

Histopathological Spectrum of Uterine Leiomyoma and Various Associated Pathologies in Hysterectomy Specimens in Tertiary Care Hospital

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ABSTRACT

Introduction: Uterine leiomyoma is the most common benign neoplasm in women of reproductive age group and shows great variability as regards to clinical presentation, site, number and presence of degenerative changes. Hysterectomy is the most common surgical intervention. Current study aimed to analyse the various spectrum of uterine leiomyoma with associated pathologies.

Material and methods: A retrospective study conducted in the department of pathology from the period of January 2018 – October 2019 at Maharishi Markandeshwar Medical College and Hospital, Kumarhatti, Solan, Himachal Pradesh. 120 patients diagnosed as Leiomyoma on histopathological examination of hysterectomy specimen were included in the study. The required data were obtained from histopathological requisition forms microscopically reported as Leiomyoma.

Results: Uterine leiomyoma was most common in the women of age group of 41-50 years (59.16%). Most common location was intramural (67.5%) which was predominantly solitary in nature (82.50%). Degenerative changes were observed in 18.33% cases with hyalinization as commonest. Proliferative endometrium was dominating endometrial pattern. Associated neoplastic lesions were seen in 6.66% cases.

Conclusion: The benign tumour of smooth muscle 'Uterine leiomyoma' commonly seen in perimenopausal female. Menorrhagia is the predominating manifestation. Leiomyoma is associated with various pathologies comprising of degenerative changes and coexisting benign and malignant lesions. Hence histopathological examination should be done to identify the various spectrum of uterine leiomyoma and associated pathologies.

Keywords: Uterine Leiomyoma, Hysterectomy, Degeneration

INTRODUCTION

Uterus is the vital reproductive organ of female which is hormone responsive.¹ Myometrium is the thick, smooth muscle coat of the uterus underneath the endometrium and is covered by the peritoneum derived serosa.² Among diverse benign lesions of Myometrium, leiomyoma is the commonest visceral neoplasm affecting females in reproductive age group.³ They are the chief cause for hysterectomy all over the globe; followed by adenomyosis, leiomyosarcoma, endometrial stromal tumors, secondary tumors and vascular lesions etc.⁴

They are noted clinically in 20-30% of women over 30 years of age, and are found in as many as 75% of uteri when a systematic search is conducted.^{5,6} Other synonymously used

terms for leiomyoma are fibroid, fibromyoma and myoma. Their absence before menarche, common occurrence in reproductive age group and regression after menopause suggest their estrogen dependence.⁷

The histopathological features of fibroid as a benign uterine pathology shows great variability as regards to clinical presentation, site, number and presence of degenerative changes.^{6,8}

They can present with pain, abnormal uterine bleeding, mass per vaginum and infertility due to irregular uterine contour. Sometime they can lead to spontaneous abortion, premature rupture of membranes, dystocia, and PPH.⁹ According to desire for conception they are managed by medical control of symptoms to surgical intervention in the form of myomectomy in younger patients and hysterectomy in elderly patients.¹⁰

Grossly they are seen as spherical firm bulging mass or masses (size variation is from barely visible nodules to large mass that fill the pelvis) with grey white whorled cut surface. Microscopic examination is quite characteristic with anastomosing fascicles of uniform smooth muscle cells. Degenerative or secondary changes such as hyaline degeneration, cystic degeneration, myxoid change, fatty change, calcification and metaplasia can be associated. After menopause or delivery, leiomyomas can undergo atrophy with significant shrinkage and fibrosis. Pregnancy, use of oral contraceptives and tumour vessel thrombosis is associated with red degeneration.^{11,12}

A growing research issue of interest is to correlate the uterine fibroid histological category to the patient's age, number and clinical features that may aid in clarification of the

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pathophysiological course of this disease.

Current study aimed to find out the histopathological evaluation of leiomyoma with degenerative changes and associated pathologies.

MATERIAL AND METHODS

A retrospective study conducted in the department of pathology from the period of January 2018 – October 2019 at Maharishi Markandeshwar Medical College and Hospital, Kumarhatti, Solan, Himachal Pradesh. One hundred and twenty patients diagnosed as Leiomyoma on histopathological examination of hysterectomy specimen were included in the study. The required data were obtained from histopathological requisition forms microscopically diagnosed as Leiomyoma.

The hysterectomy specimens were properly labelled, numbered and fixed in 10% buffered formalin. The gross specimens were examined for the location, number, degenerative changes in leiomyoma and associated pathologies. Representative sections were taken which were processed in automated tissue processor and embedded in paraffin wax. The blocks were sectioned and stained routinely with haematoxylin and eosin, examined under light microscope and the results were obtained and finally diagnosed as Leiomyoma.

