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Original Research Article

Clinicopathological study of leiomyomas in hysterectomy specimens

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ABSTRACT

Background: Leiomyomas are benign tumors of smooth muscle cells commonly encountered in women of reproductive age group. Aim of this study was to conduct a histopathological study of leiomyomas in hysterectomy specimens and to correlate them with clinical findings.

Methods: A prospective study was done on 130 hysterectomy specimens clinically diagnosed as leiomyoma. The specimens were subjected to histopathological examination.

Results: In this study, the most common age group was 31-50 years (87.69%). Most common complaint was menorrhagia (51.54%). In endometrium, the most common histopathological diagnosis was proliferative phase (46.15%) followed by endometrial hyperplasia (19.23%). The most common secondary change was hyalinization and the most common site was intramural (62.9%).

Conclusions: Hysterectomy is a commonly performed procedure in the management of uterine leiomyomas. The ultimate diagnosis and prognosis depends on the histopathological examination; therefore, every operated specimen must be subjected to histopathology.

Keywords: Hysterectomy, Histopathology, Leiomyoma

INTRODUCTION

Leiomyomas are the most common uterine neoplasms.¹ The clinical presentation of leiomyomas depends on their size and location.² They cause many signs and symptoms, the most common of which are pain, a sensation of pressure, and abnormal uterine bleeding. Leiomyomas need hormonal milieu for their growth and maintenance as evidenced by the molecular studies that they exhibit more estrogen receptors than normal myometrium.³ The cut surface of leiomyoma is white to tan, with a whorled trabecular pattern. On microscopic examination, it consists of whorled, anastomosing fascicles of uniform fusiform smooth muscle cells. Leiomyomas are one of the most common clinical indications of hysterectomy. Therefore, it is necessary to do histopathological

examination for confirmation and optimal patient management.

METHODS

The study was conducted on 130 hysterectomy specimens clinically diagnosed as leiomyoma. The specimens were received in the Department of Pathology from the Department of Obstetrics and Gynaecology, Government Medical College and Rajindra Hospital, Patiala. The study proposal and procedures were approved by the Ethical Committee of Government Medical College, Patiala. All the specimens were fixed in 10% formalin. After gross examination and tissue processing, blocks were made. Sections of 4µm thickness were cut from these blocks and were stained with routine Haematoxylin

and Eosin stain and examined under microscope. The clinical data and histopathological findings were recorded. Chi-square test was used to determine the statistical significance. A p-value of <0.05 was considered statistically significant.

RESULTS

Out of 130 cases studied, 80 cases (61.54%) of leiomyoma were seen in the age group 41-50 years, followed by 34 cases (26.15%) in the age group 31-40 years. In the age group 51-60 years, 15 cases (11.54%) were seen and 1 case (0.77%) was seen in the age group 61-70 years (Table 1). Maximum cases of leiomyoma were seen in the age group 31-50 years (87.69%).

Table 1: Age-wise distribution of patients with leiomyoma.

Age group (years)	Leiomyoma (n=130)	
	Number	Percent
31-40	34	26.15
41-50	80	61.54
51-60	15	11.54
61-70	1	0.77
Total	130	100.0

Patients with leiomyoma presented with multiple complaints. Most common complaint was menorrhagia (51.54%) followed by pain lower abdomen (48.46%) and irregular bleeding (18.46%) (Figure 1).

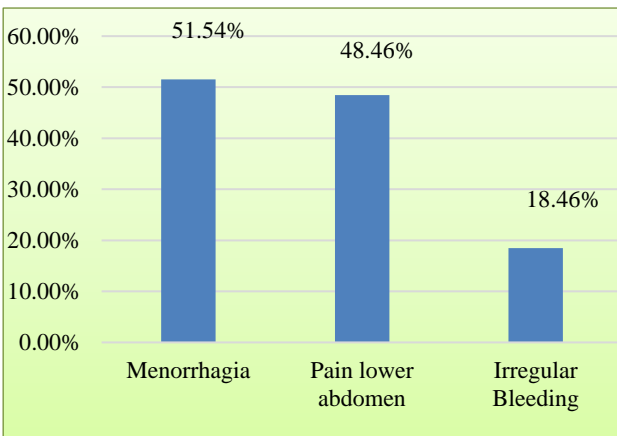


Figure 1: Various complaints of patients with leiomyoma.

