Section: Pathology

Original Research Article

HISTOPATHOLOGICAL ANALYSIS OF ENDOMETRIAL BIOPSIES AND HYSTERECTOMY SPECIMEN-A HOSPITAL BASED STUDY

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ABSTRACT

Background: Histopathological examination of endometrial biopsies and hysterectomy specimen constitutes an efficient diagnostic tool for various endometrial pathologies. The aim of present study is to evaluate pathology of uterine lesions in different age groups.

Materials and Methods: This study is a retrospective study conducted in the department of pathology over a period of two years starting from January 2024 to December 2025 in which a total of 36 endometrial biopsies and 261 hysterectomy specimen were included.

Results: Among total of 261 hysterectomy specimen leiomyoma was the most common pathology observed constituting of 34.86% cases followed by adenomyosis 24.13%, endometrial polyps 4.2%, uterine prolapse 3%, chronic endometritis 1.5%, endometrial carcinoma 0.76%. Hysterectomy was most frequently reported in 40–49 year age group. A total of 36 endometrial biopsies were studied and endometrial hyperplasia was reported in 13.88% cases followed by disordered proliferative endometrium in 5.55%,Atrophic endometrium in 5.55% and Endometrial carcinoma in 5.55%.

Conclusion: Hysterectomy was mostly indicated in patients presenting with heavy menstrual bleeding, fibroids, PID, uterine prolapse, chronic pelvic pain, and endometrial cancer. Histopathological examination remains gold standard for diagnosis of adenomyosis as it is usually missed during preoperative evaluation of hysterectomy patients.

Keywords: Hysterectomy**,** Hyperplasia, Dysfunctional uterine bleeding

INTRODUCTION

Abnormal uterine bleeding is found to be the most common indication for endometrial biopsy and hysterectomy. Abnormal uterine bleeding is defined as pattern of bleeding that does not correspond to the duration, amount and frequency of flow of normal menstrual cycle. [1] In young women AUB is mostly caused by hormonal imbalance while in perimenopausal and postmenopausal women AUB is due to hyperplasias and malignancies. [2] Endometrial biopsies show various patterns on histopathological examination due to normal and abnormal cyclical changes, hormones, drugs, infections and malignancies. Histopathological examination of hysterectomy specimen plays a crucial role in correct and accurate diagnosis of etiology of AUB by documenting various endometrial and myometrial pathologies.

Dysfunctional uterine bleeding is a specific type of AUB caused by hormonal imbalance (anovulation) without underlying structural pathology or disease. In anovulatory cycles bleeding is due to lack of progesterone due to undeveloped corpus luteum.[3]Ovulatory DUB includes luteal phase defect and irregular shedding. In luteal phase defect progesterone is deficient due to insufficient or premature regression of corpus luteum while in irregular shedding progesterone is produced for longer period due to persistant corpus luteum.[4]Patients who undergo hysterectomy for refractory DUB usually do not have specific histopathological lesions in endometrium or myometrium.

MATERIALS AND METHODS

The present study is a retrospective study conducted in the department of pathology GMC Anantnag over a period of two years starting from January 2024 to December 2025. A total of 261 hyterectomy specimen and 36 endometrial biopsy specimen were included in this study. The clinical information regarding age, clinical symptoms and relevant investigations were taken from histopathological requisition forms of the patient. The specimen were received in 10% formalin & underwent grossing and tissue processing. After which sections were stained by routine Hematoxylin & Eosin stains and subjected to histopathological examination.

RESULTS

This study included a total of 36 endometrial biopsies and 261 hysterectomy specimen. Most of the endometrial biopsies (50% cases) belonged to patients in the age group 40-49 years, [Table 1]. In this study while proliferative endometrium was noted in 41% cases, secretory endometrium was observed in 25% cases. Endometrial hyperplasia was observed in 13% cases while Endometrial carcinoma was observed in 5% cases [Table 2]. Most of the patients presented with AUB however 8 cases complained of infertility. Among 8 cases of infertility proliferative endometrium was noted in 62% cases while as secretory endometrium was noted in 25% cases and one case was reported as granulomatous endometritis.

This study also included 261 hysterectomy specimen which comprised mostly of abdominal hysterectomies. Most hysterectomy patients belonged to age group of 40 to 60 years [Table 3]. On histopathological examination Proliferative endometrium was observed in 62.45% cases, Secretory endometrium in 29.50% cases, & Atrophic endometrium in 8% cases.

On histopathological examination the most common pathology giving rise to AUB was found as myometrial lesion. Among myometrial lesions leiomyoma comprised of 34.86% cases followed by adenomyosis comprising of 24.13% cases [Table 4]. Endometrial polyps were reported in 4.2% cases while as chronic endometritis and endometrial carcinoma comprised of 1.5% and 0.76% cases and the most frequent age group affected was 40-49 year age group.

