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Original Research Article

Clinico-Histopathological Study of Endometrium in Dysfunctional Uterine Bleeding : A Study of 950 Endometrial Biopsies

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Abstract

Background: Dysfunctional uterine bleeding is a form of abnormal uterine bleeding in the absence of organic disease of the genital tract. It is present with considerable morbidity and affects the patient's personal, family and social life. *Objective*: The aim of the study was to analyze the histopathological patterns of endometrium in patients presenting with DUB and also to correlate histopathological patterns of DUB with clinical presentation, age, parity and bleeding patterns in women clinically diagnosed as DUB. *Material and Methods:* In this study a total number of 950 endometrial biopsies were included from patients with dysfunctional uterine bleeding submitted to the department of Pathology, GMCH, Udaipur from July 2014 to October 2016 and clinical history of the patients was taken. The endometrial samples included biopsies and hysterectomy specimens which were fixed in 10% formalin for 12-24 hours and the entire tissue was taken for routine processing. Slides were examined and histopathological diagnosis was made. *Results:* The age of the patients in the present study ranged from 20-56 years. Maximum number of cases were seen in age group 41-50 years (38.7%). Menorrhagia was the most commonest presenting symptom accounting for 55.4% of cases followed by menometrorrhagia (16.7%) and the least being oligomenorrhoea (4.9%). The incidence of DUB was found to be highest in multipara (72.4%) followed by 13.9% in grandmultipara and least in nullipara (4.2%). Maximum number of patients presented with symptoms for a duration of 1-6 months accounting for 56%. Proliferative endometrium (59.2%) was the dominant histopathological finding in DUB patients followed by secretory endometrium (22.2%). Among 950 patients, endometrial hyperplasia was seen in 41 patients (4.3%) and endometrial carcinoma in 7 patients only (0.7%). *Conclusion:* The present study revealed that proliferative and secretory endometrium are the most common endometrial histopathological patterns in endometrial samples obtained for dysfunctional uterine bleeding in our region. Histopathological evaluation of endometrium helps to exclude the local causes and establishes the diagnosis of DUB, its types, clinical correlation to histopathological findings and finally helps to determine the mode of management.

Keywords: Dysfunctional uterine bleeding; Endometrium; histopathological pattern.

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Introduction

The female genital tract is hormone responsive system to a degree unmatched by any other system in the body. The gross configuration of uterus changes dramatically throughout the life.

Dysfunctional uterine bleeding (DUB) is the clinical term used to describe abnormal uterine bleeding which is not due to any identifiable disease, in women of child bearing age [1].

DUB is very common and perplexing conditions for which patients visit gynecological outpatient department. It is the diagnosis of exclusion made when there is no recognizable medical cause. It is found in 9-30% of women in reproductive age. The prevalence increases with age, peaking just prior to menopause. As most cases are related with anovulatory menstrual cycles, perimenopausal women and adolescent are the most vulnerable group. About 20% of affected individuals occur in adolescent age group and 50% are found between 40-50 years [2]. Contrary to this, the revised concept indicates increased incidence of DUB in the reproductive age group.

With medical advancements combined with increasing awareness about gynecological problems, women have gained access to most of the diagnostic and therapeutic modalities.

The endometrial biopsy is the method of choice to diagnose dysfunctional uterine bleeding because it has many advantages over other diagnostic modalities. The hormonal assay is disadvantageous in that, it is very expensive, needs to be invariably correlated with the histo-morphological study of endometrial biopsy and then the laboratories with hormonal assay are not available in rural areas. Besides this, endometrial biopsy has the additional advantage of having the ability to detect even the non-hormonal conditions resulting in DUB.

Ultrasonography as an adjuvant diagnostic tool has limited value in evaluation of dysfunctional uterine bleeding, except in cases of endometrial atrophy and hyperplasia. Other investigations like hysteroscopy and hysterosalpingography are mainly helpful in diagnosing uterine organic pathology [3].

In comparison, endometrial curettage is the most simple, cost-effective, reliable and accurate office procedure. The only disadvantage of endometrial biopsy is that, it is an invasive procedure [4].

