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Original Research Article

Clinico-pathological study of endometrium in Dysfunctional Uterine Bleeding (DUB): An experience with D&C specimens

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Abstract: Dysfunctional Uterine Bleeding (DUB) is one of the most common gynaecological conditions presenting with a variety of patterns of bleeding per vagina. It is designated to be the most common cause of hysterectomy by many studies. This study was undertaken to study the changes in endometrium in patients diagnosed as DUB and to correlate their socio-demographic and clinical data with the histopathological findings.The study included 150 patients selected by Random sampling technique who were diagnosed to have Dysfunctional uterine bleeding between the period of August 2013 to April 2015 by the Department of Pathology, SIMS & RH, and Tumkur. The patients were initially subjected to routine physical examination and haematological investigations followed by Dilatation and Curettage (D&C). The D&C samples were received by the Dept. of Pathology, SIMS & RH, stained using H&E, examined and interpreted. The histopathological findings in the received endometrial samples were correlated with parameters such as age, parity, haemoglobin concentration and clinical presentation. Special stains such as PAS, Reticulin and Vangiesson's stain were done when ever indicated. Statistical analysis was done using MS excel.The patients belonged to various age group with a maximum incidence between 36-40 years (24.7%) and 41-45 years (25.3%). DUB was commonly seen in multiparous women. Menorrhagia was the most common pattern of bleeding (53.3%) and was most commonly encountered in the age group of 31-40 years. 65.3% of patients were moderately anaemic while 0.7% had severe anemia. Most of the D&C specimens showed hyper plastic endometrium (42%) followed by normal endometrium in 40% specimens. An increased incidence of menorrhagia was noted in patients who have undergone tubal ligation (n=90, 60%). Organic lesions were found in 6 patients.Clinical findings, clinical diagnosis and histopathological findings correlated well in 96% of the patients. Considering all the observations, DUB is caused due to the proliferative hormonal influence on the endometrium in the perimenopausal women.
Keywords: Dysfunctional uterine bleeding, dilatation and curretage, histopathology, endometrium, cystoglandular hyperplasia.

INTRODUCTION

Bleeding per vagina is a common symptom in gynecology, being associated with a variety of pathological conditions of female genital tract. Many times evaluation of a case of abnormal uterine bleeding is a problem for gynecologists, and sometimes ends up with hysterectomy.

When there is no obvious cause for abnormal bleeding, gynecologists commonly use the term 'Dysfunctional Uterine Bleeding'[1]. DUB is one of the most frequently encountered conditions, among women of reproductive age. The term is used so common in a gynecologist's day-to-day practice that it is applied for all forms of abnormal uterine bleeding[2].

Even though DUB by definition will be non-organic in origin, and is primarily associated with organic ovarian dysfunction, associated or unassociated organic pathology can also co-exist[3]. The pathology of endometrium in DUB has been studied by many authors, but the dilemma has not been resolved even after continuous strenuous efforts.

In present study, definition of Clark.B.Smith[4], any type of bleeding unassociated

with tumor, inflammation or pregnancy, after careful clinical examination (both general and local) is regarded as DUB. The study was undertaken with the following aims and objectives.

AIMS AND OBJECTIVES

- To study the histopathological changes of the endometrium in dysfunctional uterine bleeding.
- To correlate the histopathological changes observed in endometrium with age, parity and bleeding pattern in dysfunctional uterine bleeding.
- To evaluate incidence of incidental organic lesions in dysfunctional uterine bleeding.

MATERIALS AND METHODS

The material for this study included 150 patients (n=150) who were clinically diagnosed as Dysfunctional Uterine Bleeding (DUB) as defined by Clark B Smith[4], during the period of August 2013 to April 2015 at Shridevi Institute of Medical Sciences and Research Hospital, Tumkur, Karnataka, India. All these patients were included under random sampling technique and majority of them are of reproductive age group. In all 150 patients, detailed clinical history was taken and thorough clinical examination inclusive of general, systemic and gynecological examination was done. All these patients were subjected to routine investigations like hemoglobin level, urine examination for albumin, sugar, microscopy, blood for total count, differential count, Erythrocyte sedimentation rate, bleeding time and clotting time as screening measures to rule out other blood dyscrasias. All these 150 patients (n=150) were diagnosed to have Dysfunctional Uterine Bleeding after ruling out other disorders by pelvic examination and investigations. These patients after thorough clinical assessment underwent Dilatation and Curettage (D&C) and the sample was received by the Department of Pathology, SIMS & RH for histopathological examination.

