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Study of histological changes of uterus in perimenopausal women with abnormal uterine bleeding

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Abstract: *Background:* Abnormal uterine bleeding (AUB) is a very common problem found in perimenopausal women and also the most common cause of gynecological visit and hysterectomy. Perimenopause is the interval in which a woman's body makes a natural shift from regular cycles of ovulation and menstruation to irregular cycles. Leiomyoma, Dysfunctional Uterine Bleeding and Adenomyosis are most frequently encountered benign causes of AUB in this age group. The histological diagnosis of these diseases is very essential for management and also to differentiate them from the malignancy and hyperplasia - the other common causes of AUB. *Aims and Objectives:* Primary aim of our study was to identify the spectrum of histological changes that occur in the endometrium in perimenopausal age group and to identify the demographic pattern of each histological changes. *Materials and Methods:* Fifty nine specimens of hysterectomy obtained from the patients of the perimenopausal age group of 40-50 years attending the Gynaecology and Obstetrics department were studied. Following hysterectomy, the specimen were collected and prepared through multistep processes. Finally they were stained by Hematoxylin-Eosin and viewed under microscope. The results were tabulated and photomicrographs of the histological slides were obtained. *Results:* Mostly Leiomyoma (30.51%) followed by Dysfunctional Uterine Bleeding (20.34%) and Adenomyosis (15.25%) were diagnosed among the fifty nine cases of hysterectomy patients in perimenopausal age group and proliferative endometrium (42.37%) is the most common histological finding. *Conclusion:* AUB in perimenopausal age group is common but ill-defined entity. It reflects a spectrum of endometrial histology. This study has also highlighted the correlation of endometrial histology with final diagnosis of patients. This may help to establish early and appropriate management and minimize the patients sufferings.

Keywords: Abnormal uterine bleeding, perimenopausal age group, histological changes

Introduction

Abnormal uterine bleeding (AUB) in perimenopausal age group is one of the most common causes seeking gynecological consultations [1]. It may present in various forms such as menorrhagia, polymenorrhea, polymenorrhagia, metrorrhagia, and menometrorrhagia [2-3]. The International Federation of Gynaecology and Obstetrics in November 2010, accepted a new classification system for causes of AUB in the reproductive years. These are polyps, adenomyosis, leiomyoma, malignancy and hyperplasia–coagulopathy, ovulatory disorders, endometrial causes, iatrogenic and not classified [4]. Endometrial biopsy is one of the most important methods for definitive diagnosis of the lesions.

Uterine leiomyoma commonly called fibroids is perhaps the most common tumor in women [5]. Dysfunctional Uterine Bleeding (DUB) is considered as bleeding of uterine origin without any demonstrable pelvic pathology, complication of pregnancy or any other systemic diseases [6]. The term adenomyosis refers to the presence of islands of endometrial glands and stroma deep within

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the myometrium [7]. DUB, leiomyoma and adenomyosis are considered to occur in hyper estrogenic conditions where endometrium remains in proliferative phase. If treatment can not be given timely itmay lead to endometrial carcinoma.

Hysterectomy is one of the most important methods for definitive diagnosis of the lesions and the histopathological examination of those hysterectomy specimens remains the gold standard for diagnosing endometrial pathologies. It is very important to know the normal histology of any organ for understanding the pathological changes since only the deviations or aberrations, however minor it is will not miss the eyes. It is more so in case of endometrium since the endometrium normally shows different histological pictures depending upon the phase of uterine cycle. It occurs because of variable level of oestrogen, progesterone, leutinising hormone and follicle stimulating hormone. The level of these hormones depends upon the phases of uterine as well as ovarian cycle. Primary aim of this study was to identify the spectrum of histological changes that occur in the endometrium of the perimenopausal age group and identify the demographic pattern of each changes.

Material and Methods

The study was conducted in a tertiary care hospital after getting approval from the Institutional Ethics Committee over a period of one and half year (1st June,2015-31st July,2016). The study population comprised of fifty nine perimenopausal women between 40-50 years of age, who admitted in Gynecology and Obstetrics department for hysterectomy operation. The informed consent was obtained from all the patients. The unwilling patients and patients with already diagnosed endometrial pathology like neoplasm, endometritis were excluded. The menstrual history and age of the patient was noted. Following hysterectomy, the specimens were collected from operation theatre and slides were prepared meticulously in Pathology department. The slides were stained by Haematoxylin-Eosin dye and viewed under microscope to see the deviations from normal histology. The results were tabulated and photomicrographs of the histological slides were taken (Fig-1 to 6).