In this study, 127 cases (97.69%) were seen in multiparous women while 3 cases (2.31%) were seen in nulliparous women.

In endometrium, the most common histopathological diagnosis was proliferative phase, seen in 60 cases (46.15%) followed by endometrial hyperplasia in 25 cases (19.23%). Other diagnosis included secretory phase in 22 cases (16.92%), atrophic endometrium in 9 cases (6.92%), endometrial breakdown in 2 cases (1.54%),

disordered proliferative phase in 5 cases (3.85%), endometrial polyp in 6 cases (4.62%) and chronic endometritis in 1 case (0.77%). In 36 cases (27.69 %) adenomyosis was seen in myometrium along with leiomyoma.

In this study secondary changes in leiomyoma were seen in 15 cases (11.54%). The most common secondary change observed was hyalinization (5.38%) followed by calcification (3.85%). Myxomatous change was seen in 3.08%, cystic change in 2.31%, haemorrhage in 0.77% and infection in 0.77% cases.

Distribution of site of leiomyoma was seen. Some patients presented with multiple leiomyomas. The most common site of leiomyoma was intramural (62.9%) followed by submucosal (21.8%) and subserosal (15.3%) (Figure 2).

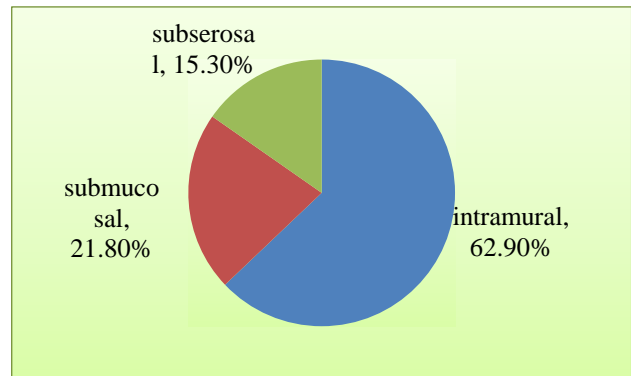


Figure 2: Site of leiomyoma.

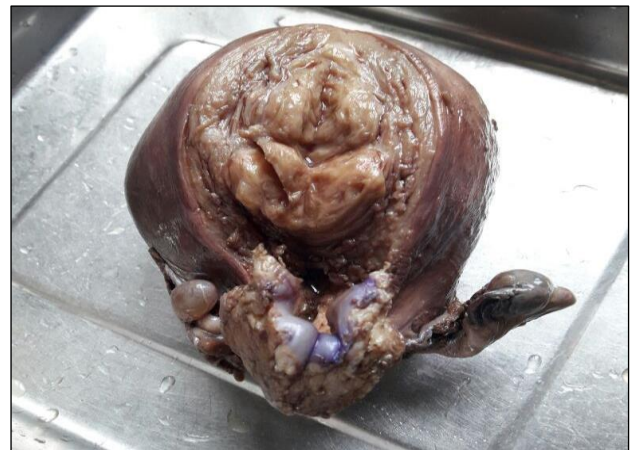


Figure 3: Gross picture showing enlarged uterus with submucosal fibroid

Site of leiomyoma was correlated with various complaints of patients. In our study, 69.2% cases of subserosal fibroid (p value = 0.000), 45.8% cases of intramural fibroid (p value = 0.015) and 37.8% cases of submucosal fibroid (p value = 0.982) presented with pain lower abdomen. Highly significant correlation was found between pain lower abdomen and subserosal fibroids.



Figure 4: Cut surface is white to tan with whorling pattern.

In this study, 42.3% cases of subserosal fibroid (p value = 0.628), 55.1% cases of intramural fibroid (p value = 0.000) and 35.1% cases of submucosal fibroid (p value = 0.691) presented with menorrhagia suggesting significant correlation of menorrhagia with intramural fibroids.