Aims & Objectives

1. To study the histopathological features of endometrium in DUB.
2. To correlate histopathological pattern of DUB with clinical presentation, age, parity and bleeding pattern in women clinically diagnosed as DUB.
3. To study various factors like socioeconomical conditions, parity, any previous history of hormonal treatment, any relation between benign and/or malignant tumor of reproductive system of the patient.

Results and Observations

The age of the patients in the present study was from from 20-56 years. Mean age of the study was 37.62 ± 8.42 years. Maximum number of cases were found in the age groups between 41-50 years (38.7%) while least number of cases were found in the age group of >50 years (0.9%).

The parity ranged from 0-7 in the present study. The incidence of DUB was maximum in multipara (72.4%) followed by 13.9% in grandmultipara and least in nullipara (4.2%).

Menorrhagia was the most common presenting symptom accounting for 55.4% of cases followed by menometrorrhagia (16.7%) and the least being oligomenorrhoea (4.9%).

Proliferative endometrium (59.2%) was the dominant histopathological finding in DUB patients followed by secretory endometrium (22.2%). Among 950 patients, endometrial hyperplasia was seen in 41 patients (4.3%) and endometrial carcinoma in 7 patients only (0.7%).

Most number of patients presented with symptoms for a period of 1-6 months amounting for 56% of the cases while only 3.6% of cases presented with symptoms duration of < 1 week.

There were 574 patients belonging to the reproductive age group. Proliferative endometrium was the dominant histopathological finding in this age group accounting for 58% patients followed by 28.1% of secretory phase, 6.6% of endometrial polyp, 4% of cystic dilatation of glands, 3.1% of endometrial hyperplasia and one patient with endometrial carcinoma accounting for 0.2%.

There were 368 patients belonging to the perimenopausal age group. Proliferative phase was the dominant histopathological finding in this age group accounting for 60.6% followed by 13.6%

of secretory phase, 9.8% of endometrial polyp, 8.1% of cystic dilatation of glands, 6.3% of endometrial hyperplasia. Maximum 6 patients of endometrial carcinoma were seen in perimenopausal age group.

Only 8 patients were found in the postmenopausal age group. Out of them 6 cases (75%) were having proliferative endometrium and 2 cases had endometrial polyp.

Proliferative endometrium was the most common diagnosis in all the age groups. Endometrial hyperplasia and carcinoma were mostly found in the perimenopausal age group of patients as compared to the reproductive age group.

Table 1: Study of histopathological findings in correlation with Menorrhagia

Histopathological findings	Number of Patients	Percentage
Proliferative Endometrium	313	59.6
Secretory Endometrium	119	22.6
Endometrial Hyperplasia	20	3.8
Cystic dilatation of Glands	27	5.1
Endometrial polyp	42	8
Endometrial Carcinoma	5	0.9
Total	526	100

Proliferative phase (59.6%) of endometrium was the most common histopathological finding in the patients presented with menorrhagia followed by secretory phase (22.6%) of endometrium, 8% had endometrial polyp, 5.1% had cystic dilatation of glands, 3.8% had endometrial hyperplasia while 5 patients (0.9%) had endometrial adenocarcinoma (Table 1).

Table 2: Study of histopathological findings in correlation with Menometrorrhagia

Histopathological findings	Number of Patients	Percentage
Proliferative Endometrium	93	58.5
Secretory Endometrium	34	21.4
Endometrial Hyperplasia	8	5
Cystic dilatation of Glands	11	6.9
Endometrial polyp	12	7.6
Endometrial Carcinoma	1	0.6
Total	159	100

Out of 159 patients who presented with menometrorrhagia, proliferative phase of endometrium (58.5%) was the most common histopathological finding followed by secretory endometrium (21.4%). 12 patients (7.6%) had endometrial polyp while 6.9% had cystic dilatation of glands (Table 2).

Table 3: Study of histopathological findings in correlation with Metrorrhagia

Histopathological findings	Number of Patients	Percentage
Proliferative Endometrium	60	58.8
Secretory Endometrium	20	19.6
Endometrial Hyperplasia	6	5.9
Cystic dilatation of Glands	4	3.9
Endometrial polyp	12	11.8
Endometrial Carcinoma	0	0
Total	102	100

Proliferative phase (58.8%) of endometrium followed by secretory phase (19.6%) were the common histopathological findings in patients with Metrorrhagia (Table 3).

