Section: Obstetrics & Gynaecology

Original Research Article

HISTOPATHOLOGICAL SPECTRUM OF ENDOMETRIAL BIOPSIES IN FIBROID UTERUS

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ABSTRACT

Background: Uterine leiomyomas (fibroids) are the most common benign tumors of the uterus, frequently associated with abnormal uterine bleeding (AUB). Although many remain asymptomatic, fibroids can significantly impact women's reproductive and overall health. Histopathological examination of the endometrium in fibroid uterus provides valuable insight into associated endometrial alterations, ranging from normal cyclical changes to hyperplasia and rarely malignant transformation. This study was undertaken to analyze the histopathological spectrum of endometrial biopsies in patients with fibroid uterus. **Materials and Methods:** A cross-sectional study was conducted over 18 months in the Department of Obstetrics and Gynaecology at Command Hospital (Southern Command) and Military Hospital, Khadki. A total of 200 women aged 20–49 years with ultrasound-confirmed uterine leiomyoma and AUB were included. Endometrial tissue samples were obtained either from pretreatment biopsies or hysterectomy specimens. Standard histopathological techniques were employed, and findings were categorized into proliferative, secretory, hyperplastic, atrophic, and other patterns. Data were analyzed using SPSS version 26.**Result:** The mean age of patients was 41.7 ± 4.8 years. The most common histopathological finding was proliferative endometrium (52%), followed by secretory endometrium (43.5%). Less frequent findings included scant endometrium (2%), endometrial hyperplasia without atypia (1%), atrophic endometrium (1%), and predominantly hemorrhagic tissue (0.5%). Premalignant or malignant lesions were not observed in the present study. **Conclusion:** The predominant histopathological patterns in fibroid uterus are cyclical changes, with proliferative and secretory endometrium comprising the majority. Hyperplasia and atypical changes are relatively uncommon, highlighting that while fibroids contribute to AUB, most associated endometrial alterations are benign. Nevertheless, endometrial biopsy remains an essential diagnostic tool to exclude premalignant or malignant pathology in women with fibroid uterus and abnormal bleeding.

INTRODUCTION

The uterus is a hormonally active organ that undergoes cyclical changes in the endometrium, predisposing it to a range of pathological alterations. Among these, uterine leiomyomas (fibroids) represent the most frequent benign neoplasm of the uterus, composed primarily of smooth muscle cells and fibrous connective tissue. They are reported in 10–20% of women clinically, but their prevalence rises to 70–80% in sonographic studies among women of reproductive age, with regression noted after menopause.[1-5]

Fibroids are classified based on location as subserosal, intramural, or submucosal, and may be solitary or multiple.[6,7] While many remain asymptomatic, they are a common cause of abnormal uterine bleeding (AUB), pelvic pain, and infertility. The mechanism of bleeding is often linked to distortion of the endometrium, altered vascular architecture, or hormonal influences. Histopathological examination of endometrial biopsies in fibroid uterus can reveal a wide spectrum of changes ranging from normal cyclical endometrium to proliferative, secretory,

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hyperplastic, and occasionally malignant patterns.[8-13]

This study was undertaken to evaluate the histopathological spectrum of endometrial biopsies in women with fibroid uterus, in order to determine the associated endometrial changes that may have clinical implications in diagnosis and management.

MATERIALS AND METHODS

Study Design and Setting: This was a cross-sectional study conducted in the Department of Obstetrics and Gynaecology in command hospital (Southern command) & Military hospital Khadki.

Study Duration and Sample Size: The study was carried out over a period of 18 months from the date of approval. A total of 200 patients were included.

Study Population: Patients attending the Gynaecology OPD, clinically diagnosed with abnormal uterine bleeding due to leiomyoma [AUB] as per FIGO 2009 classification and confirmed by ultrasonography, were enrolled.

Inclusion Criteria

1. Women aged 20–49 years with ultrasound-confirmed uterine leiomyoma.
2. Patients who underwent either conservative or surgical management.
3. Patient who were willing to participate included in this study.

Exclusion Criteria

1. Patients below 20 years or above 50 years.
2. Abnormal uterine bleeding not attributable to leiomyoma.
3. Patients not willing to participate.
4. Women on anti-cancer drugs such as Tamoxifen.
5. Family history of HNPCC or familial carcinoma.
6. Postmenopausal women.
7. Recent pregnancy (<3 months).
8. Fibroid located outside the uterus.

Methodology

Endometrial tissue samples were obtained from patients undergoing conservative management (pretreatment biopsy) and from hysterectomy specimens in surgical cases.

Histopathological Processing

- All specimens were fixed in 10% neutral buffered formalin.
- Standard paraffin embedding was performed.
- Sections of 4–5 µm thickness were cut and stained with Hematoxylin and Eosin.
- Special stains were used whenever indicated.

Histological examination was carried out by light microscopy, and patterns were classified as:

- Proliferative endometrium
- Secretory endometrium
- Disordered proliferative endometrium
- Hyperplasia (with/without atypia)
- Atrophic endometrium
- Endometritis
- Malignant lesions (if any)
- Predominantly hemorrhagic or scant tissue

Statistical Analysis: Data were entered into Microsoft Excel and analyzed using SPSS version 26. Frequencies and percentages were calculated for various histopathological categories.

