Histopathological Evaluation of Endometrium in Abnormal Uterine Bleeding.

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Abstract : ***Background:*** Abnormal uterine bleeding is the commonest presenting symptom and major gynaecological problem responsible for 45% of all out patient gynaecologic visit. Abnormal Uterine Bleeding (AUB) a term used to describe any type of bleeding that does not fall within the normal ranges for amount, frequency, duration, or cyclicity. The most common presentations are menorrhagia, polymenorrhoea, metrorrhagia, and intermenstrual bleeding. The following study intends to find out the incidence of various etiopathological factors in different age groups in cases of abnormal uterine bleeding and also correlation between age of presentation & specific endometrial causes.The endometrial sampling is chosen to evaluate abnormal uterine bleeding because it has several advantages over other diagnostic methods. The hormonal assay is very expensive and laboratories with hormonal assay are not available in rural areas. This study may help gynaecologists in our population to improve minimally invasive uterus sparing modalities such as endometrial ablation & Hysteroscopy resection of early proliferative lesions so radical surgery can be avoided. ***Aims & Objectives:*** To study the Histomorphological patterns of endometrial tissue in clinically diagnosed cases of abnormal uterine bleeding. The primary objective is to study various Histopathological diagnosis in different age Group. The secondary objective is to correlate the clinical presentations with the histopathological diagnosis. This study was conducted with the aim to study and analyse the structural(PALM) and the functional (COEIN) component of PALM-COEIN system of AUB in women > 18 years age group in our region. ***Material & Methods:*** The retrospective study of 180 patients of age group about 18 years with history of abnormal uterine bleeding was carried out in the Department of Pathology, SMIMER, Surat. The tissue specimens were processed and examined microscopically. ***Results:*** The patients were mainly from the age group of 36 to 50 years (71%). The most common bleeding pattern was heavy bleeding(67.2%). According to PALM-COIN classification, in our study, in PALM group, maximum cases were of leiomyoma (24.4%) followed by malignancy and hyperplasia (13.3%), Adenomyosis (6.1%) and Polyp(1.7%). In COIN group, maximum cases were of ovulatory dysfunction(26.1%) followed by endometrial cause (23.3%), not yet classified (3.9%), Iatrogenic (1.1%). No case of coagulopathy was found. ***Conclusion:*** Histopathological examination of specimens, still remain the mainstay of investigation in delineating the various possible causes of abnormal uterine bleeding. Histopathology gives a definitive picture to management of this most common gynaecologic complaint seen by clinician day in and out- AUB. In this study most of the cases were found in age group 36 to 45 and the most common complain was menorrhagia. The present study primarily focus on categorizing the patient of AUB according to PALM-COEIN classification so that planning, investigation, and treatment will be easier in a proper way. The most common organic cause of AUB is Leiomyoma in 41-50 age group. Among the non organic causes ovulatory dysfunction is commonly observed in the late reproductive and perimenopausal women. The cause of bleeding in peri and post menopausal age group was found to be endometrial hyperplasia and adenocarcinoma.

Key words: AUB, PALM-COEIN, endometrial biopsy, endometrial hyperplasia, endometrial carcinoma

Introduction:

The endometrium which lines the uterine cavity is one of the most dynamic tissues in the human body; an interesting tissue for histopathologic study. It is characterized by cyclic processes of cell proliferation, differentiation and death in response to sex steroids elaborated in the ovary[1]. Abnormal uterine bleeding is the commonest presenting symptom and major gynaecological problem responsible for 45% of all out patient gynaecologic visit[2],[3]. Abnormal Uterine Bleeding (AUB) a term used to describe any type of bleeding that does not fall within the normal ranges for amount, frequency, duration, or cyclicity[4].

Abnormal Uterine Bleeding includes (A) Organic causes such as genital tract infection, Fibroids, Polyps, Adenomyosis, Endometrial carcinoma and Pregnancy complications, systemic disorders and iatrogenic accounting for 20% cases[5]. Endometrial curettage in such cases plays an important role in excluding organic uterine

disorders. (B) Dysfunctional uterine bleeding caused by anovulation or oligovulation is responsible of 80% of menorrhagia[6] and diagnosed after exclusion of all conditions enmurated in (A) [7].