Table 4: Study of histopathological findings in correlation with Polymenorrhoea

Histopathological findings	Number of Patients	Percentage
Proliferative Endometrium	66	56.4
Secretory Endometrium	31	26.5
Endometrial Hyperplasia	4	3.4
Cystic dilatation of Glands	9	7.7
Endometrial polyp	6	5.1
Endometrial Carcinoma	1	0.9
Total	117	100

Out of 117 patients secretory endometrium, polymenorrhea, proliferative were the most common patterns seen. 4 (3.4%) cases found to have endometrial hyperplasia with this presentation (Table 4).

Table 5: Study of histopathological findings in correlation with Oligomenorrhoea

Histopathological findings	Number of Patients	Percentage
Proliferative Endometrium	29	63
Secretory Endometrium	8	17.4
Endometrial Hyperplasia	3	6.5
Cystic dilatation of Glands	2	4.4
Endometrial polyp	4	8.7
Endometrial Carcinoma	0	0
Total	46	100

Least number of cases presented with oligomenorrhoea. Similar to others they also had common findings of proliferative and secretory endometrium (Table 5).

Discussion

Dysfunctional uterine bleeding continues to be one of the most frequently encountered and significant problem in gynaecological practice.

It may occur at any age from puberty to menopause and it may occur with any type of endometrium. Its etiology and management vary greatly in different age groups. Therefore, it is important to understand etiopathology in different age groups and effect of parity [5].

DUB may be ovulatory or anovulatory. A history of excessive bleeding with regular menstrual cycles is usually associated with ovulation. An anovulatory pattern of bleeding is associated with intermenstrual erratic bleeding, seen typically at puberty or in women in mid 30s onwards [6].

The highest incidence of DUB in the study was found in 41-50 years age group amounting for 38.7% of cases in the present study which is in concordance with the Preeti S *et al.* (2016)[7] and Jagdale *et al.* (2015) [12], while Mahapatra *et al.* (2015)[10], Patil *et al.* (2013)[5] and Malukani *et al.* (2013)[11] show predominance of DUB patients in 31-40 yrs age group. In the study by Puneet K *et al.* (2016) [8], DUB was found predominantly in the 21-30 years age group possibly because of inclusion of infertility cases in the study (Table 6).

An increased number of cases in above age group can be due to the fact that as menopause approaches, the number of ovarian follicles decreases and there is an increased resistance to gonadotrophic stimulation, resulting in low level of estrogen, which cannot maintain the normal endometrial growth [13]. Less number of patients were seen in the higher age groups due to either earlier evaluation or detection as well as management of the disease.

As endometrium is hormonally active tissue it constantly undergoes changes throughout the reproductive life; therefore is vulnerable for various types of pathological lesions [14].

Most of the patients included in our study were Multipara (72.4%) which is similar to previous studies, as observed by Lotha *et al.* (64.9%)[15], Babbar *et al.* (50.4%) [14], Doddamani *et al.* (60%) [16] and Patil *et al.* (71.6%) [5]. Occurrence of dysfunctional uterine bleeding has increased and less number of cases are seen in the grand multipara age group (Table 7).

The lowest occurrence is seen in nulliparous women in the present study which is also in line with the result of other studies.

Table 6: Comparison of age incidence in various Age Groups:

Studies	No. of Cases	≤ 20 yrs	21-30 yrs	31-40 yrs	41-50 yrs	≥ 50 yrs
Preeti S *et al.* (2016)[7]	212	1 (0.5%)	20 (9.5%)	69 (32.5%)	70 (33%)	52 (24.5%)
Puneet K *et al.* (2016)[8]	214	0	76 (36%)	59 (27%)	53 (25%)	26 (12%)
Jagdale *et al.* (2015)[9]	100	3 (3%)	28 (28%)	27 (27%)	31 (31%)	11 (11%)
Mahapatra *et al.* (2015)[10]	140	0	22 (15.7%)	64 (45.7%)	53 (37.9%)	1 (0.7%)
Patil *et al.* (2013)[5]	190	7 (3.7%)	39 (20.5%)	86 (45.3%)	49 (25.8%)	9 (4.7%)
Malukani *et al.* (2013)[11]	400	2 (0.5%)	64 (16%)	192 (48%)	124 (31%)	18 (4.5%)
Present study (2016)	950	9 (0.9%)	238 (25.1%)	327 (34.4%)	368 (38.7%)	8 (0.9%)