RESULTS

In the present study, total of 200 patients fulfilling the inclusion criteria were included. The mean age of the study group was 41.74±4.8yrs.

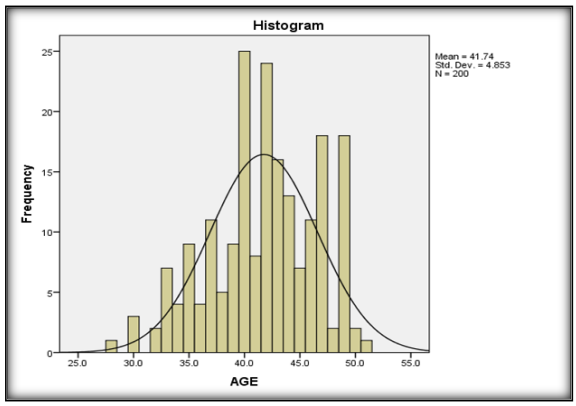

Figure 1: Histogram showing mean age (yrs) of patients

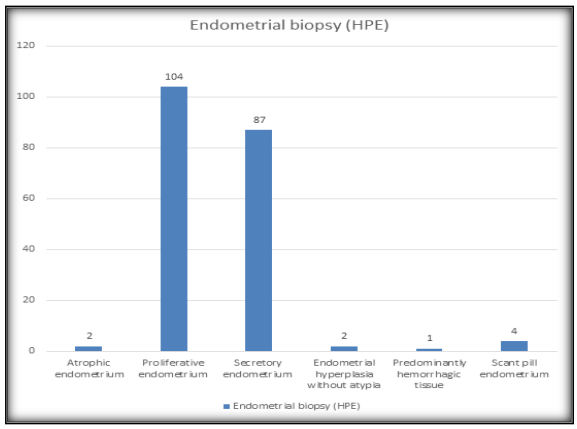

Figure 2: Endometrial biopsy (histopathological) findings.

Table 1: The mean age of patients

	Minimum	Maximum	Mean	SD
AGE(yrs)	28.0	51.0	41.74	4.85

Table 2:Histopathological findings of endometrial biopsy

Endometrial Biopsy	Count	N %
Atrophic endometrium	2	1.0%
Proliferative endometrium	104	52%

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Secretory endometrium	87	43.5%
Endometrial hyperplasia without atypia	2	1.0%
Predominantly hemorrhagic tissue	1	0.5%
Scant pill endometrium	4	2.0%

The endometrial biopsy showed 52% with proliferative endometrium as the most common HPE findings followed by 43.5% with secretary endometrium, 1% endometrial hyperplasia without atypia, 0.5% predominantly hemorrhagic tissue and 2% scant pill endometrium.

DISCUSSION

Uterine fibroids (leiomyomata) are the most common benign tumors in women and frequently coexist with a variety of endometrial patterns. In our study, the mean age of patients was 41.7 years, aligning with the reproductive and perimenopausal age group where fibroids are most prevalent.[11]

The histopathological examination of endometrial biopsies revealed proliferative endometrium in 52% and secretory endometrium in 43.5% of patients. Only a small fraction of cases showed atrophic endometrium (1%), endometrial hyperplasia without atypia (1%), hemorrhagic tissue (0.5%), and scant endometrium (2%). These findings highlight that in fibroid uterus, cyclical endometrial changes predominate, and premalignant lesions are relatively uncommon.

Our findings are comparable to studies by Patil et al,[14] and Kaur et al,[15] which also documented proliferative endometrium as the most frequent histological pattern. Patil et al. reported proliferative changes in 34% and secretory in 16%, while Kaur et al. found proliferative endometrium in 46.1% of cases. Both studies, however, reported higher rates of hyperplasia than observed in our series. The lower prevalence of hyperplasia in our study (1%) may reflect differences in patient selection or early detection.

Previous studies such as Vaidya et al,[16] reported hyperplasia in a much higher proportion (over 20%), especially in perimenopausal women. In contrast, our findings suggest that routine hyperplastic or atypical changes are not strongly associated with fibroid uterus in our cohort. This indicates that while endometrial biopsy is valuable in excluding hyperplasia or malignancy, most cases will show cyclical histology.

Given that endometrial carcinoma is often preceded by atypical hyperplasia,[17] the occasional detection of hyperplasia in our study supports the role of biopsy as a screening measure, especially in perimenopausal women with abnormal bleeding. Therefore, endometrial sampling remains an important diagnostic step in symptomatic fibroid patients, both for ruling out concurrent pathology and guiding management.[18,19]

CONCLUSION

In this study, the predominant biopsy finding in cases of fibroid uterus was proliferative endometrium (52%), followed by secretory endometrium (43.5%). Less frequent patterns included scanty endometrium (2%), endometrial hyperplasia without atypia (1%), atrophic endometrium (1%), and predominantly hemorrhagic tissue (0.5%). These results indicate that cyclical endometrial changes are most common in fibroid uterus, while hyperplasia and atypical changes are relatively uncommon. Endometrial biopsy, however, remains a crucial diagnostic tool to exclude premalignant or malignant conditions in women presenting with abnormal uterine bleeding.

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