Fig-1: Leiomyoma

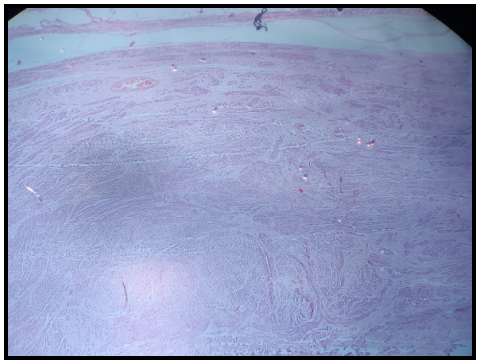

Fig-2: Adenomyosis

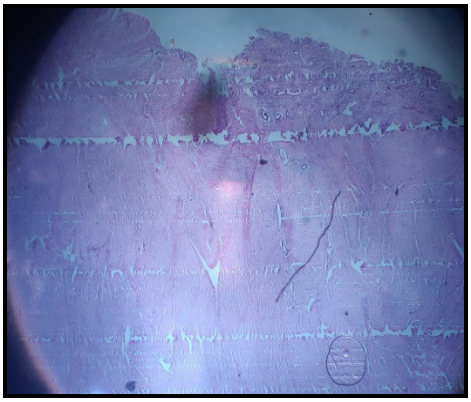

Fig-3: Proliferative endometrium

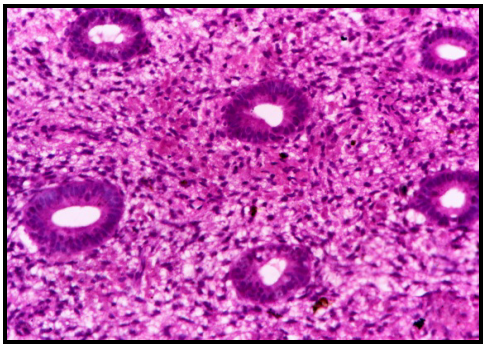

Fig-4: Secretory endometrium

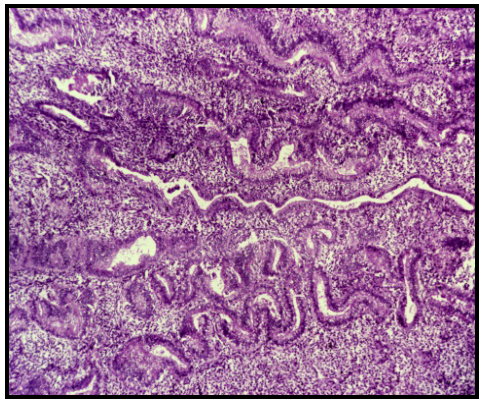

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Fig-5: Atrophic Endometrium

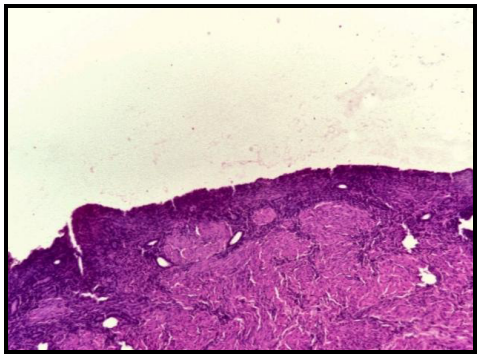
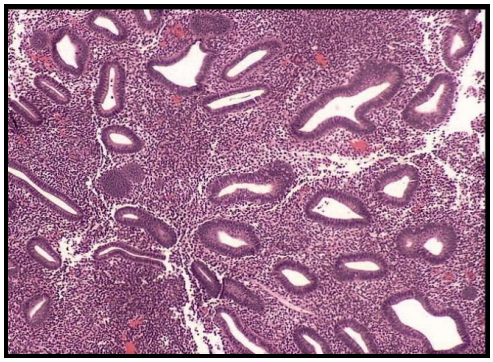