Table 7: Correlation of Parity with DUB in Various Studies

Parity	No. of Cases	Nullipara	Primipara	Multipara (2-4)	Grand multi para (≥ 5)
Lotha *et al.* (2016) [15]	148	9 (6.1%)	16 (10.8%)	96 (64.9%)	27 (18.2%)
Babbar K *et al.* (2015) [14]	127	4 (3.1%)	8 (6.3%)	64 (50.4%)	51 (40.2%)
Doddamani *et al.* (2014) [16]	85	5 (5.9%)	7 (8.2%)	51 (60%)	22 (25.9%)
Patil *et al.* (2013) [5]	190	9 (4.7%)	18 (9.5%)	136 (71.6%)	27 (14.2%)
Present study (2016)	950	40 (4.2%)	90 (9.5%)	688 (72.4%)	132 (13.9%)

The present study showed menorrhagia as the most common menstrual complaint in women presenting with DUB accounting for 55.4% of cases followed by menometrorrhagia in 16.7% cases which was less, compared to 76.5% & 73.2% cases of menorrhagia mentioned by Malukani *et al.* (2013)[11] & Patil *et al.* (2013)[5] respectively but comparable to other studies (Table 8).

The occurrence of menometrorrhagia was more common as compared to metrorrhagia, as a presenting complaint in the present study could be due to the fact that majority of our patients with DUB had a proliferative endometrium, implying anovulatory cycles which show progressive rise of oestrogen to comparatively higher levels, which is then followed by a sudden fall in oestrogen due to feedback inhibition of pituitary or of FSH secretion and bleeding results.

In our study, metrorrhagia accounts for 10.7% of cases, which is in concordance with the study done by Malukani *et al.* (2013)[11] but less as compare to studies done by Mahapatra *et al.* (2015)[10] and Doddamani *et al.* (2014)[16].

In our study oligomenorrhoea was seen in 4.9% of cases which is in concordance with the study done by Mahmoud *et al.* (8.8%)[18].

Polymenorrhoea was seen in 12.3% cases in our study which is similar to study done by Malukani *et al.* (2013)[11] & Mahapatra *et al.* (2015)[10] while other studies show a comparatively lower incidence of polymenorrhoea.

In our study of 950 DUB patients, proliferative endometrium was the most common pathological finding seen in 562 (59.2%) cases which is comparable to studies done by Mahapatra *et al.* (45.7%)[10],

Table 8: Comparative study of types of Bleeding and DUB

Studies	No. of Cases	Menorrhagia	Metrorr hagia	Menometrorrhagia	Oligomenorrhoea	Polymenorrhoea
Mahapatra *et al.* (2015) [10]	140	60 (48.6%)	32 (22.9%)	-	-	14 (10%)
Katuwal *et al.* (2014) [17]	120	50 (41.6%)	7 (5.8%)	47 (39.2%)	-	4 (3.3%)
Mahmoud *et al.* (2014) [18]	525	224 (42.7%)	22 (4.2%)	99 (18.9%)	46 (8.8%)	8 (1.5%)
Doddamani *et al.* (2014) [16]	85	39 (45.8%)	24 (28.2%)	-	-	-
Patil *et al.* (2013) [5]	190	139 (73.2%)	16 (8.4%)	9 (4.7%)	-	12 (6.3%)
Malukani *et al.* (2013) [11]	400	306 (76.5%)	54 (13.5%)	-	-	32 (13.5%)
Present study (2016)	950	526 (55.4%)	102 (10.7%)	159 (16.7%)	46 (4.9%)	117 (12.3%)

Table 9: Incidence of different histopathological patterns of endometrium in Dysfunctional uterine Bleeding

