Section: Obstetrics & Gynecology

Original Research Article

STUDY OF ENDOMETRIAL FINDINGS IN WOMEN WITH FIBROID UTERUS ASSOCIATED WITH ABNORMAL UTERINE BLEEDING

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ABSTRACT

Background: Uterine leiomyomas (fibroids) are the most common benign tumors of the female genital tract and frequently present with abnormal uterine bleeding (AUB), particularly in perimenopausal women. Although fibroids are a well-recognized cause of menstrual disturbances, their association with coexisting endometrial pathology remains incompletely understood. **Materials and Methods:** This two-year observational study included 100 women aged 20–49 years with ultrasound-confirmed uterine fibroids presenting with AUB-L (FIGO 2009 classification). Women with other causes of bleeding for example postmenopausal status, recent pregnancy, or unwillingness to participate were excluded. Endometrial evaluation was performed by pre-treatment biopsy in medically managed patients and by histopathological examination of hysterectomy specimens in surgically managed cases. Data were analyzed using Microsoft Excel. **Result:** The majority of patients belonged to the 40–49-year age group (66%). Diabetes mellitus (38.7%) and anemia (32.8%) were the most common comorbidities. Lower abdominal pain (72%) and pelvic pressure symptoms (68%) were predominant complaints, while 65% had an enlarged uterus on examination. Small fibroids (1–4 cm) were most common (60%). Abnormal endometrial findings were significantly associated with advancing age ($p = 0.03$), larger fibroid size ($p = 0.01$), presence of menstrual abnormalities ($p = 0.02$), uterine enlargement ($p = 0.02$), and surgical management ($p = 0.04$). Surgically managed patients showed a higher proportion of abnormal histopathological findings, whereas medical management resulted in symptomatic improvement or complete relief in 53% of cases. **Conclusion:** Advancing age, larger fibroid size, menstrual abnormalities, and uterine enlargement are significantly associated with abnormal endometrial findings in women with fibroid uterus. Comprehensive clinical assessment and timely endometrial evaluation are essential, particularly in perimenopausal women, to ensure appropriate management and prevent missed endometrial pathology.

INTRODUCTION

Leiomyoma, commonly known as fibroid, is a benign smooth muscle tumor that rarely undergoes malignant transformation (0.1%). These tumors are among the most common neoplasms in premenopausal women. Although leiomyomas can arise in various organs such as the small intestine and esophagus, the uterus is the most frequently affected site. Uterine leiomyomas are typically spherical masses composed of smooth muscle cells and vary greatly in size, ranging from a few millimeters to several centimeters in diameter.[1]

Previously, the effect of fibroids on fertility was believed to be primarily related to their size. However, advances in understanding the molecular pathogenesis of fibroids have changed this perspective. Fibroids are now known to influence endometrial gene expression through paracrine interactions, and their impact on the endometrium may be global rather than limited to the area directly overlying the fibroid.[2]

Based on anatomical location, uterine fibroids are classified into three types: submucosal fibroids located beneath the endometrium; intramural (interstitial) fibroids, which are the most common

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and situated within the uterine wall; and subserosal fibroids located beneath the serosal surface of the uterus. Fibroids may be single or multiple and generally originate within the myometrium, later growing either outward toward the serosa or inward toward the endometrial cavity. Most fibroids are asymptomatic and exhibit slow growth.[3] Fibroids occur in approximately 20–40% of women during the reproductive age group and in 11–19% of perimenopausal women.[4] They are estrogen-dependent tumors and are frequently associated with endometrial hyperplasia.[5] Although many fibroids remain asymptomatic, they may present with menstrual disturbances such as menorrhagia and dysmenorrhea, lower abdominal pain, pelvic mass sensation, and infertility.[6]

Uterine fibroids are a major cause of gynecological morbidity as they can lead to heavy menstrual bleeding, pelvic pain, infertility, recurrent pregnancy loss, and pressure symptoms, thereby significantly affecting the quality of life of women. Fibroids may coexist with endometriosis, which itself may contribute to infertility. Adenomyosis may mimic or coexist with fibroids. In rare cases, malignant transformation to leiomyosarcoma may occur.[7]

Among uterine diseases, fibroids are the most common benign tumors, affecting up to 25% of women and representing a significant contributor to gynecological morbidity.[8] Their incidence peaks between 35 and 50 years of age, and the reported prevalence has increased over recent decades, likely due to improved detection through non-invasive diagnostic techniques.[9] Emerging evidence suggests that women with fibroids have a higher prevalence of gynecological and systemic comorbidities, particularly endometriosis and infertility.[10] However, the association between fibroids and coexisting endometrial pathology remains incompletely understood.[11]

The present study aims to evaluate the association between clinical characteristics, radiological findings, and management modalities with endometrial findings in women diagnosed with fibroid uterus, and to determine the prevalence of abnormal endometrial pathology in this population.

MATERIALS AND METHODS

Study duration: The duration of this study was over a period of two years.

Study area: This study was conducted in Department of Obstetrics &Gynecology, FH Medical College, Etmadpur Agra.

Study population: The population of study was 100 cases of Uterine Fibroid.