Fig-6: Disordered Proliferative Endometrium



Results

The final diagnosis obtained from the hysterectomy specimens were as follows:

Table-1: Final Diagnosis of the Hysterectomy Specimens

Final Diagnosis	No of cases	Percentage
Leiomyoma	18	30.51%
DUB	12	20.34%
Adenomyosis	9	15.25%
Serous cystadenoma ovary	5	8.47%
Squamous hyperplasia cervix	4	6.78%
Others	11	18.65%

In the present study most common cause was Leiomyoma or Fibroid (30.51%). Dysfunctional Uterine Bleeding (DUB) and Adenomyosis was found in 20.34%and 15.25% of cases respectively. 8.47% of cases showed Serouscystadenoma ovary and 6.78% showed Squamous hyperplasia cervix. Others (18.65%) included Endometriosis of the right ovary (1), serous cyst adenocarcinoma (1) and papillary serous cyst adenocarcinoma (1) of the right ovary, Mucinous cyst adenoma(1), Mature cystic teratoma (1) of the left ovary, Squamous metaplasia (1), Squamous cell carcinoma(1)and Clear cell carcinoma cervix(1), Cervical polyp (1) and Krukenberg's tumour (2).

The final histological pictures were as follows:

Table-2: Final Histological pictures of the Hysterectomy Specimens

Histological picture	No of cases	Percentage
Proliferative Endometrium (PE)	25	42.37%
Secretory Endometrium (SE)	16	27.12%
Atrophic endometrium	9	15.25%
Simple hyperplasia	1	1.69%
Hormonal changes	3	5.08%
Polyp	2	3.39%
Disordered proliferative Endometrium (DPE)	3	5.08%

From above table it was seen that most common histological picture found was Proliferative Endometrium (42.37%) followed by Secretory Endometrium (27.12%) and Atrophic Endometrium(15.25%). In small number of cases simple hyperplasia (1.69%), pictures suggestive ofhormonal changes (5.08%), Polyp (3.39%) and Disordered Proliferative Endometrium (5.08%) were found.

Discussion

Perimenopause, also called the menopausal transition, is the interval in which a woman's body makes a natural shift from more-or-less regular cycles of ovulation and menstruation to irregular and anovular cycles. Menopause is an important event occurring during middle age in women and represents the end of a woman's reproductive life. Perimenopause phase generally occurs at around 40 to 50 years of age. At this age AUB occurs because of the various reasons. Our study dealt with normal histology of endometrium and its variations due to multiple reasons.

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In the present study 59 hysterectomy specimens were taken for histopathological examination. It was found that most common cause was leiomyoma (30.51%) followed by DUB (20.34%) and adenomyosis (15.25%)

Various studies were conducted previously on hysterectomy specimens, with variable sample sizes. Talukdar B et al [8] conducted similar study over 103 number of hysterectomized cases for AUB and found uterine fibroid (45.63%) was the leading cause of AUB followed by bulky uterus (29.12%), thickened endometrium (11.65%), adenomyosis (10.69%), Endometrial polyp (1.94%) and malignancy (.0.97%).

Rizvi G et al [9] conducted study over larger population (184 cases) and found adenomyosis (46.34%) followed by leiomyoma (41.46%) as common causes of AUB. But (12.19%) showed dual pathology of adenomyosis and leiomyomain perimenopausal age group underwent hysterectomy. Another study done by Yogesh N et al [10] on288 hysterectomy specimens, leiomyoma was found in24.6% of cases and adenomyosis in 12.15% and fibroid combined with adenomyosis in 4.8% of cases. 36% cases were labelled as DUB, 9% cases as endometrial hyperplasia and malignancy was found in 0.34% of cases. Similar study was done by SumanMehla et al [11] on 218 hysterectomy cases. They found adenomyosis in maximum number of cases (46.78%) followed by leiomyoma in 39.90% and both in 13.30% of cases.