Phases Studies	No. of Cases	Prolifer ative	Secret ory	Endo Hyper Plasia	Cystic dilatn Glands	Endo Polyp	Endo Ca
Patil *et al.* (2013) [5]	190	42 (22.1%)	37 (19.5%)	76 (40%)	62 (32.6%)		2 (1.1%)
Doddamani *et al.* (2014) [16]	85	38 (44.7%)	20 (23.5%)	8 (9.4%)			
Mahapatra *et al.* (2015) [10]	140	64 (45.7%)	42 (30%)	17 (12.1%)		5 (3.6%)	1 (0.7%)
Jagdale Kunda *et al.* (2015) [9]	100	29 (29%)	15 (15%)	22 (22%)		1 (1%)	4 (4%)
Lotha *et al.* (2016)[15]	148	61 (41.4%)	8 (5.4%)	72 (48.6%)			2 (1.3%)
Sudhamani *et al.* (2016) [19]	100	40 (48.8%)	14 (17.1%)	17 (20.7%)		3 (3.7%)	6 (7.3%)
Preeti S *et al.* (2016) [7]	212	62 (29.3%)	31 (14.6%)	41 (19.3%)	3 (1.4%)	10 (4.7%)	2 (0.9%)
Present Study (2016)	950	562 (59.2%)	211 (22.2%)	41 (4.3%)	53 (5.6%)	76 (8%)	7 (0.7%)

Doddamani *et al.* (44.7%) [16], Sudhamani *et al.* (48.8%) [19], Jagdale Kunda *et al.* (29%) [12] and Preeti S *et al.* (29.3%) [7]. Endometrial hyperplasia was the predominant cause of DUB in the study by Lotha *et al.* (48.6%) [15] because of inclusion of only perimenopausal women in the study. In the study by Patil *et al.* (2013) [5], predominant cause of DUB was endometrial hyperplasia (40%), but justifiable explanation could not be found.

Secretory endometrium was the second most commonest pattern observed in the study and seen in 211 (22.2%) patients which is comparable to studies by Doddamani *et al.* (23.5%) [16] & Mahapatra *et al.* (30%)[10]. The bleeding found in the secretory phase was due to ovulatory dysfunctional uterine bleeding and is characterized by regular episodes of heavy menstrual loss. The main defect is in the control of processes regulating the volume of blood loss during menstrual breakdown of endometrium. The ovulatory bleeding is explained by inability of the corpus luteum to synthesize adequate amount of progesterone.

Endometrial polyps had been reported in 8% of our patients. In studies by Mahapatra *et al.* (2015) [10], Sudhamani *et al.* (2016) [19] & Preeti singh *et al.* (2016)[7], endometrial polyps were seen in 3.6%, 3.7% & 4.7% respectively which is concordance to the findings in the present study. The occurrence of benign endometrial polyps in the study is high in the perimenopausal and postmenopausal age groups of females. In the study by Patil *et al.* (2013) [5], endometrial polyps were not found because maximum number of patients were in 31-40 years age group. Low incidence of the endometrial polyps in the young age group can be due to a possible spontaneous regression mechanism, which is the characteristic of the cycling endometrium in reproductive age group.

If the gynaecologist knows of the presence of a polyp, it is removed intact, and the diagnosis is easy. If however, the presence of a polyp is not being suspected, its fragments are usually received admixed with the rest of the endometrium in the biopsy. In such a situation, clues to the diagnosis are the polypoidal shape, the fibrous stroma with thick walled vessels and different glandular architecture (focal dilatation and crowding).

The main difference between endometrial polyp and normal endometrium in receptor expression, apoptosis regulation and cell proliferation. These differences together with non random chromosomal aberrations and monoclonality suggests that polyp provides a suitable microenvironment for the development of malignancy [20].

Cystic dilatation of glands was seen in 53 (5.6%) cases in our study. Only two studies, Patil *et al.* (2013) [5] & Preeti S *et al.* (2016) [7], showed cystic dilatation of glands in 32.6% & 1.4% cases respectively.