Menorrhagia affects 10-30% of menstruating women at any one time, and may occur at sometime during the perimenopause in up to 50% of women[8].

Pregnancy-related and dysfunctional uterine bleeding is more common in younger patients, whereas atrophy and organic lesions become more frequent in older individuals. Hyperplasia is found in up to 16% and endometrial carcinoma in fewer than 10% of postmenopausal patients undergoing biopsy. The following study intends to find out the incidence of various etiopathological factors in different age groups in cases of abnormal uterine bleeding and also correlation between age of presentation & specific endometrial causes.

Ultrasonography, hysteroscopy and hysterosalpingography are mainly helpful in diagnosing organic pathology. Endometrial curettage is relatively inexpensive and accurate as an outpatient procedure. It clearly shows both, organic and functional causes of AUB in uterus. The only disadvantage of endometrial biopsy is that, it is an invasive procedure. This study may help gynaecologists in our population to improve minimally invasive uterus sparing modalities such as endometrial ablation & Hysteroscopy resection of early proliferative lesions so radical surgery can be avoided[9].

Material And Methods:

Sample size: Retrospective study of endometrial biopsy specimens of 180 patients was carried out in Histopathology Section, Department of pathology, SMIMER, Surat to find out the microscocoping findings in different cases of AUB.

Methods: The study included endometrial biopsy specimen of 180 patients of age group above 18 years. Detailed clinical history such as LMP, use of exogenous hormone, history of pregnancy/abortion were taken along with ultra sonography and other laboratory investigations. Biopsy sections were processed, 4 to 5 micron thickness sections were taken and stained with Haematoxylin and Eosin stain and examined microscopically. The findings were noted.

Results:

The present study comprises of evaluation of histopathological findings of 180 clinically diagnosed cases of AUB which were received at the department of pathology,Surat Municipal Institute of Medical Education and Research (SMIMER) Hospital, Surat.

The study was conducted over a period of 18 months and the data was analysed as per the following tables.

The age of patients in the present study ranged from > 18 years. The maximum number of cases were seen in the age group of 36-45 years (50%) and minimum number were seen in the age group of <20 years (01%).

Heavy menstrual bleeding was the most common symptom accounting for 67.2 % of patients followed by Post menopausal bleeding accounting for 10.5% with the least being oligomenorrhea accounting for 1.7%.

The most common organic cause of AUB is Leiomyoma in 30 % cases in 41-50 age group. The second most common organic cause of AUB is in 35 % cases malignancy above 50 years& hyperplasia in 31-50 age group that is 23%.

Proliferative phase is the most common histopathological finding accounting for 35.5% followed by secretory phase accounting for 11.1% , simple hyperplasia without atypia accounting for 11.1% and the least commonly seen is irregular ripening 0.5%.

There were 85 patients belonging to the reproductive age group (18-40 years). Proliferative endometrium was the dominant histopathological finding in this age group accounting for 31.8% followed by 15.2% of secretory phase, 11.8% of simple hyperplasia without atypia, 11.8% of Progesterone related bleeding. Least causes are Chronic endometritis and Irregular Endometrial shedding.

There were 80 patients belonging to the perimenopausal age group. Proliferative phase was the dominant histopathological finding in this age group accounting for 37.5% followed by 10% of secretory phase, 10% estrogen related bleeding,8.8% of Simple hyperplasia without atypia. Least causes are chronic endometritis and Psudodecidual reaction.

There were 15 patients belonging to the postmenopausal age group. Proliferative phase is dominant histopathological finding in this age group accounting for 46.7 % followed by Simple hyperplasia without atypia 20%.

