



A CLINICOPATHOLOGICAL STUDY OF UTERINE LEIOMYOMA IN WOMEN ABOVE 30 YEARS IN A TERTIARY CARE HOSPITAL OF ASSAM

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ABSTRACT

Background: Leiomyoma of uterus is the most common benign neoplasm in women. The clinical presentation differs from patients to patients. Due to the complex interactions between steroid hormones, growth hormones and mutations in the myometrium, leiomyoma undergoes degenerative changes and coexists with varied benign and malignant lesions of the endomyometrium and cervix.

Aims And Objectives:

- To study the incidence of leiomyoma in hysterectomy specimens.
- To study the histopathological variants and secondary changes in leiomyoma.
- To study the associated histopathological changes in the endomyometrium and cervix.

Material And Methods: The present study is conducted in the Department of Pathology, Fakhruddin Ali Ahmed Medical College, Barpeta from July, 2019 to December, 2020. A total of 140 hysterectomy specimens with or without salpingo-oophorectomy of women above 30 years were received. 77 cases diagnosed as leiomyoma on histopathological examination were included in the study and relevant clinical data were analyzed.

Result: Uterine leiomyomas occurred mostly in women aged 31-40 years (50.65%). Menorrhagia (58.44%) and dysmenorrhea (32.47%) were the chief clinical manifestations. Most common location was intramural (68.83%). Secondary changes were observed in 20.78% cases of uterine leiomyoma with hyalinization as commonest histopathological finding. Leiomyoma variants was seen in 3.90 % and all of them were cellular leiomyoma. Associated endometrial hyperplasia without atypia (67.53%) and chronic cervicitis (71.42%) was the dominating endometrial and cervical pathology respectively. 33.77% cases had dual pathology of leiomyoma and adenomyosis.

Conclusion: A detail and meticulous analysis of the indications for hysterectomy alongwith histopathological findings play a significant role in patient management and surveillance.

KEYWORDS : Hysterectomy, uterine leiomyoma, secondary changes, endometrial changes, cervical changes.

INTRODUCTION

Uterine leiomyoma (commonly known as fibroid or myoma) is the most common benign, smooth-muscle tumor of the uterus found in women of reproductive age group. It is also the most common pelvic tumor in women.^{1,3} African-American women are reported to have a higher incidence of leiomyoma with multiple, larger, and more severe clinical symptoms compared to Caucasians.^{4,5} Leiomyomas are usually asymptomatic, however depending on their size, number, location and hormonal effects, the commonest clinical manifestations are menorrhagia, dysmenorrhoea, pain abdomen, pressure symptoms (urinary disturbances or constipation), infertility or recurrent pregnancy loss. After menopause fibroids decrease in size. Leiomyomas can be located anywhere in the myometrium. Intramural leiomyomas are the most common type.^{1,4} Complex interactions between steroid hormones, growth hormones and mutations in the normal myometrium are considered as the possible etiology. Leiomyomas exhibit more estrogen receptors than normal myometrium.

Leiomyomas as well as the adjacent tissues shows secondary changes owing to estrogenic stimulation, particularly if unopposed by progesterone.⁹⁻¹³ Literatures suggest that increased parity, late menarche, smoking, and use of oral contraceptives decreases the risk for uterine leiomyoma.¹⁴⁻¹⁵ It is also the most common cause of hysterectomy worldwide. Grossly, leiomyomas are well circumscribed, firm, nodular gray- white masses of varying size. Cut section shows characteristic whorled pattern. Histopathological examinations show whorled bundles of smooth muscle cells arranged in intersecting fascicles admixed with variable amount of connective tissue. It may be associated with secondary changes (hyaline degeneration, myxoid changes, calcification, cystic changes) and various uterine-cervical pathologies.^{1,4}

AIMS AND OBJECTIVES

- To study the incidence of leiomyoma in hysterectomy specimens.
- To study the histopathological variants and secondary changes in leiomyoma.
- To study the associated histopathological changes in the endomyometrium and cervix.

MATERIAL AND METHODS

The study is a retrospective hospital-based study conducted in the Department of Pathology, Fakhruddin Ali Ahmed Medical College, Barpeta, Assam over a period of one and half year i.e., from July, 2019 to December, 2020. A total of 140 hysterectomy specimens with or without salpingo-oophorectomy of women above 30 years were received, out of which the 77 cases diagnosed as leiomyoma on histopathological examination were included in the study. All myomectomy specimens were excluded from the study. Clinical and radiological history were collected. A detailed gross examination of the uterus and cervix was carried out. Representative sections were taken, fixed in 10% formalin, routinely processed. The histopathological study was done on slides stained with hematoxylin and eosin. Histopathological findings in the uterus and cervix were noted.