Hyperplastic endometrium was observed in 41 (4.3%) cases in the study which is less than previous studies. Patil *et al.* [5] & Lotha *et al.* [15] found endometrial hyperplasia as the most common histopathological finding in their studies which was 40% and 48.6% respectively. Literature show a variable incidence of endometrial hyperplasia, which varies from 6.66% through 10.5% to 15% [21,22,23]. The variation is due to socioeconomic status and occurrence of risk factors like sedentary life style, obesity, diabetes, and early diagnosis.

Simple hyperplasia is the term used where the glands are cystically dilated with occasional out perching and are surrounded by abundant stroma. Atypical hyperplasia seen in 1 case only, this is characterized by increase in the number of glands lined by cells displaying cytological atypia. The glands have irregular outlines with back to back arrangement showing structural complexities.

The more atypical the hyperplasia, the greater the chance that the patient will develop carcinoma subsequently. Thus one has to specify the degree of architectural and cytological atypia that are present. In cases of severe degree of atypia, hysterectomy should be suggested, because at times carcinoma is associated with atypical hyperplasia [24].

The overall risk of progression of hyperplasia to cancer is 5-10% [25]. Simple (SH), complex (CH), simple atypical (SAH), and complex atypical hyperplasia (CAH) have different progression risks of 1%, 3%, 8%, and 29% respectively, to carcinoma [25]. The different types of hyperplasia observed in this study were SH-40 (4.2%), SAH-1 (0.1%).

In the present study, only 7 cases (0.7%) were diagnosed as endometrial carcinoma out of which 6 cases were endometrial adenocarcinoma and 1 case of papillary serous carcinoma. Similar low incidences have been obtained in studies by Patil *et al.* (2013) [5], Mahapatra *et al.* (2015) [10], Lotha *et al.* (2017) [15] and Preeti S *et al.* (2016) [7] which show incidence of endometrial carcinoma in 1.1%, 0.7%, 1.3% & 0.9% of cases respectively. Jagdale kunda *et al.* (2015) [12] & Sudhamani *et al.* (2016) [19] show comparatively higher incidence of endometrial carcinoma in 4% & 7.3% cases respectively. The endometrioid subtype of carcinoma is the most common form encountered.

The common etiological factors include exogenous hormones (estrogens) [26], obesity [27] and decreased physical exercise [28]. Early age at first pregnancy confers a protective effect [29]. Nulliparity has been implicated as a risk factor for endometrial carcinoma but none of our nullipara presented with endometrial carcinoma in contrary to studies done by K Sajitha *et al.* [30] & Baral R *et al.* [31] where nulliparity accounted for 28.6% & 21% cases of endometrial carcinoma respectively.

In our study of premenopausal age group, maximum number of patients were seen in proliferative phase (58%) followed by secretory phase (28.1%) which is similar to study by Jagdale kunda *et al.* (27.6% f/b 19%) [34]. In contrary to this, Bandita Das *et al.* (2016) [33] & Sharma S *et al.* (2014) [32] show more cases in secretory phase as compared to proliferative phase (39.2% vs 19.0% & 11.1% vs 8.3%) respectively. In our study endometrial hyperplasia was seen in only 3.1% patients which is comparatively very less to studies done by Bandita Das *et al.* (8.9%) [33] and Jagdale kunda *et al.* (17.2%) [9].

In our study of perimenopausal age group, proliferative endometrium f/b secretory endometrium were the common histopathological findings similar to studies done by Sharma S *et al.* [32]. Endometrial hyperplasia was seen in 6.3% of cases in our study while other studies by Jagdale Kunda *et al.* [9], Kavita Babbar *et al.* [35] & Bandita Das *et al.* [33] showed higher incidence.

The endometrial hyperplasia is commonly seen in perimenopausal age due to failure of ovulation. Persistent unriped follicles expose the endometrium to an abnormally excessive and prolonged estrogenic action. The results are in concordance with the findings regarding the age distribution for cases with endometrial hyperplasia as majority of the cases in the study are in the age group of 41-50 years, therefore the importance of histopathological evaluation of the endometrium in women of the age group between cannot between 41-50 years cannot be underestimated as dysfunctional uterine bleeding in these women can be due to underlying hyperplasia. Endometrial hyperplasia is a precursor of endometrial cancer. The occurence of endometrial hyperplasia without and with atypia peaks in early 50s and early 60s respectively [36,37].