Table 1: Age distribution pattern

Age group (years)	Number	Percentage
<20	1	1%
21-25	8	4%
26-30	14	8%
31-35	17	9%
36-40	45	25%
41-45	45	25%
46-50	37	21%
51-55	6	3%
56-60	3	2%
>60	4	2%
Total	180	100%

Table 2: Distribution of bleeding patterns

Bleeding patterns	Number	Percentage
Heavy bleeding	121	67.2%
Intermenstrual bleeding	12	6.7%
Heavy &prolonged bleeding	18	10%
Frequent menstrual bleeding	7	3.9%
Oligomenorrhea	3	1.7%
Post menopausal bleeding	19	10.5%
Total	180	100%

Table 4: Distribution of cases as per clinical diagnosis

Diagnosis	Number	Percentage
Polyp	3	1.7%
Adenomyosis	11	6.1%
Leiomyoma	44	24.4%
Malignancy &hyperplasia	24	13.3%
Coagulopathy	0	0%
Ovulatory dysfunction	47	26.1 %
Iatrogenic	2	1.1%
Endometrial	42	23.3%
Not yet classified	7	3.9%
Total	180	100%

Table 6: Analysis of histopathological findings

Histological findings	Number	Percentage
Proliferative Phase	64	35.5%
Secretary Phase	20	11.1%
Simple hyperplasia without atypia	20	11.1%
Complex hyperplasia with atypia	2	1.1%
Disordered Proliferative endometrium	8	4.4%
Atrophic endometrium	3	1.7%
Endometrial Carcinoma	2	1.1%
Oestrogen related bleeding	16	8.9%
Progesterone related bleeding	17	9.4%
Chronic endometritis	2	1.1%
Irregular Endometrial shedding	5	2.8%
Menstrual phase	1	0.5%
Leuteal phase defect	10	5.5%
Irregular ripening	1	0.5%
Pseudodecidual reaction	3	1.7%
Aria Stella reaction	6	3.3%
Total	180	100%

Table 3: Distribution of bleeding pattern according to age groups

Bleeding patterns	<20 year	%	21-30 Years	%	31-40 Years	%	41-50 Years	%	51-60 Years	%	>60 Years	%
Heavy bleeding	0	0	16	69	51	80	52	65	2	22	0	0
Intermenstrual bleeding	0	0	2	9	4	6.25	6	7.5	0	0	0	0
Heavy &prolonged bleeding	0	0	2	9	5	8	11	14	0	0	0	0
Frequent menstrual bleeding	0	0	2	9	2	3.12	3	4	0	0	0	0
Oligomenorrhea	1	100	1	4	1	1.56	0	0	0	0	0	0
Post menopausal bleeding	0	0	0	0	0	0	8	10	7	7	4	100
Total=180	1	100	23	100	63	100	80	100	9	100	4	100

Table 5: Age wise distribution of cases as per clinical diagnosis (Age in Years)

Clinical Diagnosis	<20	%	21-30	%	31-40	%	41-50	%	51-60	%	>60
Polyp	0	0	0	0	1	1.58	1	1.2	1	10	0
Adenomyosis	0	0	1	5	1	1.58	8	10	0	0	1
Leiomyoma	0	0	1	5	17	27	25	30	1	10	0
Hyperplasia	0	0	2	10	8	13	8	10	2	20	0
Malignancy	0	0	0	0	0	0	0	0	1	10	1
Coagulopathy	0	0	0	0	0	0	0	0	0	0	0
Ovulatory dysfunction	1	100	10	50	18	28.5	14	17	3	30	1
Iatrogenic	0	0	0	0	0	0	4	5	0	0	0
Endometrial	0	0	6	30	15	24	18	22	2	20	1
Not yet classified	0	0	0	0	3	5	4	5	0	0	0
Total	1	100	20	100	63	100	82	100	10	100	4

Table 7: Pattern of distribution of histopathological findings in patients of Reproductive age group (18-40)