Endometrial curettage was done in majority of the patients prior to hysterectomy as a therapeutic and /or a diagnostic procedure. The objective was to exclude a surface endometrial lesion and at time served therapeutic purpose as well. Therapeutic curettage was done at the time of bleeding and a diagnostic curettage, premenstrually or on the 5^{th}- 10^{th} day of bleeding. D & C was performed by qualified, experienced Gynecologists under spinal anesthesia. The curettage specimen was received by the Department of Pathology, SIMS & RH for histopathological examination. The specimen was initially fixed in 10% aqueous formaldehyde for a period of 8- 12 hours, the tissue was processed for paraffin embedding and 3-5 cm sections were cut and routinely stained with Hematoxylin and Eosin stain. Histopathological appearances were studied under optical compound microscopes by qualified, trained and experienced pathologists. Whenever required, special stains like periodic acid Schiff (PAS), Vangieson's and Reticulin stains were performed to evaluate secretory activity and for demonstration of collagen and reticulin fibres. Parameters such as age, parity, type of bleeding, clinical findings, Hemoglobin levels and histopathological diagnosis were studied with a higher degree of significance. Statistical analysis was done using MS EXCEL application. The ethical clearance for the research was obtained from Institutional Ethical Committee, SIMS & RH.

RESULTS AND OBSERVATIONS

150 DUB patients were analysed for their relation to age, parity, type of bleeding, pattern of bleeding, clinical presentation, Hb levels, type of endometrium on Histopathology, and presence or absence of incidental organic lesions.

Table 1: Frequency of distribution of DUB among different age groups

Age in Years	No. of Cases	Percentage
16- 20	02	1.3
21- 25	10	6.7
26- 30	26	17.3
31- 35	18	12.0
36- 40	37	24.7
41- 45	38	25.3
46- 50	15	10.0
51- 55	Nil	0.0
56- 60	3	2.0
61- 65	1	0.7

The above table (table 1) shows age distribution of DUB. The youngest patient was 18 years old and the oldest was 62 years old. The maximum incidence of DUB was in the age group 41- 45 (n=38, 25.3%) followed by 30- 40 years (n=37, 24.7%). Minimum incidence was recorded in the age group of 16- 20 years and 61- 65 years.

Table 2: Relationship of DUB with parity

Parity	No. of Cases	Percentage
Nulliparous	02	1.3
1- 2	38	25.3
3- 4	78	52.0
5- 6	16	10.7
> 7	16	10.7

Out of 150 patients 2 were infertile (1.3%), parity 1-2, 38 patients, parity 3- 4, 78 patients, parity 5- 6, 16 patients and parity more than 7, 16 patients. Maximum incidence was seen with parity of 3- 4 (n=78, 52.0%). Minimum incidence was witnessed in nulliparity (n=2, 1.3%).

Table 3: Type of bleeding in DUB

Type of Bleeding	No. of Cases	Percentage
Menorrhagia	80	53.3
Polymenorrhoea	16	10.7
Polymenorrhagia	5	3.3
Metropathia hemorrhagica	12	8.0
Metrorrhagia	25	16.7
Menometrorrhagia	9	6.0
Oligomenorrhea	3	2.0

Menorrhagia was the most common type of abnormal bleeding it was seen in 80 patients (n=80, 53.3%), 25 patients (n=25, 16.7%) came with the complaint of metrorrhagia, 16 patients (n=16, 10.7%) with Polymenorrhoea, 12 patients (n=12, 8.0%) presented with metropathia hemorrhagica, 9 patients (n=9, 6%) with menometrorrhagia and 3 patients (n=3, 2.0%) presented with oligomenorrhea.

