

## A Retrospective Study of Histomorphological Presentation of Uterine Leiomyomas in a Tertiary Care Teaching Hospital

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Conflict of interest: Nil

### Abstract:

**Background:** Leiomyomas of the uterus are extremely common neoplasms. Symptomatic leiomyoma need urgent attention by myomectomy in younger females whereas hysterectomy still remains the traditional modality of treatment. The aim of this study is to evaluate Based on this aim of our study is to study the gross and histomorphological pattern of the lesions and also to correlate the pattern of Leiomyoma with clinical presentation.

**Material and Methods:** A total of 1200 hysterectomy specimens diagnosed clinically as uterine leiomyoma's that were received in Department of Pathology. This data is from past 25 years. Hysterectomy specimens with other female genital tract conditions were excluded. The study was a retrospective study. The relevant clinical data were retrieved from histopathological requisition forms and clinical records.

**Result:** Most common symptom was menstrual disturbances. In the present study, 61% of the patients presented with menstrual disturbances of which Menorrhagia was the most common symptom. In majority of the cases with submucosal fibroids Dysfunctional uterine bleeding ranging from menorrhagia to metrorrhagia, polymenorrhoea and polymenorrhagia were seen. Intramural fibroids on the other hand presented with mass abdomen, pain abdomen along with menstrual disturbances. In present study, 328 leiomyomas (27.3%) showed degenerative changes and Hyaline change was the most common change observed. In this study 26 cases (2.2%) were variants of Leiomyoma of which the most common variant was Cellular type (20 cases, 1.7%), followed by Lipoleiomyoma (3 cases, 0.25%) and one case each in Symplastic (0.08%), Vascular (0.08%), Leiomyoma luteum (0.08%).

**Conclusion:** If uterine leiomyomas were detected in time and properly managed, extensive and complicated procedures and their adverse consequences could well be avoided. The present study provides data regarding the histological patterns of myometrial lesions in hysterectomy specimens. It is mandatory that all hysterectomy specimens must be evaluated by histopathological examination for better postoperative medical and surgical treatment of the patients.

**Keywords:** Intramural, Leiomyoma, Menorrhagia.

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### Introduction

Benign tumor of the muscular uterine wall is known by various names such as Leiomyomata / myxoma / fibroid.[1] Most of them are detected in middle aged women and are uncommon in women less than thirty years of age.[2]

The overall incidence is between 4% and 11%, but it rises to nearly 40% in women over the age of fifty years. Clinically apparent lesions are less common in parous and premenstrual women.[3]

The symptomatology may vary based on the location mainly.[2] It ranges from asymptomatic to various menstrual disturbances and even urinary difficulties. They are known to shrink after meno-

pause and it is associated with fibrosis and reduction in individual tumor cells.[4,5] The frequency does not decrease after menopause.[2] Leiomyomas of the uterus are extremely common neoplasms. The overall incidence is between 4% and 11%, but it rises to nearly 40% in women over the age of 50 years. Clinically apparent lesions are less common in parous than nulliparous women and premenopausal than postmenopausal women.

It produces varying symptoms ranging from asymptomatic to various forms of menstrual disturbances and some huge tumors even causing urinary difficulties. Some tumors may also cause in-

fertility. The symptoms produced by uterine leiomyomas depend on various factors like the location, number, and secondary changes. It can be seen in many sites but the most common site where it is encountered is intramural location. It can present as a solitary mass or even multiple masses. There is lot of histological variants of leiomyoma. It can also occur in many other sites like vulva, urethra, urinary bladder, skin.

They are known to shrink after menopause; this is associated both with fibrosis and with a reduction in the size of the individual tumor cells. The normal myometrium of leiomyoma-containing uteri expresses high levels of estrogen receptors, a fact that may be related to their pathogenesis. The normal myometrium of leiomyoma containing uterus expresses high level of estrogen receptors, a fact that may be related to their pathogenesis.[6] The ovarian follicular hormone acts upon myometrium and results in cellular metaplasia with subsequent development of uterine fibroids.[7]

Symptomatic leiomyoma need urgent attention by myomectomy in younger females whereas hysterectomy still remains the traditional modality of treatment.[8,9] This study also analyses the leiomyoma's in context to various individual characteristics like age, location, number, clinical presentation as well as some combined parameters that include location and number, location and clinical presentation. Based on this aim of our study is to study the gross and histomorphological pattern of the lesions and also to correlate the pattern of Leiomyoma with clinical presentation.