Histological findings	Number	Percentage
Proliferative Phase	27	31.8%
Secretory Phase	13	15.2%
Simple hyperplasia without atypia	10	11.8%
Complex hyperplasia with atypia	2	2.3%
Disordered Proliferative endometrium	3	3.5%
Atrophic endometrium	0	0%
Endometrial Carcinoma	0	0%
Oestrogen related bleeding	8	9.4%
Progesterone related bleeding	10	11.8%
Chronic endometritis	1	1.1%
Irregular Endometrial shedding	1	1.1%
Menstrual phase	0	0%
Leuteal phase defect	2	2.3%
Irregular ripening	2	2.3%
Psudodecidual reaction	3	3.5%
Aria stella reaction	3	3.5%
Total	85	100%

Table 8: Pattern of distribution of histopathological findings in patients of Perimenopausal age group

Histological findings	Number	Percentage
Proliferative Phase	30	37.5%
Secretory Phase	8	10%
Simple hyperplasia without atypia	7	8.8%
Complex hyperplasia with atypia	0	0
Disordered Proliferative endometrium	4	5%
Atrophic endometrium	2	2.5%
Endometrial Carcinoma	0	0%
Oestrogen related bleeding	8	6.2%
Progesterone related bleeding	5	1.2%
Chronic endometritis	1	1.2%
Irregular Endometrial shedding	3	3.8%
Menstrual phase	1	1.2%
Leuteal phase defect	7	8.8%
Irregular ripening	0	0
Psudodecidual reaction	1	1.2%
Aria stella reaction	3	3.8%
Total	80	100%

Discussion:

The present study carried out at a hospital situated in a urban area. A total of 180 gynaecology specimens were received in pathology department of our Medical College SMIMER over a period spanning from March 2016 to September 2017. Relevant clinical data are collected. Large proportion of the patients points out the sheer magnitude of this problem & the need to establish an accurate diagnosis in order to help the clinician to formulate appropriate line of management. In this study age of all patients are above 18 years, hence it was a broad based study which included patients of all age groups.

Women from all age groups presented with abnormal uterine bleeding. Most of the cases (50%) of AUB in the present study were seen in the age group of 36-45 years. In our study Uterine bleeding is used synonymously with per vaginal bleeding.

The most important etiological factor for AUB relates to the age, whether premenopausal, perimenopausal or postmenopausal. The maximum frequency (53.1%) of AUB in this study was in the 41 - 50 years of age group .The high incidence in this age group could be due to the fact that as menopause approaches, decreased number of ovarian follicles & increased resistance to gonadotrophic stimulation results in a low level of oestrogen which cannot keep the normal endometrium growing[10].

The highest incidence of AUB was noted in the 41-50 years age group in the present study which was concordance with the results of the studies by Muzaffar

Table 9: Pattern of distribution of histopathological findings in patients of Postmenopausal age group

Histological findings	Number	Percentage
Proliferative Phase	7	46.7%
Secretory Phase	0	0%
Simple hyperplasia without atypia	3	20%
Complex hyperplasia with atypia	0	0%
Disordered Proliferative endometrium	1	6.7%
Atrophic endometrium	1	6.7%
Endometrial Carcinoma	2	13.3%
Hormonal effect: oestrogen	1	6.7%
Hormonal effect:Progesteron	0	0%
Chronic endometritis	0	0%
Endometrial shedding	0	0%
Menstrual phase	0	0%
Leuteal phase defect	0	0%
Irregular ripening	0	0%
Psudodecidual reaction	0	0%
Aria stella reaction	0	0%
Total	15	100%

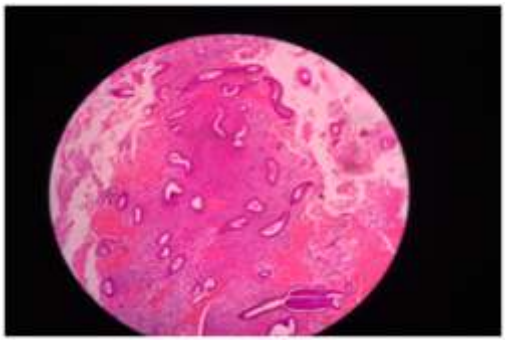

Figure 1 : H& E (10x)
Proliferative phase with round to tubular glands lined by pseudostratified epithelium surrounded by cellular stroma