Table 4: Type of bleeding according to age

Age	Menorrhagia	Polymenorrhagia	Polymenorrhoea	Metropathia hemorrhagica	Metrorrhagia	Menometrorrhagia	Oligomenorrhea	Total
<20	1	-	-	-	1	-	-	2
21-25	4	1	-	-	3	-	2	10
25-30	16	-	2	-	3	4	1	26
31-35	12	-	3	-	1	2	-	18
36-40	18	2	6	4	7	-	-	37
41-45	19	2	4	4	7	2	-	38
46-50	8	-	1	2	3	1	-	15
51-55	-	-	-	-	-	-	-	-
56-60	2	-	-	1	-	-	-	3
61-65	-	-	-	1	-	-	-	1
TOTAL	**80**	**5**	**16**	**12**	**25**	**9**	**3**	**150**

The pattern of bleeding among the 150 patients varied with different age groups. In the age group of <20, one patient (n=1) presented with menorrhagia and another (n=1) presented with metrorrhagia. In the age group of 21-25 years, 4 patients (n=4) came with the complaint of menorrhagia, one patient (n=1) with polymenorrhagia, 3 patients (n=3) with menorrhagia and other two (n=2) with oligomenorrhea. In the age group of 26-30 years, 16 patients (n=16) came with the complaint of menorrhagia, two patients (n=2) with Polymenorrhoea, 3 patients (n=3) with metrorrhagia, 4 patients (n=4) with menometrorrhagia and other one (n=1) with oligomenorrhea. In the age group of 31-35 years, 12 patients (n=12) presented with menorrhagia, 3 patients (n=3) with Polymenorrhoea, one patient (n=1) with metrorrhagia and two patients (n=2) with menometrorrhagia. In the age group of 36-40 years, 18 patients (n=18) came with the complaint of menorrhagia, two patients (n=2) with polymenorrhagia, 6 patients (n=6) with Polymenorrhoea, 4 patients (n=4) with metropathia hemorrhagica, 7 patients (n=7) with metrorrhagia and two patients (n=2) with menometrorrhagia. In the age group of 46-50 years, 8 patients (n=8) came with complaints of menorrhagia, one patient (n=1) with polymenorrhoea, two patients (n=2) with metropathia hemorrhagica, 3 patients (n=3) with metrorrhagia and one patient (n=1) with menometrorrhagia. In age group of above 50 years, two

patients (n=2) came with complaint of menorrhagia and two patients (n=2) came with complaint of metropathia hemorrhagica. Among patients with all the age groups, most (eighty patients) common complaint was menorrhagia (n=80, 53.3%).

Table 5: Clinical findings in relation to DUB

Clinical Findings	No. of cases	Percentage
1. Size of uterus		
a) Normal size	132	88
b) Bigger than normal (upto 5 weeks)	18	12
2. Ovarian enlargement		
a) Normal	140	93.3
b) Cystic ovaries	10	6.7

General and pelvic examination was done for all 150 patients prior to dilatation and curettage under aseptic conditions. Size of the uterus was found to be normal in 132 patients (n=132, 88%), bigger than normal .i.e. upto 5 weeks in 18 patients (n=18, 12%). In 140 patients (n=140, 93.3%) adnexa was not palpable by bimanual palpation. In 10 patients (n=10, 6.7%) cystic ovary was felt on one side.

Table 6: Table showing Hemoglobin percentage in gram percentage

Hemoglobin level	No. of cases	Percentage
3.1-5	1	0.7%
5.1-7	10	6.7%
7.1-10	98	65.3%
Above 10	41	27.3%

Majority of the patients (n=109, 72.7%) had hemoglobin < 10 g/dl. About 41 patients (n=41, 27.3%) had hemoglobin level above 10 g/dl. Of the 109 patients who were anemic, 98 patients (n=98, 65.3%) can be grouped as moderately anemic, 10 patients (n=10, 6.7%) were severely anemic and one patient (n=1, 0.7%) had very severe anemia whose hemoglobin level was 4.4 g/dl.

Table 7: Increase incidence of menorrhagia after tubal ligation

Age	No. of tubectomised patients	Percentage
30-34	10	6.7%
35-40	48	32.0%
41-45	12	8.0%
46-50	12	8.0%
>50	8	5.3

Out of 150 DUB patients, only 90 patients (n=90, 60%) had undergone tubectomy. Patients previously sterilized by tubal ligation had come with complainrs of menorrhagia. Majority of the patients were seen in the age group of 35-40 years (n=48, 32.0%) and 0nly 8 patients (n=8, 5.3%) were seen above 50 years of age. Majority of them had luteal phase defects or anovulation.