Inclusion criteria

- Age group: 31-70 years
- Gross Specimen: Hysterectomy specimen
- Microscopic diagnosis: Leiomyoma

Exclusion Criteria

- Age < 30 years

RESULTS

In this study, a total of one hundred and twenty cases of uterine leiomyoma were examined. Age of the patients ranged from 30-70 years and majority were in the age group of 41-50 years, accounted 59.16% cases followed by patients in the age group of 31-40 years accounted as 26.66%.

Clinical manifestation

In present study, majority of the patients were presented with menorrhagia constituted 30% cases, followed by dysmenorrhea seen in 19.16% cases.

In our study the most common pre-operative diagnosis was Fibroid reported in 65.83% followed by abnormal uterine bleeding and Utero-vaginal prolapse seen in 25.0% and 9.17% cases respectively. (Table 1)

Surgical intervention

Total abdominal hysterectomy with bilateral salpingo-oophorectomy was the commonest surgery done in the patients of uterine leiomyoma accounted as 63.33% cases followed by abdominal hysterectomy in 15% cases. (Table 2)

Location and number of leiomyoma in uterus

In our study, Intramural leiomyoma were accounted commonest in 81 cases (67.50%) followed by subserosal leiomyoma in 13 cases (10.83%) and submucosal leiomyoma

Chief complaints	Number of cases	Percentage (%)
Menorrhagia	36	30
Dysmenorrhea	23	19.16
Asymptomatic	19	15.83
Pain abdomen	13	10.83
Polymenorrhea	11	9.16
Mass per vaginum	09	7.50
Post-menopausal bleeding	07	5.83
Infertility	02	1.66
Total	120	100

Table-1: Chief complaints in patients with uterine leiomyoma.

Type of hysterectomy	Number of cases	Percentage (%)
Total abdominal hysterectomy with bilateral salpingo-oophorectomy	76	63.33
Total abdominal hysterectomy with unilateral salpingo-oophorectomy	18	15.0
Total abdominal hysterectomy with unilateral salpingo-oophorectomy	15	12.50
Radical hysterectomy	10	8.33
Vaginal hysterectomy	01	0.83
Total	120	100

Table-2: Type of hysterectomy

Endometrial pattern	Number of cases	Percentage (%)
Proliferative endometrium	74	61.66
Secretory endometrium	28	23.33
Atrophic endometrium	10	8.33
Disordered proliferative endometrium	05	4.16
Endometrial hyperplasia	03	2.50
Total	120	100

Table-3: Histopathological pattern of endometrium in uterine leiomyoma

Uterine pathology	Number of cases	Percentage (%)
Chronic cervicitis	85	70.83
Adenomyosis	14	11.66
Endometrial polyp	03	2.50
Ovarian cystadenoma	03	2.50
Endocervical polyp	02	1.66
Endometriosis	02	1.66
Benign cystic teratoma	02	1.66
Ovarian cyst-adenocarcinoma	02	1.66
Brenner tumour	01	0.83
STUMP	01	0.83
Cervical fibroid	01	0.83
No pathology	04	3.33
Total	120	100

Table-4: Various uterine pathologies associated with leiomyoma

in 5 cases (4.16%). In our study out of 120 cases of leiomyoma, 99 cases (82.50%) were of solitary leiomyoma and 21 cases (17.50%) showed leiomyomata.

Size of leiomyoma

In our study, on gross examination, size of Intramural leiomyoma varied from few millimetre to 9.7x7.5x5.3 centimetres, subserosal leiomyoma were found to have



Figure-1: Gross image of hysterectomy specimen showing Intramural leiomyoma.