Data collection: This study included women who attended the gynecology outpatient department and were clinically diagnosed with abnormal uterine bleeding due to leiomyoma (AUB-L) according to the FIGO 2009 classification. The diagnosis was confirmed by ultrasonography in all cases. Only women between 20 and 49 years of age with ultrasound-confirmed uterine fibroids were included. Patients who underwent either medical (conservative) treatment or surgical treatment were part of the study. For those managed medically, the endometrial biopsy taken before starting treatment was analyzed. For patients who underwent hysterectomy, the final histopathological examination of the removed uterus was considered for evaluation.

Women younger than 20 years or older than 50 years, postmenopausal women, those with abnormal uterine bleeding due to causes other than fibroids, recent pregnancy within the last three months, fibroids located outside the uterus, women taking anticancer drugs such as tamoxifen, those with a family history of hereditary nonpolyposis colorectal cancer (HNPCC), and women who were not willing to participate were excluded from the study.

Data Analysis: data was analysed by using Microsoft Excel.

RESULTS

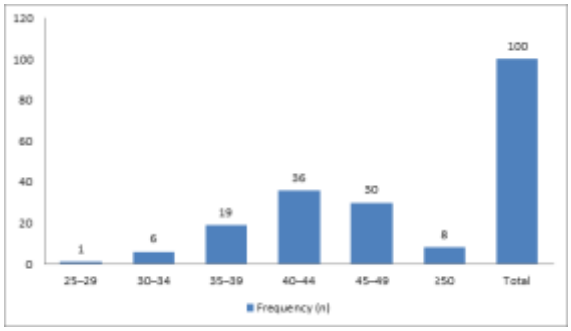

Figure 1: Distribution of cases according to age distribution

The present study included 100 women with fibroid uterus, most of whom belonged to the perimenopausal age group, with the highest proportion observed between 40–44 years (36%) and 45–49 years (30%), indicating increasing prevalence with advancing age. Diabetes mellitus (38.7%) and anemia (32.8%) were the most common associated comorbid conditions. Lower abdominal pain (72%) and pelvic pressure–related symptoms (68%) were the predominant presenting complaints, while menstrual disturbances such as dysmenorrhea (58%), intermenstrual bleeding (46%), increased menstrual frequency (40%), and menorrhagia (36%) were frequently reported. On bimanual pelvic examination, 65% of patients had an enlarged uterus, most commonly corresponding to 6–8 weeks gestational size (35%). Radiological evaluation showed that small fibroids (1–4 cm) were the most prevalent (60%), followed by medium-sized fibroids (33%). Surgical management revealed definitive uterine or cervical pathology in 42% of cases and adenomyosis in 3%, whereas medical management resulted in marked or complete

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symptomatic relief in 53% of patients. Abnormal endometrial findings were significantly associated with increasing age (p = 0.03), larger fibroid size (p = 0.01), presence of menstrual abnormalities (p = 0.02), uterine enlargement on examination (p = 0.02), and surgical management (p = 0.04), highlighting the importance of comprehensive endometrial assessment in women with fibroid uterus, particularly those with advanced age, large fibroids, and abnormal uterine bleeding.

Table 1: Distribution of Associated Comorbid Conditions among Study Participants (N = 100)

Comorbid condition	Frequency (n)	Percentage (%)
Diabetes mellitus	39	38.7
Anemia (low hemoglobin levels)	33	32.8
Systemic arterial hypertension	13	13.4
Primary hypothyroidism	13	13.4
Depressive disorder	2	1.6
Total	100	100

Table 2: Prevalence of Presenting Symptoms (N = 100)

Presenting symptom	Frequency (n)	Percentage (%)
Lower abdominal pain	72	72.0
Pelvic pressure–related symptoms	68	68.0
Painful menstruation (dysmenorrhea)	58	58.0
Bleeding between menstrual cycles	46	46.0
Increased frequency of menstrual cycles	40	40.0
Menorrhagia (heavy menstrual bleeding)	36	36.0

Table 3: Findings on Bimanual Pelvic Examination (Uterine Size Assessment) – N = 100

Uterine size (equivalent to period of gestation)	Frequency (n)	Percentage (%)
Normal-sized uterus	35	35.0
Enlarged uterus (6–8 weeks size)	35	35.0
Enlarged uterus (8–12 weeks size)	20	20.0
Enlarged uterus (>12 weeks size)	10	10.0
Total	100	100

Table4: Radiological findings

Fibroid size (maximum diameter, cm)	Frequency (n)	Percentage (%)
Small fibroids (1–4 cm)	60	60.0
Medium-sized fibroids (5–10 cm)	33	33.0
Large fibroids (>10 cm)	7	7.0
Total	100	100

Table5: Treatment-Related Clinical Outcomes in the Study Population (N = 100)

Management approach	Outcome description	Number of cases (n)	Percentage (%)
Surgical treatment	Definite uterine and/or cervical pathology identified on histopathology	42	42.0
Surgical treatment	Adenomyosis confirmed on histopathological examination	3	3.0
Medical treatment	Marked symptomatic improvement	40	40.0
Medical treatment	Complete relief of symptoms	13	13.0
Medical treatment	Persistent symptoms despite treatment	2	2.0
Total		100	100