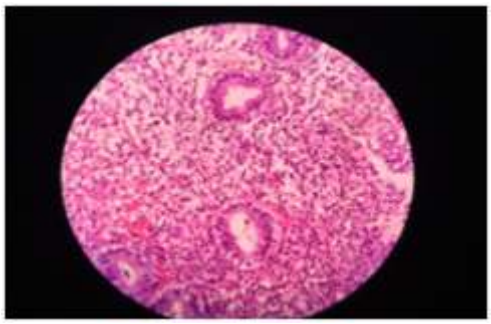

Figure 2 : H & E (40x)
Secretory phase with tortuous glands showing subnuclear vacuolation and Oedematous stroma

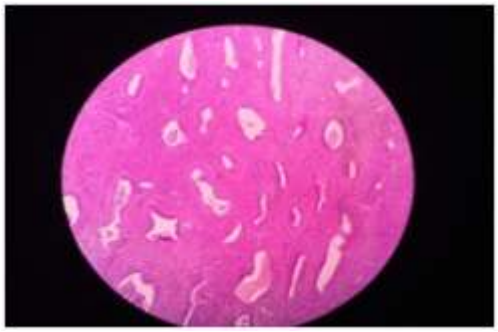

Figure 3 : H & E (10x)
Simple hyperpalsia without atypia with large cystically dilated glands against compact stroma

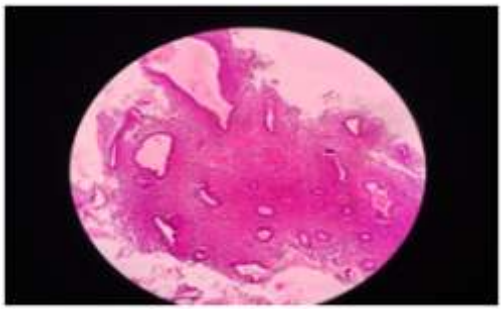

Figure 4 : H& E (10x)
Disordered proliferative endometrium showing glands with stratification and edematous stroma

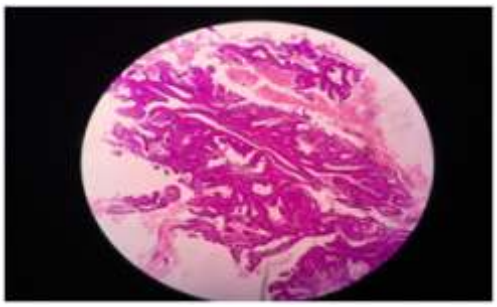

Figure 5 : H & E (10x)
Endometrial adenocarcinoma showing overcrowding of glands, intraglandular bridging, papillary projections with nuclear atypia & mitosis

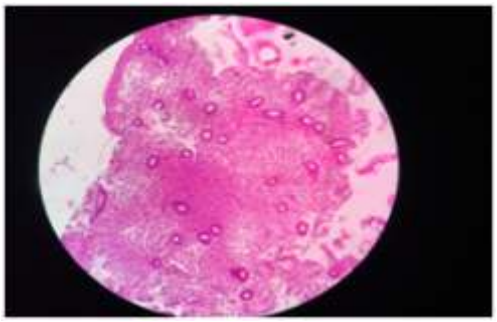

Figure 6 : H & E (10x)
Oestrogen related bleeding showing endometrial glands in Proliferative phase, Stroma shows edema & haemorrhage

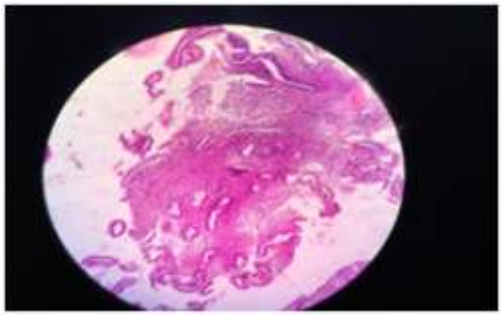

Figure 7 : H & E (10x)
Progesteron related bleeding showing underdeveloped secretory Endometrium with glandular & stromal breakdown