Table 8: Endometrial pattern in 150 DUB patients

Endometrial pattern	TOTAL	Percentage
CGH	63	42.0
Proliferative endometrium	38	25.3
Secretory endometrium	22	14.7
Menstrual phase	11	7.2
Irregular shedding	9	6.0
Chronic non- specific endometritis	4	2.7
Decidual endometrium	1	0.7
Adenomatous hyperplasia	1	0.7
Granulomatous endometritis	1	0.7
TOTAL	**150**	**100**

Table 9: Endometrial pattern related to age group

Endometrial pattern	<20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	Total
CGH	2	2	8	6	19	16	8	-	1	1	**63**
Proliferative endometrium	-	1	7	7	7	11	4	-	1	-	**38**
Secretory endometrium	-	3	4	3	6	5	1	-	-	-	**22**
Menstrual phase	-	-	5	-	3	2	1	-	-	-	**11**
Irregular shedding	-	2	2	2	-	2	1	-	-	-	**9**
Chronic non-specific endometritis	-	-	-	-	1	2	-	-	1	-	**4**
Decidual endometrium	-	-	-	-	1	-	-	-	-	-	**1**
Adenomatous hyperplasia	-	1	-	-	-	-	-	-	-	-	**1**
Granulomatous endometritis	-	1	-	-	-	-	-	-	-	-	**1**
TOTAL	**2**	**10**	**26**	**18**	**37**	**38**	**15**	**-**	**3**	**1**	**150**

In the age group of < 20 years, only 2 patients showed cystoglandular hyperplasia. In the age group of 21-25 years, 2 patients showed CGH, 1 patient showed proliferative endometrium, 3 patients showed secretory phase and 2 patients showed irregular shedding. Adenomatous hyperplasia and granulomatous endometritis were seen in 1 patient each. In the age group of 26-30 years, 8 patients had CGH, 7 patients showed proliferative endometrium, 4 patients showed secretory endometrium, 5 patients showed menstrual phase and 2 patients showed irregular shedding. In the age group of 31-35 years, 6 patients showed CGH, 7 Patients showed proliferative endometrium, 3 patients showed secretory phase and 2 patients showed irregular shedding. In the age group f 36-40 years, 19 patients showed CGH, 7 patients had proliferative endometrium, 6 patients showed secretory phase, 3 patients showed menstrual phase, one patient showed chronic non-specific endometritis and one patient had decidual endometrium. In the age group between 41-45 years, 16 patients showed CGH, proliferative endometrium was seen in 11 patients, secretory phase in 5 patients, menstrual phase seen in 2 patients, irregular shedding was seen in 2 patients and chronic non- specific endometritis in 2 patients. In the age group of 46-50 years, 8 patients had CGH, 4 had proliferative endometrium, 0ne patient had secretory pattern, one patient had menstrual phase and another patient showed irregular shedding. No patients were seen in the age group of 51-55 years. Between 56-60 years, one patient showed CGH, one patient showed proliferative endometrium and non- specific endometritis was found in another patient. In the age group of 61-65 years, one patient showed CGH. Among all the age groups Cystoglandular Hyperplasia was the most common endometrial pattern seen in 63 patients (n=63, 42.0%), followed by proliferative endometrium in 38 patients (n=38, 25.3%), Secretory endometrium in 22 patients (n=22,14.7%), Menstrual phase in 4 patients (n=11, 7.2%), irregular shedding in 9 patients (n=9, 6.0%) and Chronic non- specific endometritis in 4 patients (n=4, 2.7%). Decidualised endometrium, adenomatous hyperplasia and chronic granulomatous endometritis were seen in one patient (n=1, 0.7%) each.

Table 10: Incidental organic lesions in DUB

Type of Lesion	No. of Cases	Percentage
Endometrial polyp	1	0.66
Chronic non- specific endometritis	4	2.66
Granulomatous endometritis (TB)	1	0.66

Of 150 patients with DUB few of them showed incidental organic lesions in endometrium. 4 patients (n=4, 2.66%) showed chronic non- specific endometritis. Endometrial polyposis and Granulomatous endometritis were seen in one patient (n=1, 0.66%) each.

Table 11: Endometrial histology in presence and absence of organic lesions

Type of endometrium	No. of cases	Organic lesions present	Organic lesions absent
CGH	63	-	63
Proliferative endometrium	38	4	34
Secretory endometrium	22	2	20

In CGH specimens (n=63, 42.0%) no organic lesions were found. In proliferative phase, 4 patients (n=4, 2.66%) showed organic lesions and 2 patients (n=2, 1.3%) showed had organic lesions in secretory endometrium.