The current study observed that leiomyoma, adenomyosis and polyps were mostly prevalent in the age group of 40-49 years and were least prevalent above the age of 60 years as depicted in [Table 5,6,&7]. The youngest age at which leiomyoma was reported was 20 years while as the oldest age of presentation of leiomyoma was 70 years.

Table 1: Age distribution of endometrial biopsy patients

Age	No. of patients	Percentage
20-29	3	8.3%
30-39	8	22.2%
40-49	18	50%
50-59	3	8.3%
>60	4	11.1%

Table 2: histopathological diagnosis of endometrial biopsies

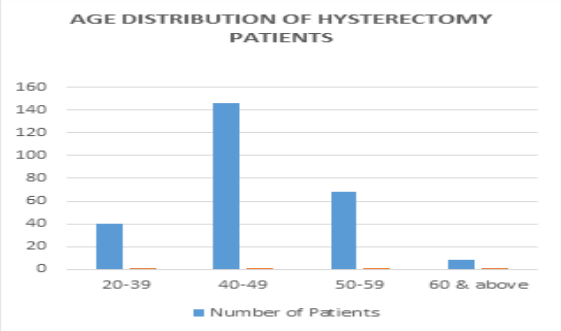
Histopathological diagnosis	Number of patients	Percentage
Proliferative endometrium	15	41.66
Secretory endometrium	9	25
Atrophic endometrium	2	5.5
Disordered proliferative endometrium	2	5.5
Granulomatous endometritis	1	2.7
Endometrial hyperplasia without atypia	2	5.5
Endometrial hyperplasia with atypia	3	8.3%
Endometrial carcinoma	2	5.5

Table 3: age distribution of hysterectomy patients

Age	Number of patients	Percentage
20-39	40	15.32%
40-49	146	55.93%
50-59	68	26.05%
60& above	8	3%

Table 4: histopathological diagnosis of hysterectomy patients

Diagnosis	Number Of Patients	Percentage
Leiomyoma	91	34.86%
Normal Histology	84	31.41%
Adenomyosis	63	24.13%
Polyps	11	4.2%
Uterine Prolapse	8	3%
Chronic Endometritis	4	1.5%
Endometrial Carcinoma	2	0.76%



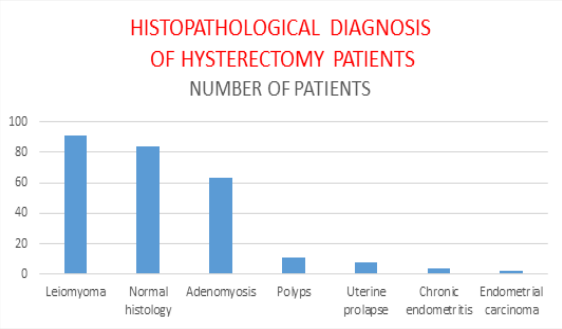


Table 5: age distribution of leiomyoma

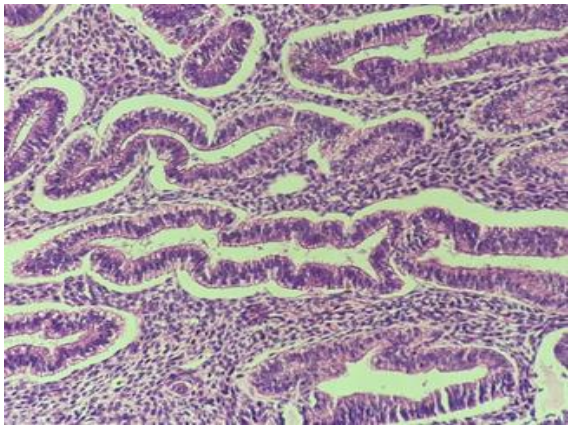
Age (years)	Number of patients	Percentage
20-39	14	15.38
40-49	67	73.62
50-59	8	8.7
60 & Above	2	2.1

Table 6: age distribution of adenomyosis

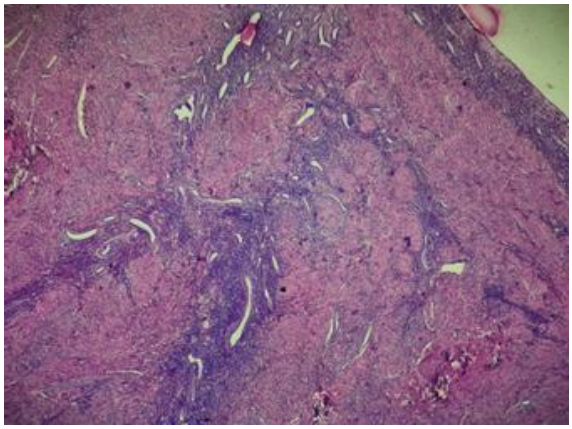
Age (years)	Number of patients(Percentage)
30-39	11.49%
40-49	70%
50-59	16%
60 and above	2.2%