RESULTS

A total of 140 hysterectomy specimens of women above 30 years were received during the study period, out of which 77 cases (55%) were of uterine leiomyoma. Majority of the cases were in the age group of 31-40 years accounting for 50.65% (Figure 1). The mean age was found to be 42.68 (standard deviation of 6.67).

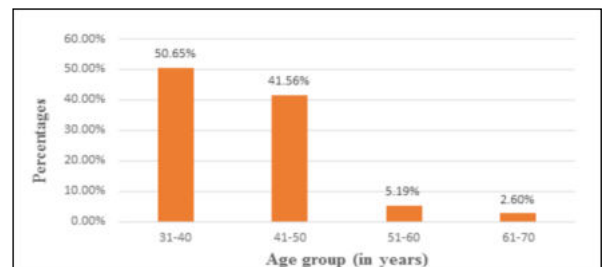


Figure 1: Bar Diagram Showing Age Wise Distribution Of Cases With Leiomyoma

The most common complaint was menorrhagia (45 cases) followed by dysmenorrhea (25 cases), abdominal pain (5 cases) and increased urinary frequency (2 cases) [Figure 2]

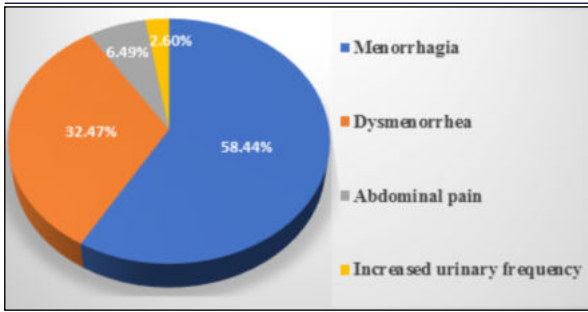


Figure 2: Pie Diagram Showing Chief Complaints Wise Distribution Of Cases

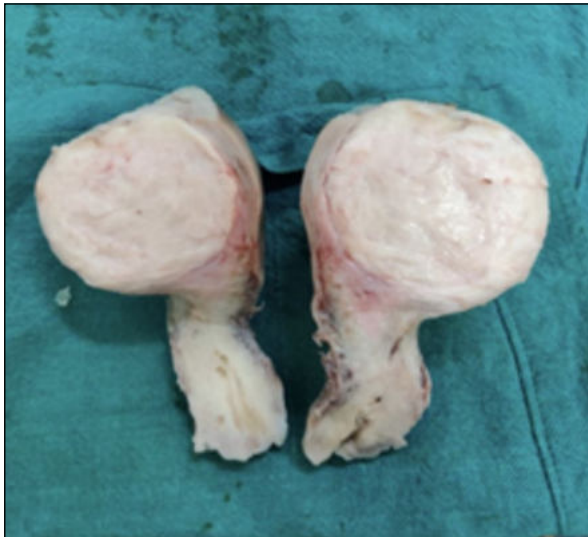


Figure 3: Cut Surface Of Uterus Showing A Large Fibroid Which Is Well Circumscribed, Grey White In Color And Has Characteristic Whorl Appearance.

With respect to location, 68.83% were intramural, 2.60% were submucosal, 2.60% were subserosal and 25.97% had fibroid in more than one location. The size of the leiomyoma ranged from 0.8 cm to 13 cm.

Secondary changes were observed in 16 cases (20.78%) of uterine leiomyoma. Out of these 16 cases, 11 cases (68.75%) showed histopathological features of hyaline degeneration and 5 cases (31.25%) showed histopathological features of myxoid degeneration (Figure 4). Among the variants of leiomyoma, 3 case (3.90%) showed histopathological features of cellular leiomyoma (Figure 5).

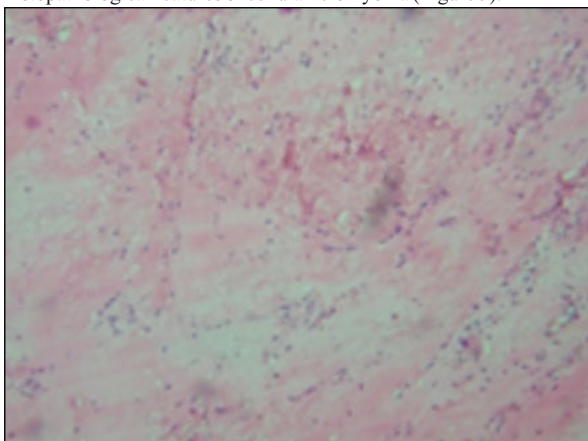


Figure 4: Leiomyoma with hyalinisation (H&E X 400)

On histopathological examination of endometrium, Endometrial hyperplasia without atypia (67.53%) was the most common finding [Table 1]. Cystic hyperplasia with adenomyomatous polyp was reported in 1 case (1.30%). 26 cases (33.77%) had dual pathology of leiomyoma and adenomyosis.