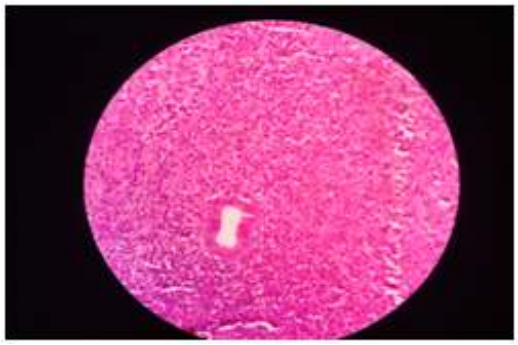

Figure 8 : H & E (10x)
Chronic endometritis showing numerous Plasma cells infiltrating in stroma

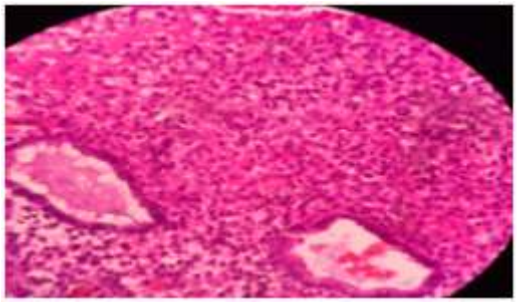

Figure 9 : H & E (40x)
Luteal phase defect showing underdeveloped secretory endometrium

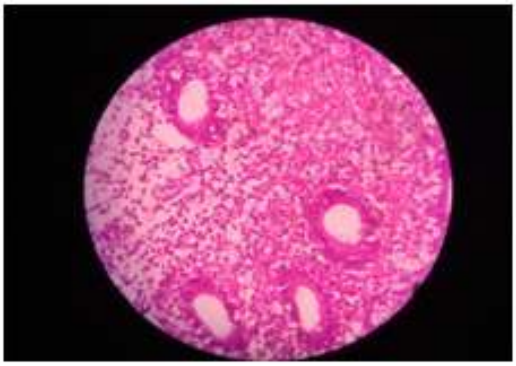

Figure 10 : H & E (40x)
Irregular ripening, glandular stromal asyncrony

(2005), Saraswathi (2011), Bhatta(2012), Rupal shah(2014), Saroj (2014), Alpana (2016) and differ from the study of Mitali (2015).

According to PALM-COIN classification, our study showing major Organic cause was Leiomyoma(24.4%) and major Non-organic cause ovulatory dysfunction (26.1%).Our study showing most of the cases are of ovulatory dysfunction and Leiomyoma are similar with the studies of Qureshi & Yususf,Gauri et al & Mishra.

The present study primarily focus on categorizing the patient of AUB according to PALM-COEIN classification so that planning, investigation, and treatment will be easier in a proper way as also recommended by PALM-COEIN classification.[22]

Organic causes of AUB: There was well defined organic lesion present in 45.5 % of patients of AUB. The most common organic cause of AUB is Leiomyoma in (30%) cases in 41-50 age group. The second most common organic cause of AUB was malignancy in (35%)cases above 50 years & hyperplasia in 31-50 age group in(23%)cases. The third most common organic cause of AUB is Adenomyosis in (10%) cases in 41-50 age group. The fourth organic cause of AUB is polyp in (12.7 %) cases in 31-60 age group.

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, endometrial hyperplasia accounted for 53 % cases and adenocarcinoma for 35 % cases. The average age for women with endometrial carcinoma is 61 years, but 5-30 % cases occur in premenopausal woman.[22]

The endometrial hyperplasia was a common diagnosis in perinemopausal women causing symptoms of irregular or prolonged bleeding due to anovulatory cycles. Heavy bleeding is secondary to sustained level of oestrogen causing overgrowth not only affecting glands and stroma but also abnormal vascularization.[23]

Chronic endometritis usually follows pregnancy, IUCD insertion and abortion. It may be due to viral, chlamydial, gonococcal, tuberculosis and nonspecific infection. The detection rate of chronic endometritis in our study was 1.6%, all were in <40 years age group. No specific infection like tuberculosis was noted in any case. chronic endometritis was found common in 31-50 years[17].

