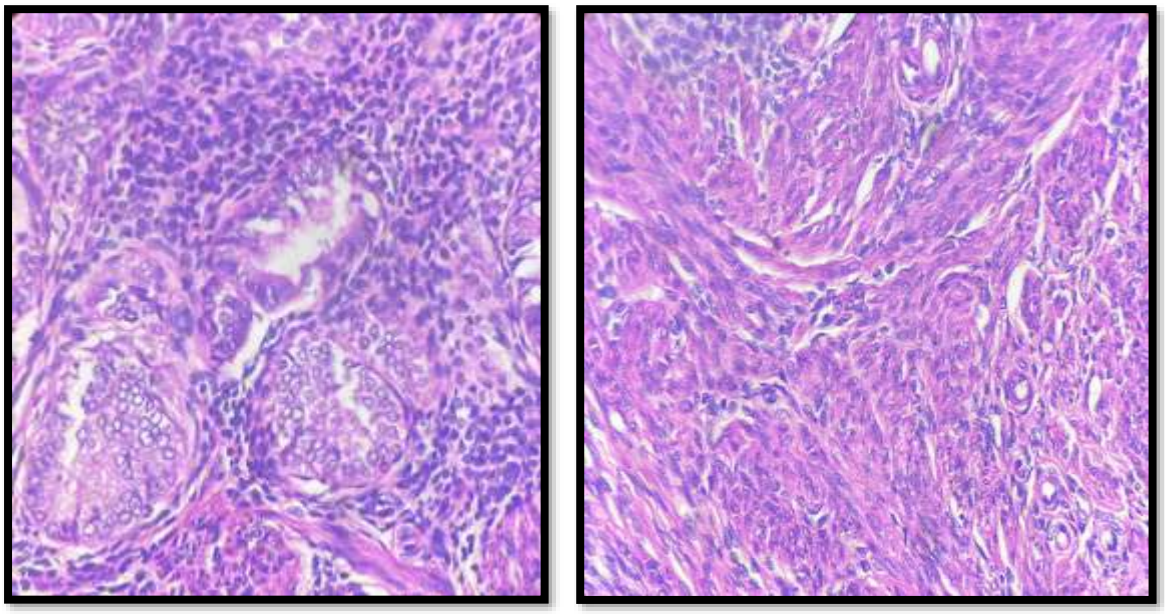


Figure 6A & 6B: Histopathological examination showing biphasic neoplasm showing endometrial carcinoma juxtapositioned with intersecting fascicles of malignant spindle cells.

ISSN: 0975-3583,0976-2833 VOL 16, ISSUE 7, 2025

Table 1. Distribution of cases as per clinical diagnosis (PALM & COEIN)

DIAGNOSIS	NO. OF CASES	PERCENTAGE
PALM (116 cases)		
AUB-P(polyp)	20	15.90%
AUB-A(adenomyosis)	14	11.51%
AUB-L(leiomyoma)	72	58.03%
AUB-M (malignancy and hyperplasia)	10	8.09%
COEIN (3 cases)		
AUB-O(ovulatory disorders)	8	6.45%

Table 2. Distribution of cases based on histopathology examination of endometrium

Diagnosis	No. of cases	Percentage
Endometrial Polyp	07	05.6%
Proliferative	55	44.4%
Secretory	26	30.0%
Atrophic	13	10.5%
Hyperplasia	08	06.5%
Malignancy	15	12.2%

ISSN: 0975-3583,0976-2833 VOL 16, ISSUE 7, 2025

Table 3. Distribution of cases as per histopathology-based diagnosis into PALM COEIN Classification

PALM (121 Cases)		
Diagnosis	**No. of cases**	**Percentage**
AUB -P(Polyp)	7	5.64%
AUB -A(Adenomyosis)	22	17.74%
AUB -L (Leiomyoma)	73	58.87%
AUB - M (malignancy & hyperplasia)	19	15.32%
COEIN (03 cases)		
AUB-O(ovulatory disorders)	3	2.41%
TOTAL	124	100

Table 5: Correlation of clinical and histopathology-based diagnosis

Category	Clinical PALM (n=116 cases)	Histopathological PALM (n=121 cases)	p value <0.05	Significance
AUB-P(polyp)	15.90%	**5.64%**	**0.012**	**S**
AUB-A(adenomyosis)	11.51%	**17.74%**	**0.043**	**S**
AUB-L(leiomyoma)	58.03%	**58.87%**	**0.897**	**NS**
AUB-M (malignancy and hyperplasia)	8.09%	**15.32%**	**0.028**	**S**
	Clinical COEIN (n=8 cases)	**Histopathological COEIN (n=3 cases)**	**p value**	

ISSN: 0975-3583,0976-2833 VOL 16, ISSUE 7, 2025

AUB-O(ovulatory disorders)	6.45%	**2.41%**	**0.038**	**S**