#### Material and Methods:

The study is conducted in Department of Pathology in a rural tertiary care teaching hospital as a retrospective study. A total of 1200 hysterectomy specimens diagnosed clinically as uterine leiomyoma's that were received in Department of Pathology. This data is from past 25 years. Hysterectomy specimens with other female genital tract conditions were excluded.

The relevant clinical data were retrieved from histopathological requisition forms and clinical records. All the specimens were fixed in 10% formalin and a detailed examination by two independent Pathologists was done with reference to number, location and combination of fibroids.

Data's were collected and analysed using SPSS version 24.

#### Results

A total of 1200 histopathologically proven leiomyoma cases were studied. In the above said period, a total of 2022 neoplastic lesions of female genital tract were received in the Department of Pathology. Majority were benign lesions (1419 cases, 70.2%). Leiomyoma was the most common benign tumor accounting for 84.6% among the benign lesions and 59.3% among all the neoplastic lesions.

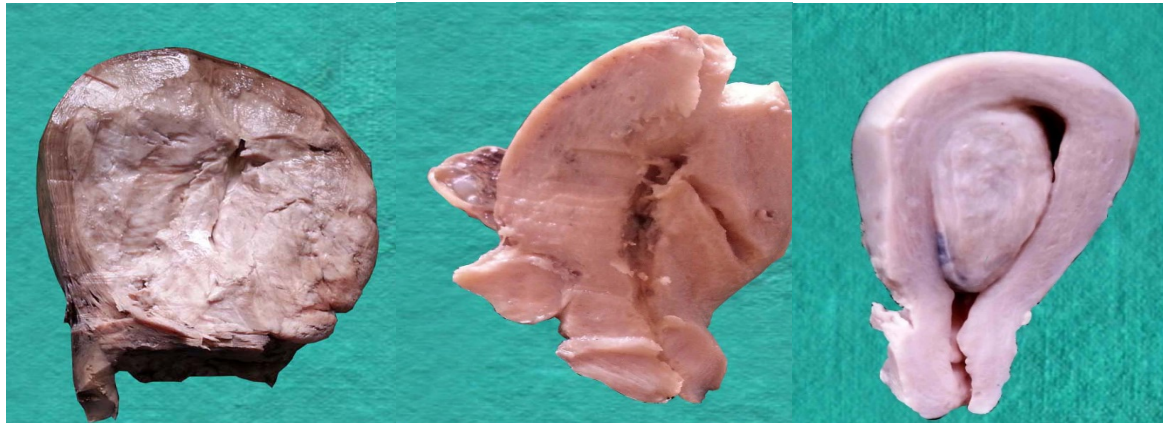
The age group of the patients were divided into five groups and the highest incidence was found in the 5th decade followed closely by 4th decade. The youngest and oldest patient was 19 and 75 years respectively. In the present study 61% of the patients presented with menstrual disturbances with menorrhagia being the most common symptom.

In the present study, majority were intramural leiomyoma (73.07%) followed by subserosal (14.75%) and submucosal (12.16) leiomyoma. The five year interval study showed a gradual decline in intramural leiomyoma while submucosal and subserosal were slightly increasing as the years passed by. The present study showed 902 cases having only one leiomyoma while 298 cases were found to have more than one leiomyoma among which majority were within single anatomical location while some were seen in combination with other anatomical locations. The most common combination seen was intramural with subserosal followed by intramural with submucosal.

Most common symptom was menstrual disturbances. The patient may also present with urinary symptoms due to compression of urinary bladder by some large leiomyomas. In the present study, 61% of the patients presented with menstrual disturbances of which Menorrhagia was the most common symptom. In majority of the cases with submucosal fibroids Dysfunctional uterine bleeding ranging from menorrhagia to metrorrhagia, polymenorrhoea and polymenorrhagia were seen. Intramural fibroids on the other hand presented with mass abdomen, pain abdomen along with menstrual disturbances. Majority of subserosal leiomyomas and one case of intramural leiomyoma was associated with dysuria.