Table 10: Comparison of histopathological findings in premenopausal age group

Phases Studies	Prolifer ative	Secret ory	Endo Hyper	Cystic dilt Glands	Endo Polyp	Endo Ca
Sharma S *et al.* (n=36) [32]	3 (8.3%)	4 (11.1%)	-	-	-	-
Jagdale Kunda *et al.* (n=58) [9]	16 (27.6%)	11 (19.0%)	10 (17.2%)	-	-	-
Bandita Das *et al.* (n=79) [33]	15 (19.0%)	31 (39.2%)	7 (8.9%)	-	2 (2.5%)	-
Present Study (n=574)	333 (58%)	161 (28.1%)	18 (3.1%)	23 (4%)	38 (6.6%)	1 (0.2%)

Table 11: Comparison of histopathological findings in perimenopausal age group

Phases Studies	Prolifer ative	Secret ory	Endo Hyper	Cystic dilt Glands	Endo Polyp	Endo Ca
Sharma S *et al.* (n=59) [32]	33 (55.9%)	8 (13.6%)	-	-	-	-
Jagdale Kunda *et al.* (n=31) [9]	8 (25.8%)	3 (9.7%)	10 (32.3%)	-	-	2 (6.5%)
Kavita Babbar *et al.* (n=95) [14]	33 (34.7%)	7 (7.4%)	19 (19.8%)	-	6 (6.3%)	1 (1%)
Bandita Das *et al.* (n=112) [33]	22 (19.6%)	28 (25%)	16 (14.3%)	-	9 (8.0%)	3 (2.7%)
Present Study (n=368)	223 (60.6%)	50 (13.6%)	23 (6.3%)	30 (8.1%)	36 (9.8%)	6 (1.6%)

Table 12: Comparison of histopathological findings in postmenopausal age group:

Phases Studies	Proliferative	Secretory	Endo Hyper	Cystic dilt Glands	Endo Polyp	Endo Ca
Sharma S *et al.* (n=5) [32]	-	-	1 (20%)	-	1 (20%)	1 (20%)
Jagdale kunda *et al.* (n=11) [9]	5 (45.5%)	1 (9.1%)	2 (18.2%)	-	1 (9.1%)	2 (18.2%)
Bandita Das *et al.* (n=39) [33]	3 (7.7%)	7 (17.9%)	5 (12.8%)	-	1 (2.6%)	5 (12.8%)
Kavita Babbar *et al.* (n=32) [14]	4 (12.6%)	3 (9.4%)	9 (28.2%)	-	2 (6.2%)	2 (6.2%)
Present Study (n=8)	6 (75%)	-	-	-	2 (25%)	-

As women near menopause, cycles shorten and become intermittently anovulatory as a result of decline in the number of ovarian follicles and fluctuations in the estradiol level leading to various patterns of abnormal bleeding. In our study of postmenopausal age group, 75% were in proliferative phase & 25% endometrial polyps detected. Other studies showed higher incidence of endometrial hyperplasia and carcinoma in this age group.

Conclusion

Excessive menstrual blood loss is the primary reason why women seek medical help and this causes large demands in health resources. Dysfunctional uterine bleeding occurs secondary to a wide variety of functional and structural abnormalities therefore thorough evaluation is warranted especially in the women of perimenopausal age group. Clinical information regarding age, menstrual history, parity, and imaging studies are important prerequisites in the interpretation of endometrial samples. Menorrhagia is a common symptom and the most likely etiology relates to the patient's age.

Histopathological examination of the endometrium showed that whatever may be the pathology, proliferative endometrium is the most common finding. Histopathological evaluation of endometrium helps to exclude the local causes and establishes the diagnosis of DUB, its types, clinical correlation to histopathological findings and finally helps to determine the mode of management. Hence, the need to diagnose the cause of bleeding is to identify the precursor lesions namely hyperplasia especially with atypia and thereby prevent carcinomas of the endometrium and when diagnosed early to treat them effectively.

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