Table 7: age distribution of polyps

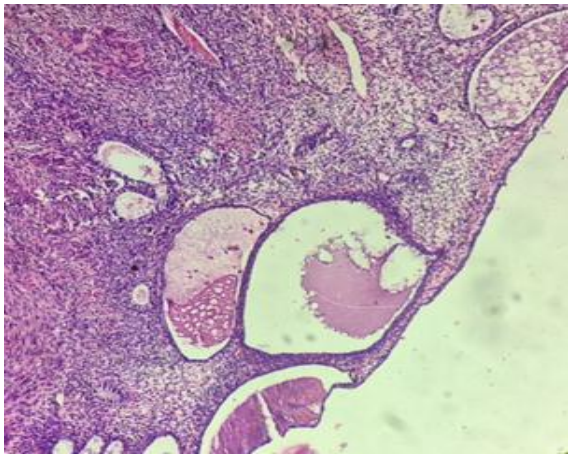
Age	No. of patients	Percentage
40-49	9	81.81%
50-59	1	9%
60 & above	1	9%



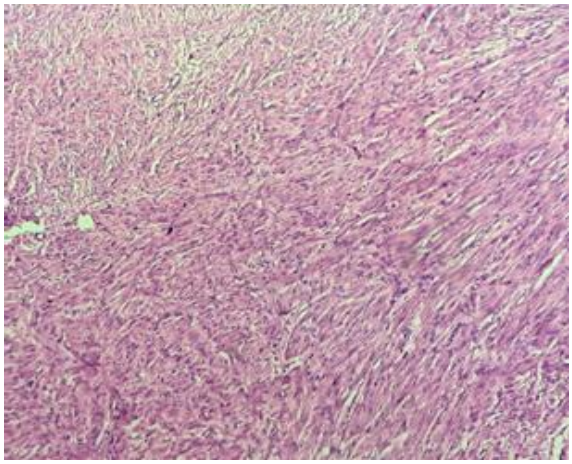
Secretory endometrium



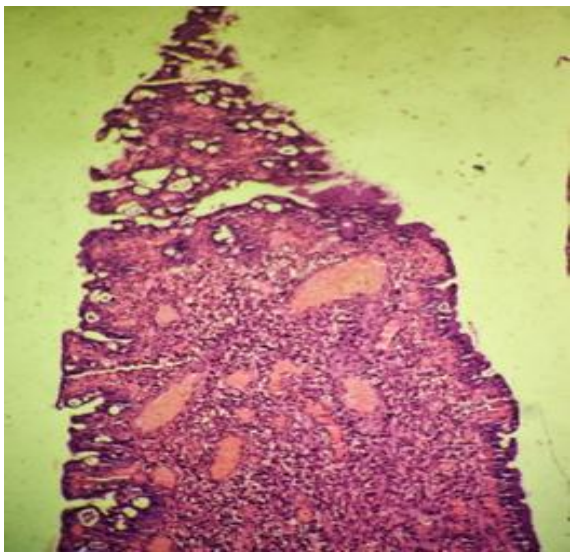
Adenomyosis uterus



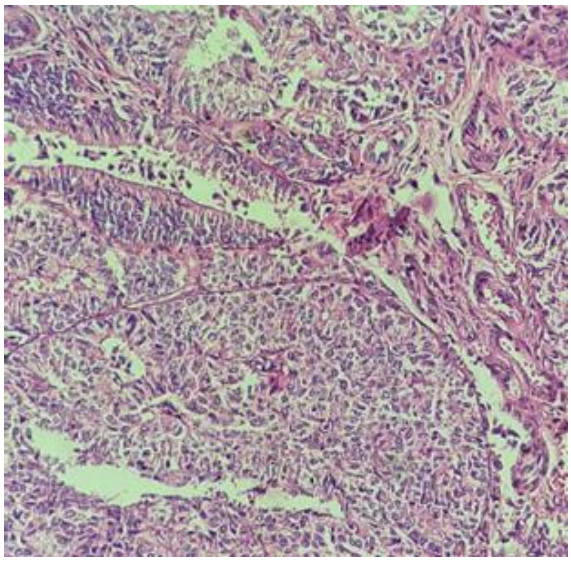
Senile cystic atrophic of endometrium



Leiomyoma



Endometrial polyp



Endometrial endometrioid adenocarcinoma

DISCUSSION

The endometrium is a hormonally sensitive and responsive tissue that constantly changes throughout reproductive life. ACOG recommends endometrial sampling as first line test for AUB in patients older than 45 years of age. The optimal site for endometrial sampling is uterine fundus. In present study 50% endometrial biopsies and 55% hysterectomy cases belonged to 40-49 year age group. This finding is in accordance with study on endometrial biopsy by Puneetkaur et al in which highest number of AUB patients (36%)belonged to perimenopausal age group.[5] Similarly studies conducted by Yusuf et al (1996), Moghal et al(1997), Saraswati et al (2008) and Mahapatra et al (2015) revealed that perimenopausal age group comprised of 38%, 40.8%, 33.5% and 37.9% AUB cases respectively.[6-9]