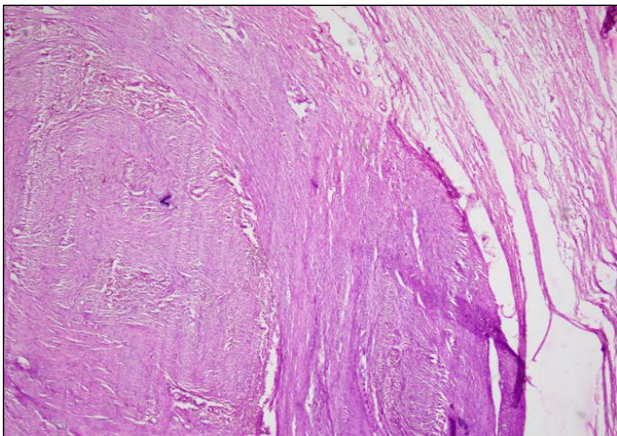


Figure 5: Photomicrograph of Leiomyoma showing whorled, anastomosing fascicles of fusiform smooth muscle cells (H&E X 100).

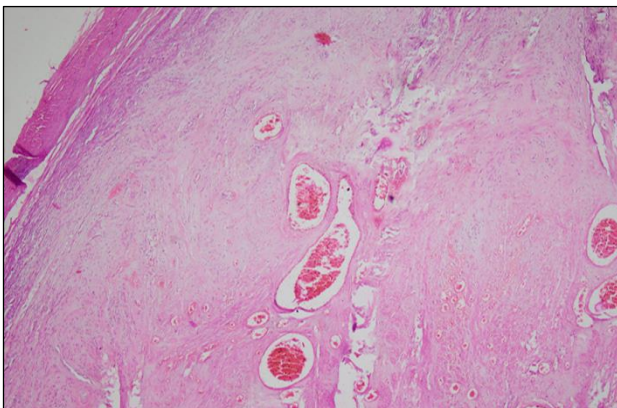


Figure 6: Photomicrograph of Leiomyoma showing hyalinization (H&E X 100).

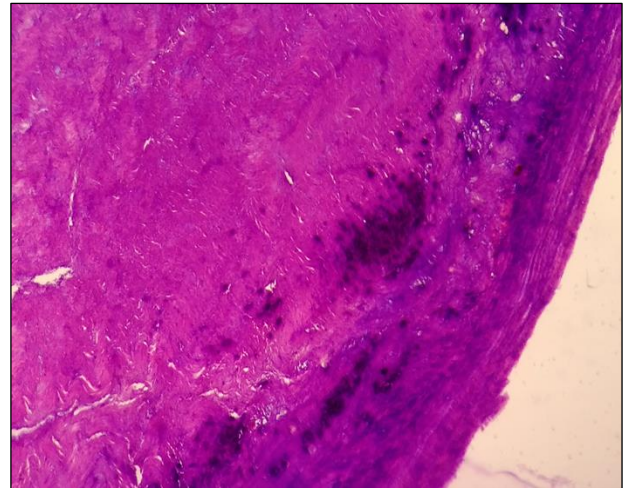


Figure 7: Photomicrograph of Leiomyoma showing calcification (H&E X 100).

In the present study, 7.7% cases with subserosal fibroid (p value = 0.320), 13.1% cases of intramural fibroid (p value = 0.689) and 56.8% cases of submucosal fibroid presented with irregular bleeding (p value = 0.000). Highly significant correlation was seen between submucosal fibroids and irregular bleeding.

DISCUSSION

Leiomyomas are mostly seen in reproductive age group and are hormone sensitive smooth muscle tumours.⁴ In the present study maximum cases of leiomyoma were seen in the age group 31-50 years (87.69%). This was comparable to the studies conducted by Gowri et al, Geethamala et al and other studies (Table 2).^{5,7}

Table 2: Comparison with other studies for most common age-group.