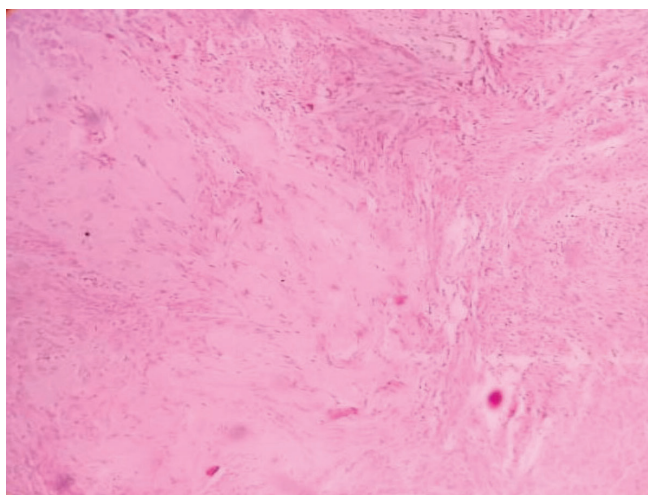


Figure-2: Photomicrograph of a uterine leiomyoma with hyaline degeneration

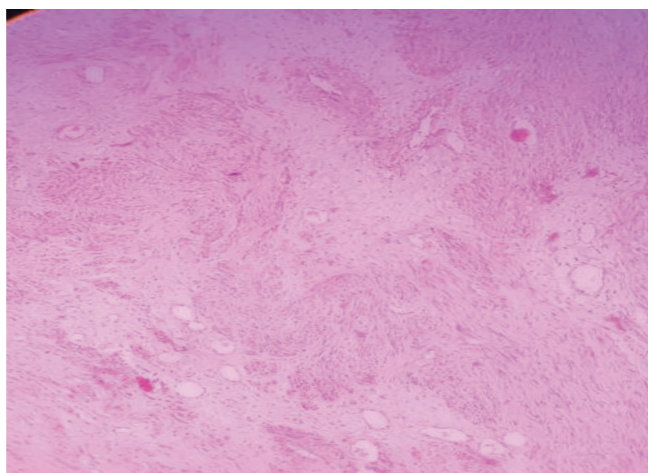


Figure-3: Photomicrograph of a uterine leiomyoma with myxoid degeneration.

size varied from few millimetre to 6.5x5.3x4.2 centimetres and submucosal leiomyoma varied from few millimetre to 3.9x2.0x1.5 centimetres (fig-1).

Various degenerative changes seen in uterine leiomyoma

In this present study of 120 cases of leiomyoma, under microscopic examination; 22 cases (18.33%) showed degenerative changes (fig-2). Among these, 15 cases (12.50%) had hyaline degeneration constituted commonest degenerative change observed in this study (Fig.3). 4 cases(3.33%) of leiomyoma were found to have myxoid degeneration, 2 cases(1.66%) had cystic degeneration and 1 case showed calcific degeneration.

Histopathological pattern of endometrium in uterine leiomyoma

In this study of 120 cases of uterine leiomyoma 74 cases (61.66%) showed proliferative phase of endometrium constituted the most common pattern followed by secretory endometrium observed in 28 cases(23.33%), atrophic endometrium in 10 cases(8.33%), disordered proliferative endometrium was seen in 5 cases(4.16%) and endometrial hyperplasia observed in 3 cases(2.50%). (Table 3)

Uterine pathologies associated with leiomyoma

Predominant pathologies associated with uterine leiomyoma were chronic cervicitis and adenomyosis accounted in 70.83% and 11.66% cases respectively. Neoplastic lesions of ovary, associated with uterine leiomyoma were observed in 6.66% cases and out of which malignancy was seen in 2.50% cases. (Table 4)

DISCUSSION

Uterine leiomyoma is the most common benign smooth muscle tumour of the uterus. It is believed that upto 70% of women have uterine leiomyoma at some stage of their life with high incidence in reproductive age. In our study age group of the patients ranged from 31-70 years and majority of the patients were in the range of 41-50 years (59.16%) which is in concordance with other studies done by Gupta et al (51.40%)¹³, Rather et al (47.20%)¹⁴, Gowri et al (49%)¹⁵, Lahori et al (46.84%)¹⁶ and Sushama et al (54.76%)¹⁷

In our study, menorrhagia and dysmenorrhoea were the commonest presenting chief complaints of the patients accounted 30.0% and 19.16% respectively. Menorrhagia was also the presenting complaint in many other studies done by Sarfraz et al (68%)¹⁸, Karthikyan et al (62.50%)¹⁹, Rather et al (35.40%)¹⁴, Gowri et al (49.30%)¹⁵, Manjula et al (35.40%)²⁰ and Lahori et al (37.97%)¹⁶.

In the present study Fibroid uterus was the commonest pre-operative diagnosis in 79 cases (65.83%) followed by abnormal uterine bleeding in 30 patients (25.0%) which is consistent with the analysed data reported by Vaidya et al (42.96%)²¹, Siwatch et al (39%)²² and Lahori et al (44%)¹⁶, while Gupta et al (34.06%)¹³ found that utero-vaginal prolapse was the commonest chief complaint reported in 40.0%.