Table 12: Correlation of bleeding pattern with endometrial pattern

Bleeding pattern	CGH	Proliferative	Secretory	Menstrual phase	Irregular shedding	Non-specific endometritis	Decidual endometrium	Adenomatous endometritis	Granulomatous endometritis	TOTAL
Menorrhagia	33	17	14	7	5	2	1	1	-	80
Polymenorrhagia	3	-	1	1	-	-	-	-	-	5
Polymenorrhoea	6	5	2	1	1	-	-	-	-	16
Metropathia hemorrhagica	6	5	-	-	1	-	-	-	-	12
Metrorrhagia	12	6	2	1	1	2	-	-	1	25
Menometrorrhagia	3	3	2	1	-	-	-	-	-	9
Oligomenorrhea	-	2	1	-	-	-	-	-	-	3
TOTAL	**63**	**38**	**22**	**11**	**9**	**4**	**1**	**1**	**1**	**150**

Bleeding pattern of clinical presentation correlates well with the histopathological finding. From the Table 12, it is emphasized that menorrhagia was the most common presentation (n=80, 53.3%) in the following patterns like CGH (n/N=33/63, 41.25%), Proliferative endometrium (n/N=17/38, 21.25%), Secretory endometrium (n/N=14/22, 17.5%), Menstrual phase (n/N=7/11, 8.75%) and irregular shedding (n/N=5/9, 6.25%).

Table 13: Bleeding pattern for CGH with relation to age

Bleeding pattern	<20	21-25	26-30	31-35	36-40	41-45	46-50	51-55	56-60	61-65	TOTAL
Menorrhagia	1	1	3	4	11	9	5	-	-	-	**34**
Polymenorrhagia	-	-	-	-	3	1	-	-	-	-	**4**
Polymenorrhoea	-	-	1	-	1	1	1	-	-	-	**4**
Metropathia hemorrhagica	-	-	-	-	1	2	-	-	1	1	**5**
Metrorrhagia	1	1	2	1	3	2	1	-	-	-	**11**
Menometrorrhagia	-	-	1	1	-	1	1	-	-	-	**4**
Oligomenorrhea	-	-	1	-	-	-	-	-	-	-	**1**
TOTAL	**2**	**2**	**8**	**6**	**19**	**16**	**8**	**-**	**1**	**1**	**63**

Table 14: Histopathological findings and endometrial patterns

Endometrial pattern	Glands					Stroma					
	Cystically dilated	Tubular	Tortuous	Atrophic	Stratification	Loose	Compact	Spiral	Decidual	Hemorrhagic	Inflammatory
CGH	57	58	-	1	8	-	58	-	-	1	-
Adenomatous hyperplasia	1	1	1	-	1	-	1	-	-	-	-
Proliferative	-	32	17	-	6	1	32	-	-	2	-
Secretory	1	1	18	-	1	17	-	8	3	2	-
Menstrual	-	-	-	1	-	2	-	-	1	10	10
Irregular shedding	-	-	-	-	-	1	7	1	-	1	-
Decidual	-	-	-	-	-	-	-	-	-	1	-
Non- specific endometritis	-	2	-	-	1	1	1	-	-	-	4
Granulomatous endometritis	-	-	1	-	1	-	-	-	-	-	1

Majority of the patients (n=63, 42.0%) seen in 150 DUB patients were CGH. In present study, out of 150 patients with DUB, 63 patients had CGH of which 1 patient (n=1, 0.7%) had adenomatous hyperplasia (complex type). One patient (n=1, 0.7%) with architectural atypia was seen and rest were simple CGH. Histopathologically, 58 patients (n=58, 38.7%), 57 patients (n=57, 38%), 8 patients (n=8, 5.3%) and one patient (n=1, 0.7%) had tubular pattern, cystic dilatation, stratification and atrophic change (cystic atrophy- retrogressive hyperplasia) respectively. 58 patients (n=58, 38.7%) had compact stroma.