**Table 1: Clinical presentation**

S.No	Symptoms	Total no. of Cases	Percentage
01	Menstrual Disturbances	276	61
02	Discharge PV	27	06
03	Mass Abdomen	90	20
04	Pain Abdomen	50	11
05	Urinary Symptoms	09	02



**Figure 1: Intramural, sub serosal and submucosal Leiomyoma**

In our study group coming to gross appearance fibroids size range from 5mm to 30cms. Cut section of all leiomyomas showed grey white whorled pattern. In present study, 328 leiomyomas (27.3%) showed degenerative changes and Hyaline change was the most common change observed (Table - 2).

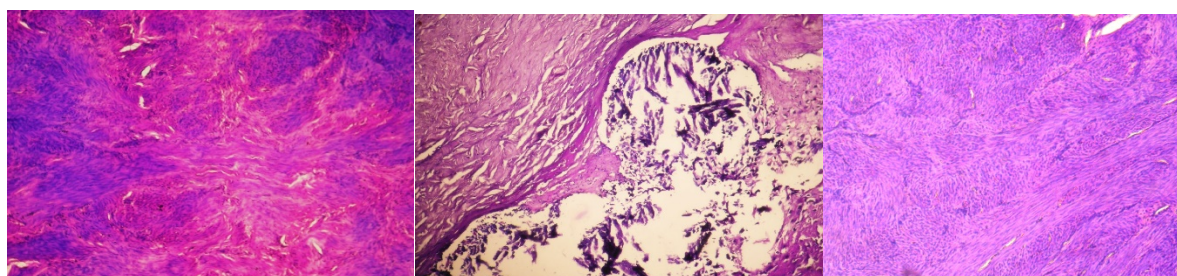
**Table 2: Degenerative Changes**

Degenerative changes	Number of cases	Percentage
Hyaline degeneration	320	26.7%
Cystic degeneration	04	0.33%
Calcification	03	0.25%
Mucoid degeneration	01	0.08%

**Histological Variations:** In this study 1174 (97.9%) cases showed features of conventional leiomyoma consisting of anastomosing and whorled fascicles of spindled smooth muscle cells with elongated nuclei. 26 cases (2.2%) were variants of Leiomyoma of which the most common variant was Cellular type (20 cases, 1.7%), followed by Lipoleiomyoma (3 cases, 0.25%) and one case each in Symplastic (0.08%), Vascular (0.08%), Leiomyoma luteum (0.08%) (Table – 10).

**Table 3: Histological Variants**

Variants	Number of cases	Percentage
Cellular	20	1.7
Lipoleiomyoma	03	0.25
Symplastic	01	0.08
Vascular	01	0.08
Leiomyoma Luteum	01	0.08



**Figure 2: Photomicrographs -Leiomyoma With Hyalinisation, Leiomyoma With Calcification, Cellular Leiomyoma**

**Discussion**

Leiomyoma is a benign neoplasm composed of smooth muscle cells in a variable amount of fibrous stroma. [10]

The pathogenesis of abnormal bleeding in leiomyoma is due to increased size of uterine cavity thereby increasing the surface area of the endometrium, vascular alterations of the

endometrium, endometrial hyperplasia due to increased estrogen hormone and obstructive effect of leiomyoma on uterine vasculature causing endometrial venule ectasia. This causes congestion in the proximal vessels of myometrium and endometrium. Most women have no symptoms while others may have painful or heavy menstrual cycles. Increased frequency in urination is seen if pressure is put by the fibroid on the urinary

bladder. Leiomyoma also causes mild to severe lower back pain or pain during intercourse based on the site and size of the lesion. Leiomyomas show familial history which is supposed to be related to the hormones. Obesity and consumption of red meat are few risk factors associated. Pelvic examination and radiology tests help in the diagnosis. There is no need of therapy if there are no or mild symptoms. There are gonadotropins releasing hormone agonist group of drugs available which may decrease the size of the leiomyomas but are expensive and associated with side effects. If patient is symptomatic, surgery is mandated.