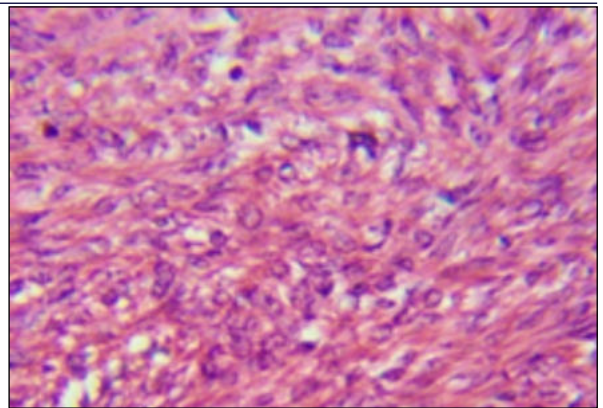


Figure 5: Cellular Leiomyoma (H&E X 400)

Table 1: Endometrial Changes With Uterine Leiomyoma

ENDOMETRIAL CHANGES	FREQUENCY	PERCENTAGES
Endometrial hyperplasia without atypia	52	67.53%
Atypical hyperplasia	2	2.60%
Chronic endometritis	3	3.90%
Proliferative endometrium	7	9.09%
Secretory endometrium	4	5.19%
Atrophic endometrium	9	11.69%

The most common cervical pathology with uterine leiomyoma was chronic cervicitis (71.42%) [Table 2].

Table 2: Cervical Pathology With Uterine Leiomyoma

Cervical Pathology	Frequency	Percentages
Chronic cervicitis	55	71.42%
Chronic cervicitis with CIN I	10	12.99%
Chronic cervicitis with squamous metaplasia	5	6.49%
Chronic cervicitis with glandular hyperplasia	1	1.30%
Chronic cervicitis with microglandular hyperplasia	1	1.30%
Chronic cervicitis with adenomatous polyp	1	1.30 %
Chronic papillary endocervicitis	2	2.60%
Atrophy of cervical mucosa with cervical leiomyoma	1	1.30%
CIN II	1	1.30%

DISCUSSION:

Uterine leiomyomas (fibroids), are remarkably common benign smooth muscle tumor of the uterus. They most commonly occur in reproductive-aged women.³

In the present study 55% of hysterectomy specimens showed histopathological features of leiomyoma. Majority of cases i.e., 50.65% were in the age group of 31-40 years. This finding was comparable to studies by Gowri et al. (41.3%) and Kakulapati B et al. (35.71%) where maximum number of cases were also in the age group of 31-40 years.^{16,17} However, in studies by Khan et al., Rizvi G et al., Lahori M et al. and Singh N et al. the age group of 41-50 were mostly affected.^{18,19,20,21} In the present study the mean age was 42.68 which was comparable to the study by Naz S et al where the mean age of the patients was 39 years.²²

Uterine leiomyomas may be asymptomatic.¹ The clinical symptoms if present depends on the size and location within the uterine wall.³ Common signs and symptoms include abnormal bleeding, pelvic pain, infertility, urinary frequency due to compression of the bladder.^{1,4} In the present study menorrhagia (58.44%) was found to be the most common clinical presentation and it was in concordance to studies done by Geethamala K et al.,¹⁰ Gowri et al.,¹⁶ Kakulapati B et al.,¹⁷ Khan N et al.,¹⁸ Manjula et al.,²³ and Sarfraz R et al.²⁴

These tumors are known to occur subserosally (beneath the serosa), intramurally (within the myometrium), or submucosally (just beneath the endometrium).^{1,3} In the present study the leiomyomas were mostly intramural (68.83 %) which was similar to studies by Geethamala K et

al. (48.9%),¹⁰ Kakulapati B et al. (39.28%),¹⁷ Bhatta S (51.2%)²⁵ and Abraham and Saldanha (61.5%).²⁶

Leiomyoma are known to undergo secondary changes. These include hyaline degeneration, myxoid changes, calcification, cystic changes, and fatty metamorphosis.² The type of secondary change depends on the degree of vascular insufficiency to the leiomyoma.¹⁰ Red degeneration occurs commonly during pregnancy. Hyaline degeneration has been reported as the most common secondary change by several studies.²⁷ In the present study 16 cases (20.78%) showed secondary changes. 68.75% cases showed histopathological features of hyaline degeneration and 31.25% cases showed histopathological features of myxoid degeneration.