DISCUSSION

Dysfunctional uterine bleeding is one of the most frequently encountered conditions in gynecological practice. DUB is found to be the most common cause among the patients undergoing Hysterectomy [5]. DUB may present at any age between puberty and menopause and may occur with any type of endometrium. Anovulation was most common at two extremes of menstrual life .i.e. menarche and menopause. Sutherland[6] Anasuya[7] and Gosh [8] reported the maximum incidence of 36.2%, 32.5% and 46% respectively in the 5th decade of life. But Wagh[9] and Mehrotra[10] found incidence highest in 21-30 years age group (30% and 48% respectively) which was supported by the findings of AVK Nirmala [11] (37.46%). Gautam *et al.;* [12] found the incidence to be highest in 15-20 years. In the present study, the maximum number of cases were recorded in the age group of 31-40 years (n=55, 36.7%).

According to Joshi *et al.;* [13] and Rosario *et al.;* [14] DUB was most commonly found in multiparous women (61.6% and 97.0% respectively). The findings of our study supports the studies mentioned above with 90.7% of DUB cases in multiparous women. High incidence in multiparous women is explained on the basis that repeated pregnancies deteriorate the health status of the patients and may result in anemia which itself is a cause of DUB. But Mehrotra *et al.;* [10] reports that parity has non-relation with DUB as 205 women in their study were multiparous. They have suggested that higher incidence in multipara can be explained on the basis of general clinical population which shows higher incidence of multipara. Our study reports menorrhagia as the commonest bleeding pattern with an incidence of 53.3% and maximum number of cases presented with menorrhagia were between the age group of 21-40 years (n=44). Our findings go along with the findings of Mehortra *et al.;* [10] who has reported 75.6% of cases in the age interval of 21-40 years. Metropathia hemorrhagica had a higher incidence between 41-50 years. Shaw[2] observed that metropathia hemorrhagica is most prevalent in women over the age of 40 years and occasionally in young girls under 20 years of age. This type of bleeding is due to hypertension secondary to anovulation.

Battacharji[15] has found 12.18% of the patients having haemoglobin levels between 3.1-7 g/dl while the present study reports only 7.4% of patients in this range. In the present study 65.3% patients had haemoglobin levels of 7.1-10 g/dl which is similar to the findings of Battacharji[15] Anemia co-exists with DUB, but it may be either cause or effect excessive bleeding. Iron deficiency anemia is important etiological factor in DUB. Melvin *et al.;* [16] suggested that tissue iron deficiency leads to inadequate contraction of spiral arterioles of endometrium due to deficiency of cytochrome oxidase. Thus it causes excessive bleeding. A high incidence of DUB at puberty, after child birth or abortion, commonly associated with iron deficiency indirectly supports the above findings.

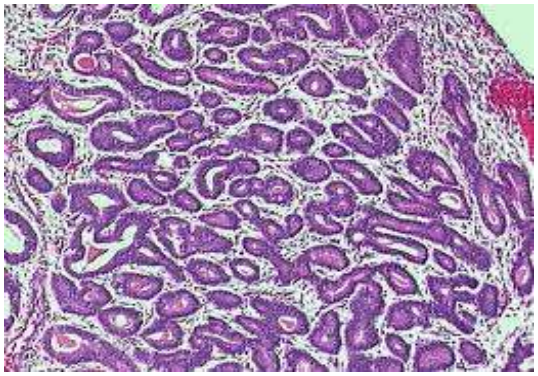
Gautam *et al.;* [12] has reported increased incidence of menorrhagia after tubal ligation. Majority

of cases were seen in the age group of 35-40 years about group A (n=63) and group B (n=52). In the present study 32% cases were seen in the age group of 35-40 years.