Hysterectomy is the most common major gynaecological surgery performed in the world for diseases like leiomyoma,

adenomyosis, prolapse and dysfunctional uterine bleeding. In our study the most common hysterectomy procedure was total abdominal hysterectomy with bilateral salpingo-oophorectomy accounted in 63.33% cases followed by total abdominal hysterectomy in 15% cases. The finding is consistent with similar studies done by Sushama et al¹⁷ and VijayaGattu et al²³ who observed that the commonest route of hysterectomy was abdominal in 66.07% of cases and 97.50% of cases respectively.

In the present study, out of 120 cases of uterine leiomyoma 99 cases (82.50%) were of solitary leiomyoma and 21 cases (17.50%) were of multiple leiomyoma. Results are similar with various other studies done by Gowri et al (71% and 29%)¹⁵, Lahori et al (46.96% and 43.04%)¹⁶ and Sushama et al (80.95% and 19.50%).¹⁷ While in other studies done by Sarfraz et al (39.13% and 60.87%)¹⁸ and Abraham and Saldanha (42.5% and 57.5%)²⁴ who observed that multiple leiomyoma were commonest presentation.

Among 120 hysterectomy specimens 81 cases (67.50%) were found to have intramural leiomyoma followed by subserosal leiomyoma (10.83%) and submucosal leiomyoma (4.16%). Intramural leiomyoma was also the commonest type followed by subserosal and submucosal leiomyoma in the studies done by Gowri et al (48%)¹⁵, Abraham and Saldanha (61.50%)²⁴, Lahori et al (57.43%)¹⁶ and Sushama et al (51.20%).¹⁷

In the present study, degenerative changes were observed in 22 leiomyoma (18.33%). Among these 12.50% showed hyaline change which constituted the most common degenerative change observed in our study followed by myxoid (3.33%), cystic (1.66%) and calcific (0.83%). These results are similar to various studies. Gowri et al¹⁵ described hyaline change as a most common degenerative change in 16.90% followed by cystic, myxoid, calcific and red degeneration as a least common change. Abraham and Saldanha²⁴ also found hyaline change as most common change in 49% cases followed by myxoid, calcific, hydropic change and red degeneration as least common change. Sushama et al¹⁷ discovered hyaline change(7.14%) as a most common change followed by calcific change(1.8%) followed by myxoid (1.2%) and hydropic change (0.6%). Study done by Lahori et al¹⁶ also discovered hyaline and myxoid change (6.33%) as most common change followed by calcific (3.80%), cystic (3.8%), red degeneration (2.53%) as a least common change in their study. In the present study of 120 cases of uterine leiomyoma, proliferative endometrium was the most common endometrial pattern associated with leiomyoma which is seen in 64(53.33%) cases followed by secretory pattern and atrophic pattern observed in 28(23.33%) and 10(8.33%) cases respectively. Gowri et al¹⁵ described proliferative endometrium in 46.30% cases followed by secretory endometrium in 13.90% cases followed by atrophic endometrium in 7.70% cases. Study done by Sushama et al¹⁷ also showed proliferative endometrium to be the most common in 63.10% cases, secretory endometrium in 26.2% cases and atrophic endometrium in 7.73% cases. These

findings were in accordance with our study.

Among the uterine pathologies associated with leiomyoma; chronic cervicitis was the most common pathology in our study accounted in 70.83% cases similar to the study done by Taludkaret al.²⁵

Associated neoplastic lesions were observed in 6.66% patients in our study, among them 4.16% are benign comprised of ovarian cystadenoma(2.50%) and mature cystic teratoma(1.66%); malignant lesions were reported in 2.50% cases and comprised of ovarian cyst-adenocarcinoma (1.66%) and Brenner tumour (0.80%) which is in accordance with the study done by Sushama et al.¹⁷ Gowri et al¹⁵ observed granulosa cell tumor of ovary in 0.4% cases and ovarian cyst-adenocarcinoma in 1.6% patients.

CONCLUSION

Uterine leiomyoma is a benign tumour of smooth muscle commonly seen in perimenopausal females presented with menorrhagia, dysmenorrhea and pain abdomen. The treatment options comprising of hysterectomy, myomectomy or drug therapy, depending on various factors like parity, size, symptomatology etc. Intramural leiomyoma is the most common location. Various degenerative changes occur in leiomyoma among which hyaline degeneration is the most common. Associated proliferative endometrial phase, adenomyosis and cystic ovaries suggest hyperestrogenic state. Occasional cases are associated with neoplastic pathology. Hence histopathological diagnosis is the mainstay to identify the spectrum of uterine leiomyoma with various associated pathologies.

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