Table 6: Association of Clinical and Radiological Variables with Endometrial Findings in Patients with Fibroid Uterus (N = 100)

Variable	Category	Normal Endometrium n (%)	Abnormal Endometrial Findings* n (%)	Total (N)	p-value
Age group (years)	≤39	18 (69.2)	8 (30.8)	26	
	40–49	34 (51.5)	32 (48.5)	66	0.03
	≥50	2 (25.0)	6 (75.0)	8	
Fibroid size	Small (1–4 cm)	42 (70.0)	18 (30.0)	60	
	Medium (5–10 cm)	14 (42.4)	19 (57.6)	33	0.01
	Large (>10 cm)	2 (28.6)	5 (71.4)	7	
Menstrual abnormality	Present	24 (41.4)	34 (58.6)	58	0.02
	Absent	32 (76.2)	10 (23.8)	42	
Uterine size (bimanual exam)	Normal size	26 (74.3)	9 (25.7)	35	
	Enlarged uterus	30 (46.2)	35 (53.8)	65	0.02
Management modality	Surgical	20 (44.4)	25 (55.6)	45	
	Medical	36 (65.5)	19 (34.5)	55	0.04

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DISCUSSION

The present study assessed the association between clinical characteristics, radiological features, and management modalities with endometrial findings in women with fibroid uterus. The predominance of cases in the 40–49-year age group observed in this study is consistent with existing literature, which reports that uterine fibroids are most commonly diagnosed during the late reproductive and perimenopausal period due to prolonged estrogen and progesterone exposure.[12] The significantly higher proportion of abnormal endometrial findings in women aged ≥50 years in the present study supports earlier observations that advancing age is an independent risk factor for endometrial pathology in women presenting with fibroid uterus and abnormal uterine bleeding.[13]

Anemia and diabetes mellitus were the most frequently associated comorbidities in the study population. Anemia is a well-recognized consequence of chronic heavy menstrual bleeding associated with fibroids, particularly submucosal and intramural types.[14] The association of metabolic disorders such as diabetes and hypertension with fibroid uterus has been previously described and may reflect shared hormonal and inflammatory pathways influencing both fibroid growth and endometrial changes.[15]The symptom profile observed in this study, with lower abdominal pain, pelvic pressure symptoms, and menstrual disturbances being predominant, aligns with published data indicating that symptom severity is influenced by fibroid size, number, and uterine distortion.[16]

Clinical examination revealed uterine enlargement in a majority of patients, and this finding showed a statistically significant association with abnormal endometrial findings. Similar observations have been reported in previous studies, where increased uterine size was associated with a higher likelihood of coexisting endometrial hyperplasia or other abnormalities, particularly in women presenting with abnormal uterine bleeding.[17] Radiological assessment in the present study demonstrated that larger fibroid size was significantly associated with abnormal endometrial findings, with the highest proportion seen in fibroids measuring more than 10 cm. This association may be attributed to altered endometrial blood flow, mechanical distortion of the uterine cavity, and prolonged estrogenic stimulation, which have been implicated in the pathogenesis of endometrial abnormalities.[18]

Menstrual abnormalities were found to be significantly associated with abnormal endometrial findings in the present study, reinforcing the concept that abnormal uterine bleeding in women with fibroid uterus should not be attributed solely to fibroids without appropriate endometrial evaluation. International guidelines emphasize the importance of endometrial assessment in women with fibroids who present with abnormal bleeding, particularly in older age groups and those with additional risk factors.[19]

In view of management, a higher proportion of abnormal endometrial findings was observed among surgically managed patients, reflecting appropriate clinical selection of women with higher symptom burden and suspected pathology for operative intervention. Histopathological examination remains the gold standard for identifying coexisting uterine and endometrial pathology and provides definitive diagnosis in such cases. Medical management resulted in symptomatic improvement or complete relief in the majority of patients, supporting its role as an effective treatment option in carefully selected cases with smaller fibroids and lower risk of endometrial pathology.

Overall, the findings of this study highlight that advancing age, larger fibroid size, menstrual abnormalities, uterine enlargement, and surgical management are significantly associated with abnormal endometrial findings in women with fibroid uterus. These results underscore the need for a comprehensive evaluation strategy incorporating clinical assessment, imaging, and timely endometrial sampling to optimize patient management and avoid missed endometrial pathology.

CONCLUSION

This study demonstrates that abnormal endometrial findings in women with fibroid uterus are significantly associated with advancing age, larger fibroid size, menstrual abnormalities, uterine enlargement, and the need for surgical management. Perimenopausal and postmenopausal women, particularly those presenting with abnormal uterine bleeding and large fibroids, showed a higher likelihood of coexisting endometrial pathology. While medical management provided symptomatic relief in a substantial proportion of patients, surgical intervention offered definitive diagnosis through histopathological evaluation in selected high-risk cases. These findings emphasize the importance of comprehensive clinical assessment, appropriate imaging, and timely endometrial evaluation in women with fibroid uterus to guide optimal management and prevent missed endometrial pathology.

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