The incidence of proliferative endometrium in the present study (25.3%) nearly correlates with the findings of Kanakadurgamba and K. Srinivasa ra0 [17] Joshi and Deshpande[13] have found higher incidence (51.94%) while Wagh and Swamy[9] have reported lower incidence (23.3%). This variety of endometrium is seen in all age groups in the current study. In this type of endometrium, menorrhagia was most commonly associated bleeding pattern. The presence of proliferative endometrium, just before the onset of menstruation or during bleeding period, has confirmed the anovulatory cycles. In our study out of 38 patients, 28 had irregular proliferative phase, 2 had late proliferative phase and 4 patients had anovulatory proliferative phase. Joshi *et al.;* [13] observed 16.82% of patients with secretory endometrium. The incidence of secretory endometrium in the present study is 14.7%. Kanakadurgamba[17] found lower incidence of 4% while Narula[18] found a higher incidence of 35.92%. In the present study out of 22 patients of secretory endometrium, one case had mid secretory endometrium, 10 patients showed late secretory phase, one patient had deficit secretory phase. Irregular ripening due to corpus luteal insufficiency and irregular shedding due to corpus luteal persistence were seen in 0% and 6% of cases respectively. Uterine bleeding may occur in atrophic endometrium also. In the present study one patient showed atrophic endometrium while Sutherland and Battacharji [(15)] report atrophic endometrium in 1% and 7.3% of cases respectively. Decidual endometrium was observed in one patient. Most of the authors found no histological abnormality in more than 50% of cases. Kanakadurgamba[17] found normal endometrium in 30% while Menon[19] reported in 62% of cases. In the present study, normal endometrium was found in 40% cases (25.3% proliferative and 14.7% secretory endometrium). It is noted that in the majority of studies[6-10, 15, 17, 20, 21], the incidence of endometrial hyperplasia ranged from 19.4% to 31.25%. A few studies showed higher incidence of 55-68%. In present study the incidence of endometrial hyperplasia was 42%. The maximum incidence of endometrial hyperplasia were in the age group of 36-40 years while all the patients (n=16) of age between 41-45 years have shown CGH.

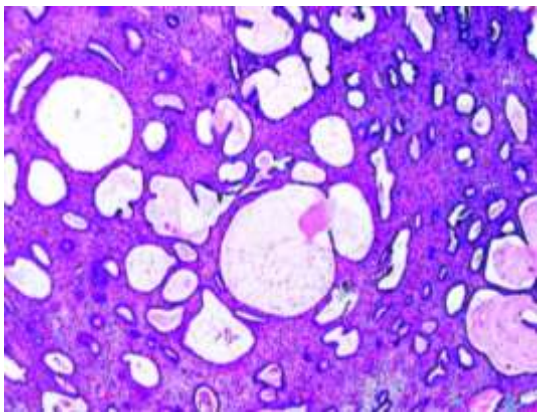
1. Proliferative endometrium

Microscopy: Microscopic section stained with H&E stain shows numerous round compactly arranged endometrial glands showing hyperplasia with pseudo stratification and scanty stroma.



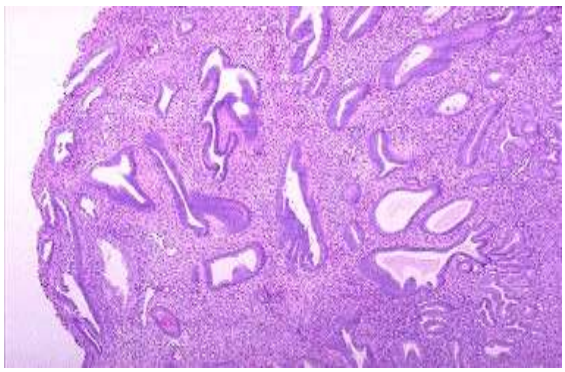
2. Cystoglandular hyperplasia

Microscopy: section studied shows cystically dilated endometrial glands lined by thin epithelium dispersed in compact stroma.



3. Simple endometrial hyperplasia

Microscopy: Section studied shows varying sized glands, many of which are large and cystically dilated and are lined by atrophic epithelium. The stroma between the glands is sparsely cellular and edematous.



CONCLUSION

DUB was a common gynecological complaint, predominantly seen in the age group 31-40 years. Menorrhagia was commonest bleeding pattern seen in multiparous women. Half of the patients were anemic. No specific relationship exists between bleeding pattern, age and parity. Hyperplastic endometrium was the commonest type of endometrium observed, followed by proliferative type of

endometrium. Proliferative and secretory endometriums were commonly seen in the age group of 31-40 years and hyperplastic endometrium in the age group 36-40 years. Incidental organic lesions were seen in 4% of patients. In the other 96% of the patients the clinical findings, clinical diagnosis correlated well with the histopathological diagnosis. Considering all the above observations, DUB is caused due to the influence of proliferative hormones on the endometrium in perimenopausal women.

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CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interests. We were not compensated or funded in any way for preparation of the manuscript. This article has not been submitted elsewhere. We understand and agree that if the manuscript is accepted for publication, copyright in the article, including the right to reproduce the article in all forms and media shall be assigned to the publisher.

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