Table 10: Comparative study of age incidence

Authors	Total no	<20 years	%	21-30 years	%	31-40 years	%	41-50 year	%	51-60 Years	%	>60 years	%
Muzaffar 2005[11]	260	0	0	33	12.7	102	39.2	125	48.1	0	0	0	0
Saraswathi 2011[12]	409	6	1.5	85	20.8	116	28.4	137	33.5	65	15.8	0	0
Bhatta s. 2012[13]	122	0	0	13	10.7	16	13.1	48	39.3	39	32	6	5
Rupal shah 2014[14]	380	0	0	11	2.9	130	34.2	203	53.4	32	8.4	4	1
Saroj 2014[15]	335	3	0.9	43	12.9	106	31.7	136	40.5	36	10.8	11	3.2
Mitali 2015[16]	140	0	0	22	15.8	64	45.8	53	37.9	1	0.8	0	0
Alpana 2016[17]	300	0	0	16	5.3	109	36.3	146	48.7	29	9.7	0	0
Present study	**180**	**1**	**0.5**	**22**	**12.2**	**62**	**34.4**	**82**	**45.5**	**9**	**5**	**4**	**2.2**

Non organic causes of AUB: Among the non organic causes of endometrial pattern Ovulatory dysfunction was commonly observed in the late reproductive and perimenopausal women due to the 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 most common cause of AUB in this study.[23],[24]

The bleeding in the seretory phase is due to ovulatory dysfunctional uterine bleeding and the main defect is in the control of processes regulating the volume of blood lost during the menstrual breakdown of endometrium. Thus bleeding is charecterized by regular episodes of heavy menstrual blood loss or menorrhagia.[25]

An oestrogen related bleeding was most common in perinemopausal women. Progesterone related bleeding was common in reproductive age group. Leuteal phase defect was common in perinemopausal women.

Disordered proliferative pattern lies at one end of the spectrum of proliferative lesions of the endometrium that includes carcinoma at the other end with intervening stages of hyperplasias. It differs from the normal proliferative endometrium in the absence of uniform glandular development but is not abnormal enough to be considered hyperplastic. A disordered proliferative pattern resembles a simple hyperplasia, but the process is focal rather than diffuse. It is more common in the 41-50 age group. Diagnosing the patients at the earliest stage of this spectrum will be of definitive help to the practicing gynaecologists to prevent the disease progression.[26],[27],[28]

In this study endometrial atrophy was seen in women >40 years old and accounted for 3% of cases of AUB. This means that atrophic endometrium occurred at or around menopause. Exact mechanism of bleeding in atrophic endometrium is not known. Anatomical vascular variations, like thin walled veins, superficial to the expanding cystic glands making the vessel vulnerable to injury, as well as abnormal local hemostatic mechanisms in the uterus have been proposed to be the underlying causes.[29]

Age specific comparative study clearly revealed that the incidence of endometrial pathology increases with age. Disordered proliferative endometrium,,endometrial hyperplasia and endometrial carcinoma were more common in perimenopausal and postmenopausal age groups.

Conclusion:

- Endometrial sampling could be effectively used as the first diagnostic step in abnormal uterine bleeding although at times its interpretation could be quite challenging to the practicing pathologist. It is a simple, cost-effective and appropriate method that provides accurate diagnostic yield. The present study highlights the importance of endometrial Biopsy and its interpretation which plays a pivotal role in the

Table 11: Comparative analysis of histopathological findings[18]