Abraham and Saldanha reported secondary changes in 22.2% cases; out of which 49% showed hyaline change, 4.9% showed myxoid change, 4.9% showed calcification, 3.35 showed red degeneration and 4.9% showed hydropic change.²⁶ Gowri M et al. reported secondary changes in 22.6% cases and the most common change were hyalinization (16.9%) followed by cystic (3.5%) and myxoid (1.6%) change.¹⁶ Lahori M et al. observed degenerative changes in 13 leiomyomas (16.46%) of which 6.33% showed hyaline change, 3.8% showed myxoid change, 3.8% showed calcification, 3.8% showed cystic and 2.53% showed red degeneration.²⁰ On the contrary, study by Kulkarni MR et al. reported myxoid degeneration (3%) as the most common degeneration followed by hyaline degeneration (2%).²⁸

Among the variants of leiomyoma, our study reported 3 cases i.e., 3.90% of cellular leiomyoma. Abraham and Saldanha observed leiomyoma variants in 7.5% cases, which of the most common variant was cellular leiomyomas (78%) followed by 9.5% cases of lipoleiomyoma and 4.7% cases of bizarre (symplastic) leiomyomas and 2.3% cases of epithelioid leiomyomas.²⁶ Kumar B.V. et al reported 60% cellular leiomyoma, 19.6% mitotically active leiomyomas (MAL), 14.3% leiomyomas with bizarre nuclei (LBN), and 5.4% cases of smooth muscle tumour of uncertain malignant potential (STUMP).²⁹ Whereas, Geethamala K et al in their study reported a single case of lipoleiomyoma (0.12%) and cellular leiomyoma (0.12%), four cases (0.48%) of smooth muscle tumor of uncertain malignant potential (STUMP), and a single case (0.12%) of malignant transformation into leiomyosarcoma (LMS) were noted.¹⁰ Manjula K et al observed leiomyoma variants in 4.55% cases, among which the most common variant was Lipoleiomyoma (2.05%) followed by myxoid (0.91%), hemorrhagic cellular (0.45%), cellular (0.22%), epithelioid (0.22%), bizarre (0.22%), palisaded (0.22%) and lymphocytic infiltrated (0.22%) variants.²³

In the present study, we found varied incidental histopathological features both in the endometrium and cervix.

The coexistence of adenomyosis with leiomyoma was found in 33.77% cases. Study by Geethamala K and Saraf S reported leiomyoma with adenomyosis in 29.1% cases and 8.3% cases respectively.^{10,30} Similar findings were reported by Gowri M, Rizvi et al.^{16,19} Studies suggest coexistence of these lesions is due to unopposed estrogen and entrapment of glands within hypertrophied myometrium.¹⁰

In the present study the predominant histopathological findings in the endometrium in association with uterine leiomyoma was endometrial hyperplasia without atypia (67.53%) followed by atrophic endometrium (11.69%), proliferative endometrium (9.09%), secretory endometrium (5.19%), chronic endometritis (3.90%) and atypical hyperplasia (2.60%). Geethamala K et al have reported 50.7% cases of proliferative phase, 17.57% cases of secretory phase, 22.7% cases of endometrial hyperplasia, 2.8% cases of senile cystic atrophy, 3.7% of atrophic endometrium, 2.44% case of proliferative endometrium with adenomyomatous polyp.

Endometrial stromal changes noted were hemorrhage, chronic endometritis, and tubercular endometritis.¹⁰ In the study by Gowri M et al histopathological examination of endometrium revealed 46.3% (120) of proliferative phase and 22.8% (59) of endometrial hyperplasia. Other endometrial stromal changes were haemorrhage, chronic endometritis and tubercular endometritis.¹⁶ In the study by Khan N of 120 cases of uterine leiomyoma 61.66% showed proliferative phase of endometrium 23.33% secretory endometrium, 8.33% atrophic endometrium, 4.16% disordered proliferative endometrium and 2.50% endometrial hyperplasia observed in 3 cases.¹⁸

Several studies have described these endometrial changes due to irregular secretion of estrogens and mechanical effects of fibroid on endometrium.¹⁰ Study by Teleman and Mihailovici, have suggested a possible protective role of leiomyoma as target tissue which capture estrogens and presence of complex hyperplasia, atypical, or endometrial carcinomas is rare.³¹

In the present study the predominant cervical pathologies associated with uterine leiomyoma was Chronic cervicitis (71.42%) which was similar to study done by Khan N (70.83%).¹⁸

CONCLUSION:

Leiomyoma of uterus is the most common benign neoplasm in women. It is also the most frequent indication for the hysterectomy. The clinical presentation differs from patients to patients. The present study highlights the various variants of leiomyoma, degenerative changes and coexisting neoplastic lesions in the endometrium and cervix in association with uterine leiomyoma. Chronic cervicitis, simple hyperplasia without atypia and adenomyosis were the predominant findings found in association of uterine leiomyoma. Surgeons, radiologist and histopathologists should be aware of the various pathologies found in association of leiomyoma. Hence, a meticulous analysis of the indications for hysterectomy along with histopathological findings has increased credibility as it indicates accurate management protocol as well better surveillance of the patient.

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