In the present study the lesions were most commonly seen in 41 – 50 years age group (44.20%) which is comparable with studies by Rosario Pinto (44.7%), [11] Usha et al (48.95%), [12] Ramesh (49.37%) [13] and Mangala gowri [14]. The most common clinical presentation in the present study was menstrual disturbances (61%) and its comparable with Poddar (55.9%) [15], Bhaskar Reddy (59%) [16] and Chhabra et al (63%) [17].

The commonest location of fibroid in the present study was intramural (73.09) and it is comparable with Rosario Pinto (73.5%), Usha et al (77.17%). The number of leiomyomas occurring as a single mass was more common in the present study (75.29%) and it's comparable to Rosario Pinto (56.1%) and Mangala gowri (71.1%) but in contrast to a study by Begum S et al [18] whose study had majority of multiple leiomyomas. When present as multiple leiomyomas, most of them were located within a single anatomical location but some of them were present as a combination with Intramural and subserosal being the most common one in our study. Leiomyomas may form anywhere within the myometrium. The most common location is intramural location (75 %), followed by submucosal (15 %) and last subserosal (10 %).

In studies by various authors, the most common symptom found in leiomyoma was menstrual disturbances. In the present study the most common symptom found was menstrual disturbances which were around 61%. The findings in the present study are comparable with studies done by Chhabra et al [17], Bhaskar reddy 16 and Poddar. [15] In our study, menorrhagia was the major clinical symptom seen with intramural leiomyoma (89%), which can be explained by interference with uterine contraction. Similarly, metrorrhagia (86.6%) is commonly seen with submucosal leiomyoma because of endometrial ulceration. Subserosal and cervical leiomyomas are usually asymptomatic but may cause symptoms such as abdominal mass and pain. Coming to histomorphology Degenerative changes were seen in 328 leiomyomas (27.3%). Hyaline change was the most common change observed (320 cases, 26.7%) followed by Cystic

degeneration (3 cases, 0.33%), Calcification (3 cases, 0.25%) and Mucoïd degeneration (1 case, 0.08%). Generally grossly, secondary changes include necrosis, infarction, haemorrhage and other degenerative changes. Microscopic examination of leiomyomas shows whorled and anastomosing fascicles of spindle shaped to fusiform cells of similar size. These cells have abundant fibrillar and eosinophilic cytoplasm with an elongated nuclei having finely dispersed chromatin with inconspicuous nucleoli. Cystic changes and fatty degeneration are common findings in intramural leiomyoma.

Secondary changes are described in approximately 65% of cases, while we found them in 28 % in our study. Among them, hyaline degeneration is most common and reported in 63% of cases According to Rosai, [19] mucoïd or myxomate changes were seen in 19% of cases, but in our study, it was very less and again mostly with intramural leiomyoma. Cystic changes, the end result of hyaline degeneration, were observed by Rosai [19] and Zaloudek and Hendrikson [20] in 4.1% of cases, Leiomyomas showing a striking amount of fat changes are called lipoleiomyomas. We have seen three cases of lipoleiomyoma, of which three were related to the intramural variety. Most secondary changes were attributed to intramural leiomyoma. This may be owing to the diminished vascularity in large leiomyomas, and most of the intramural leiomyomas were larger than an orange. The immediate cause of degeneration is an interference with the capsular circulation.

### Conclusion

Although uterine leiomyomas are almost never associated with mortality, it still remains as one of the important causes of morbidity in women. If uterine leiomyomas were detected in time and properly managed, extensive and complicated procedures and their adverse consequences could well be avoided. Hence a large scale study like this will help to know the demographical and clinicopathological trends in the locality and thereby add to the existing volume of knowledge regarding uterine leiomyomas. The present study provides data regarding the histological patterns of myometrial lesions in hysterectomy specimens. It is mandatory that all hysterectomy specimens must be evaluated by histopathological examination for better postoperative medical and surgical treatment of the patients.

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