Study	Rupal Shah		Bhatta		Saroj		Mitali		Janu Devi		Present study	
Histopathological findings	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**	**No**	**%**
Proliferative Phase	145	38.1	32	26.2	74	22	64	45.7	127	27.25	**64**	**35.5**
Secretory Phase	35	9.2	20	16.3	20	6	42	30	23	5	**20**	**11.1**
SHWOA	134	35.3	22	18	65	19.4	17	12.1	80	16	**20**	**11.1**
CHWA	11	2.9	0	0	0	0	0	0	14	2.8	**2**	**1.1**
Disordered Proliferative endometrium	0	0	8	6.56	0	0	0	0	18	3.9	**8**	**4.4**
Atrophic endometrium	4	1.1	9	7.3	24	7.1	7	5	181	38.9	**3**	**1.7**
Endometrial Carcinoma	1	0.3	7	5.8	0	0	1	0.7	3	0.64	**2**	**1.1**
Oestrogen related bleeding	0	0	0	0	0	0	0	0	0	0	**16**	**8.9**
Progesterone related bleeding	0	0	0	0	0	0	0	0	0	0	**17**	**9.4**
Chronic endometritis	10	2.6	8	6.5	0	0	0	0	6	1.28	**2**	**1.1**
Endometrial shedding	0	0	5	4.1	6	1.9	0	0	0	0	**5**	**2.8**
Menstrual phase	0	0	0	0	0	0	0	0	0	0	**1**	**0.5**
Leuteal phase defect	0	0	0	0	2	0.59	0	0	0	0	**10**	**5.5**
Irregular ripening	0	0	0	0	4	1.2	0	0	0	0	**1**	**0.5**
Psudodecidual reaction	0	0	0	0	0	0	0	0	0	0	**3**	**1.7**
Aria stella reaction	0	0	0	0	0	0	0	0	0	0	**6**	**3.3**
Other	40	10.5	11	9	0	0	9	6.4	14	3	**0**	**0**
Total	380	100	122	100	195	58.2	140	100	466	100	**180**	**100**

Table 12: Comparative study of distribution of causes according to PALM-COEIN

Diagnosis	Qureshi &Yususf [21]		Gouri [19]		Mishra [20]		**Present study**	
	NO	%	NO	%	NO	%	**NO**	**%**
Polyp	30	3	6	2	7	3	**3**	**1.7%**
Adenomyosis	150	15	38	12.7	9	3.9	**11**	**6.1%**
Leiomyoma	250	25	74	24.7	97	41.1	**44**	**24.4%**
Malignancy &hyperplasia	66	6.7	15	5	6	2.5	**24**	**13.3%**
Coagulopathy	3	0.3	9	3	0	0	**0**	**0%**
Ovulatory dysfunction	236	24	81	27	88	37.2	**47**	**26.1 %**
Endometrial	48	5	27	9	29	12.2	**42**	**23.3%**
Iatrogenic	53	6	24	8	0	0	**2**	**1.1%**
Not yet classified	155	15	19	6.3	0	0	**7**	**3.9%**
Mixed category	0	0	7	2.3	0	0	**0**	**0**
Total	991	100	293	100	236	100	**180**	**100%**

management of AUB.

- In adolescent and reproductive age group patients, special attention must be focussed on pregnancy related conditions causing abnormal uterine bleeding.
- In present study, Proliferative phase was the most common histopathological finding Followed by secretory phase and simple hyperplasia without atypia and the least Commonly seen was irregular ripening.
- The present study primarily focus on categorizing the patient of AUB according to PALM-COEIN classification so that planning, investigation, and treatment will be easier in a proper way.
- The most common organic cause of AUB is Leiomyoma in 41-50 age group.
- Among the non organic causes ovulatory dysfunction is commonly observed in the late reproductive and perimenopausal women.
- The cause of bleeding in peri & post menopausal age group should be thoroughly Investigated as large incidence of malignancies are found in this age group. Endometrial hyperplasia accounted for 53 % cases and adenocarcinoma for 35 % cases.
- Accurate diagnosis of the causative factor of abnormal uterine bleeding in any age group is of importance so that appropriate management can be initiated. Therefore histological characteristics of endometrial samples as assessed by light microscopy remains the gold Standard for clinical diagnosis of endometrial pathology.

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