Endometrial hyperplasia without atypia has cancer risk of almost 1-3% within 10 years in women of all age groups and is usually caused by benign pathologies like anovulation and corpus luteum insufficiency while as in patients with atypical endometrial hyperplasia upto 60% patients may have coexisting invasive cancer or are at high risk of developing cancer. In this study endometrial hyperplasia was noticed in 13.8% cases of endometrial biopsies and majority of patients were perimenopausal women. Among 5 cases of endometrial hyperplasia, hyperplasia without atypia was observed in 2 cases while 3 cases were reported as hyperplasia with atypia. Incidence of endometrial hyperplasia was reported as 10.9% in a study by Jetly et al on 219 cases of atypical uterine bleeding which is comparable to present study.[10]

Leiomyoma is the most common benign tumor of reproductive age group. It has been reported as the most frequent reason for hysterectomy in the present study (34.86%cases).In the study by Rajkumari et al in north India, uterine fibroids were reported to be the most common reason for hysterectomy among pre-menopausal and menopausal age groups (48.78% and 56.00% of cases respectively).[11] These findings are in concordance with the findings of some recent studies that have revealed fibroids to be indication in 34% to 65.5% of hysterectomies in some states of India.[12-16] In the present study, leiomyoma was mostly prevalent in age group of 40-49 years (73.62% cases followed by less than 40 year age group(15.38% cases). In a study by Dayal et al in UP, it was reported that leiomyoma were frequently observed in age group of 41 -50 years(48.61% cases) and the most common clinical presentation was menorrhagia (41.66% cases).[17] The risk factors for uterine fibroids include early menarche, nulliparity, late transition into menopause, obesity diet and family history of uterine fibroids.[18]

Adenomyosis is a benign condition of the uterus, diagnosed usually on histopathological examination after hysterectomy; specifically by visualizing ectopic endometrial glands and stroma at a minimum depth of 2.5 mm below the endomyometrial junction with a hypertrophic and hyperplastic surrounding myometrium.[19,20] In the present study adenomyosis was reported in 24.13% hysterectomy cases and was prevalent in age group of 40-49 years (70%cases) followed by post menopausal age group (16% cases).Majority patients presented with AUB, chronic pelvic pain, and infertility.

Similarly in a study conducted by Gopinath L et al in Kerala (2021) on hysterectomy specimen, the prevalence of adenomyosis was 16.8%, and majority women were in age group of 41-46 years (36.8%) followed by 46-50 years (26.3%) cases. Also the most common symptom was AUB (92% cases).[21] In a study by Yeniel et al prevalence of adenomyosis was found to be 36.2%.[22]

In the present study leiomyoma was associated with adenomyosis in 8.4% cases only however adenomyosis was simultaneously associated with leiomyoma in 32.4% cases in a study conducted by Templeman et al.[23]

In a study by Gopinath Let al leiomyoma was associated with adenomyosis in 15.8% cases followed by endometriosis in 13.2%cases. Endometrial polyp was seen associated with adenomyosis in 2.6% cases only while in present study it was associated with 1.14% cases.

Benign endometrial polyp was observed in 4.2% hysterectomy patients in the present study. All cases were noticed in perimenopausal and post menopausal age group and usually presented as abnormal uterine bleeding. These findings were comparable to studies by Puneet et al, Mahapatra et al, Khan et al and Sajitha et al in which endometrial polyps were reported in 4%,3.6%,3.9% and 5.12% cases respectively.[5,9,24,25]

Endometrial carcinoma was reported in 2 cases only (0.76%) which is in concordance with studies conducted on Asian women by Saraswati et al, Mahapatra et al and Dadhania et al in which incidence of endometrial carcinoma was found to be 2%, 0.7% and 2.6% respectively.[8,9,26] Overall less incidene of endometrial carcinoma in Asian women is due to early child bearing and lesser obesity.

CONCLUSION

Endometrial biopsy has become an essential diagnostic modality for uterine pathologies like harmonal imbalance, atrophy, infections and malignancy. Hysterectomy is considered as most prevalent gynaecological procedure performed after caeserian section in women. DUB and fibroids are considered as frequent indications for hysterectomy in our population. Most hysterectomies are done in perimenopausal age group.

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