Jain U et al [12] did a retrospective study over 5 years among 612 patients of age group 17-79. Theyalso reported that most common cause of AUB was leiomyoma followed by leiomyoma with adenomyosis, then only adenomyosis. Other causes were endometrial carcinoma, endometrium hyperplasia and endometrial polyp. But in age group 41-50 years adenomyosis was more common than leiomyoma. Another study done by Shams R [13] reported leiomyoma was found to be most common cause (42.32%) followed by adenomyosis (37.20%) and DUB (10.92%). Other less common causes included cervical squamous cell metaplasia (4.77%), endometrial hyperplasia (1.70%) ovarian mass (2.73%) and carcinoma cervix (0.34%).

Table-3: Comparison of Final Diagnosis with previous studies

Author	Total No of cases	Leiomyoma	Adenomyosis	DUB	Others
Talukdar B et al [8]	103	45.63%	10.69%	-	43.68%
Rizvi G et al [9]	184	41.46%	46.34%	-	12.2%
Yogesh N et al [10]	288	24.6%	12.15%	36%	27.25%
Mehla S et al [11]	218	39.90%	46.78%	-	13.32%
Jain U et al [12]	-	68%	8%	-	24%
Shams R et al [13]	293	42.32%	37.20%	10.92%	9.54%
Present Study	59	30.51%	15.25%	20.34%	33.9%

Regarding histological pattern in the present study it was found that proliferative pattern (42.37%) was the commonest. 27.12% of cases secretory pattern and 15.25% of cases atrophic endometrium was found. Hormonal changes and disordered proliferative endometrium was seen in 5.08% and endometrial polyp in 3.39% and simple hyperplasia in 1.69% of cases.

Similar study done by Talukder B et al [8]reported that most common histological finding was simple hyperplasia in 46.6% then secretory endometrium in 19.42%,proliferative in 13.59% of cases. 3.88% of cases showed atrophic endometrium and 2.91% showed endometrial polyp. A study was done by Abid M et al [14] on 241 Pakistani population. Among them 77 were in perimenopausal age group. They reported that the commonest histopathology was hormonal imbalance (45.5%), followed by endometrial polyp(10.4%), chronic endometritis (9.1%), endometrial hyperplasia (6.5%) and endometrial carcinoma (1.2%). In 27.3% of cases normal menstrual pattern was found.

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Sajitha K et al [15] did a study including 156 cases from 23-78 years but AUB was most prevalent in the perimenopausal age group. Simple endometrial hyperplasia was the most common histopathological finding and was seen in 25% patients, followed by Secretory phase endometrium in 16.7% proliferative endometrium and disordered proliferative endometrium in 12.2% patients and hormonal imbalance in 7.7% of patients. Atrophic endometrium and endometrial polyp was found in 5.12% of cases. Malignancy was detected in 6.4% of cases and endometrial carcinoma was the most common lesion (4.5%). Another study done by Doraiswami S et al [16] on 137 perimenopausal age group patients found normal cyclical pattern endometrium (35.03%) as commonest histological pattern followed by disordered proliferative pattern (29.19%), endometrial polyp (13.13%), Simple hyperplasia (12.40%), chronic endometritis (4.37%), endometrial carcinoma (3.64%) and atrophic endometrium (2.18%).

Table-4: Comparison of Histological pictures with previous studies

Authors	PE	SE	Atrophic endometrium	Simple hyperplasia	Hormonal changes	Polyp	DPE
Talukdar B et al [8]	13.59%	19.42%	3.88%	46.60%	0%	2.91%	0%
Abid M et al [14]	20.33%	13.69%	9%	8%	41%	21%	0%
Sajitha K et al [15]	12.2%	16.7%	5.12%	25%	7.7%	5.12%	12.2%
Doraiswami S et al [16]	14.18%	10.27%	0%	6.1%	0%	11.2%	20.5%
Our study	42.37%	27.12%	15.25%	1.69%	5.08%	3.39%	5.08%

Conclusion

In our study Leiomyoma is the most common cause of abnormal uterine bleeding who underwent hysterectomy in the perimenopausal age group. Normal cyclical endometrium was most common finding (42.37% proliferative endometrium followed by 27.12% secretory endometrium).

Other lesions causing perimenopausal bleeding was found to be dysfunctional uterine bleeding and adenomyosis. Hence this study reflects a spectrum of endometrial histological changes that take place during perimenopausal age.

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