Author and year of Study	Percentage of patients in 31-50 years age group
Gowri et al ⁵	90.3%
Dayal et al ⁶	78.0%
Geethamala et al ⁷	90.23%
Dayal and Nagrath ⁸	82.83%
Present study	87.69%

In this study most common complaint of patients with leiomyoma was menorrhagia (51.54%) followed by pain lower abdomen (48.46%) and irregular bleeding (18.46%). This was similar to the studies conducted by Gowri et al, Dayal et al and Dayal and Nagrath (Table 3).^{5,6,8}

In the present study, 127 cases (97.69%) were seen in multiparous women while 3 cases (2.31%) were seen in nulliparous women. In a study conducted by Geethamala et al, 93.8% cases were seen in multiparous women and 1.6% in nulliparous.⁷ Similar results were seen in a study

conducted by Begum and Khan, Chethana et al and Lahori et al.⁹⁻¹¹

Table 3: Comparison with other studies for chief complaints.

Author and year of Study	Menorrhagia	Pain lower abdomen
Gowri et al ⁵	49.03% %	30.5%
Dayal et al ⁶	55.6%	21.1%
Dayal and Nagrath ⁸	60.86% %	30.20%
Present study	51.54%	48.46%

In this study, the most common histopathological diagnosis in endometrium was proliferative phase (46.15%) followed by endometrial hyperplasia (19.23%). This was comparable with the study conducted by Geethamala et al, in which proliferative phase was seen in 50.7% and simple hyperplasia in 22.7%.⁷ In a study conducted by Dayal and Nagrath, proliferative phase was seen in 48.51% and simple hyperplasia in 5.03% while in a study by Gowri et al, proliferative phase was seen in 46.3% and simple hyperplasia was seen in 22.8%.^{8,5} Proliferative phase and endometrial hyperplasia is seen commonly possibly due to hyper-estrogenic state.

In the present study, adenomyosis was seen in myometrium along with leiomyoma in 27.69% cases. This was similar to the studies by Gowri et al (29%) and Kulkarni et al (16%).^{5,12} Coexistence of these lesions is due to unopposed estrogen and entrapment of glands within hypertrophied myometrium.

In this study secondary changes in leiomyoma were seen in 15 cases (11.54%). The most common secondary change observed was hyalinization (5.38%) followed by calcification (3.85%). Myxomatous change was seen in 3.08%, cystic change in 2.31%, haemorrhage in 0.77% and infection in 0.77% cases. The results were comparable to the study conducted by Lahori et al in which secondary changes were seen in 16.46% cases.¹¹ Among these, 6.33% showed hyaline change which constituted the most common secondary change, 3.8% showed myxoid change, 3.8% showed calcification, 3.8% showed cystic and 2.53% demonstrated red (carneous) degeneration. Jung et al found secondary changes in 9.2% cases and the most common change was hyaline degeneration (5.7%).¹³ Gowri et al reported secondary changes in 23.6% cases with hyalinization (16.9%) being the commonest secondary change followed by cystic (3.5%) and myxoid (1.6%) change.⁵ Abraham and Saldanha observed secondary changes in 22.2% cases, among these hyaline changes was most common.¹⁴ The degenerative or secondary changes in leiomyomas occur due to inadequate blood supply. The type of secondary changes depends on the rapidity and degree of vascular insufficiency.¹⁵ Also these changes usually occur in an old mature lesion, therefore careful histopathological sampling should be done to rule out any malignant changes. The most common site of leiomyoma in the

present study was intramural (62.9%) followed by submucosal (21.8%) and subserosal (15.3%). Intramural was the most common site of leiomyoma in a study by Kulkarni et al (60%) and Lahori et al (57.43%) and Gowri et al (48%).^{12,11,5}

Most of the cases with subserosal fibroid presented with pain abdomen, while most of the cases with submucosal fibroid presented with irregular bleeding. Subserosal fibroids can cause pain due to compression or torsion (if they are pedunculated). Submucosal fibroids can cause compression of the overlying endometrium and compromise of its vascular supply.

CONCLUSION

Hysterectomy is a commonly performed procedure in the management of uterine leiomyomas. The ultimate diagnosis and prognosis depends on the histopathological examination; therefore, every operated specimen must be subjected to histopathology. The clinicopathological correlation is mandatory for optimal patient management.

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Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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