Clinicopathological study of uterine leiomyomas – a retrospective study

ABSTRACT

Leiomyomas are benign tumors of the uterus affecting women of the reproductive age group. They are the most common gynecologic neoplasms in women. This retrospective study was conducted to analyse and correlate the histopathological finding of leiomyomas in 203 hysterectomy specimens received in the department of pathology of Saveetha Medical College. It also served to study the associated changes and variants that were observed in the leiomyoma specimens. In this study it was found that the most affected age group was 31-50 years of age with multiple leiomyomas being more commonly seen than single tumors. The most commonly observed location was intramural. Majority of the hysterectomy specimens showed proliferative pattern of endometrium. Degenerative changes were only seen in 26 cases with hyaline degeneration being the most commonly observed secondary change. There were multiple uterine pathologies associated with the uterine leiomyomas of which ovarian cortical cysts were the most frequently noted. It is important to study uterine leiomyomas as the detailed histopathological study of these tumors helps to confirm the diagnosis and ensure optimal patient management.

Keywords: hysterectomy, histopathology, leiomyoma, uterus, fibroids, degeneration

1. INTRODUCTION

Leiomyomas are benign tumors of the uterus and are the most common gynaecologic neoplasms in women. They affect 5-20% of women of the reproductive age group (31- 50 years of age) [1] They originate from the smooth muscle cells of the uterus, with the most common location being intramural. [2,3]The tumors are hormone dependent and are sensitive to both estrogen and progesterone. Ovarian steroid hormones are thought to be responsible for the pathogenesis of leiomyomas.[4] Some leiomyomas also show degenerative changes. Types of degeneration may be cystic, hyaline, red or myxoid. A grey white whorled appearance is frequently seen on cut section of the leiomyoma. [5] Surgery in the form of hysterectomy is the most common method of treatment for these neoplasms. [6]

It is important to study the morphology of leiomyomas in order to develop a better understanding of these common neoplasms and the complications associated with them. Histopathological examination of leiomyomas is imperative to rule out possibility of malignant change.

This study was done to correlate the occurrence of leiomyomas with age and to analyzeclinicopathological spectrum of uterine leiomyomas with regards to their size, location, associated changes and variants.

2. METHODOLOGY

This retrospective study was done over a period of three years (2017-2019) on 203 cases of uterine hysterectomy specimens clinically diagnosed as leiomyoma at Saveetha Medical College and Hospital. Clearance was obtained from the Institutional Ethics Committee. Uterine specimens which showed no positive characteristics for uterine leiomyoma were excluded from the study. Data was obtained from the Department of Pathology of Saveetha Medical College and Hospital. Features such as age, number of fibroids found, location of fibroids, gross and microscopic features, secondary changes and associated pathologies were recorded and analysed.

3. RESULTS AND DISCUSSION

A total of 203 hysterectomy specimens were studied. The study population included patients aged between 26 to 70 years of age with a mean age of 43 years. Data analysis showed that the most common age group that showed occurrence of uterine leiomyoma was 41 to 50 years of age with 104 specimens (51.23%) falling under this category. Following this is the age group of 31 to 40 years of age having 63 specimens (31.03%), 51 to 60 years of age having 19 specimens (9.36%), 20 to 30 years of age having 11 specimens (5.42%) and 61 to 70 years of age having the least number of specimens with 6 cases (2.96%). (Fig/Table 1)

Table 1: Distribution of patients with leiomyoma in various age groups

Age group (years)	Number of patients	Percentage of patients (%)
21-30	11	5.42
31-40	63	31.03
41-50	104	51.23
51-60	19	9.36
61-70	6	2.96

Single leiomyomas were only found in 90 cases. More than 50% of the cases presented with two or more fibroids. (Fig/Table 2)

Table 2: Number of leiomyomas in uterus

Number of leiomyomas	Number of cases	Percentage of cases (%)
One	90	44.33
Multiple	113	55.67
Total	203	100

The most common location was found to be intramural consisting of 139 cases (68.47%)[8] followed by mixed type (more than one location found in 41 cases) (20.20%). Following this

was the submucosal location, having 15 cases (7.38%). Least number of fibroids were found in subserosa which accounted for 8 cases (3.95%) (Fig1), (Fig2) The studied specimens ranged from 0.5cm in diameter to 18x17x15cm in diameter.

Fig1: Distribution of location of leiomyoma

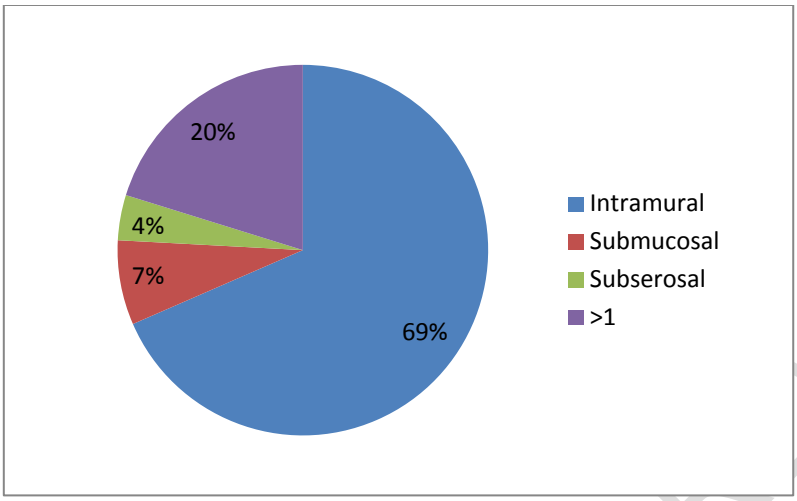
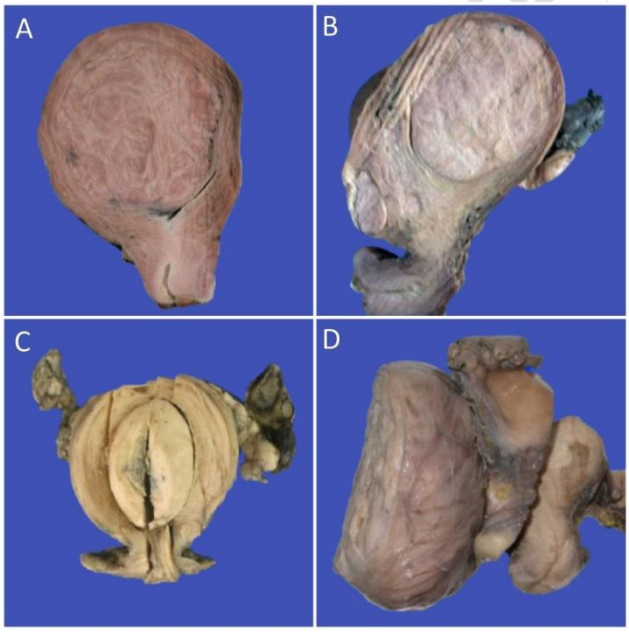
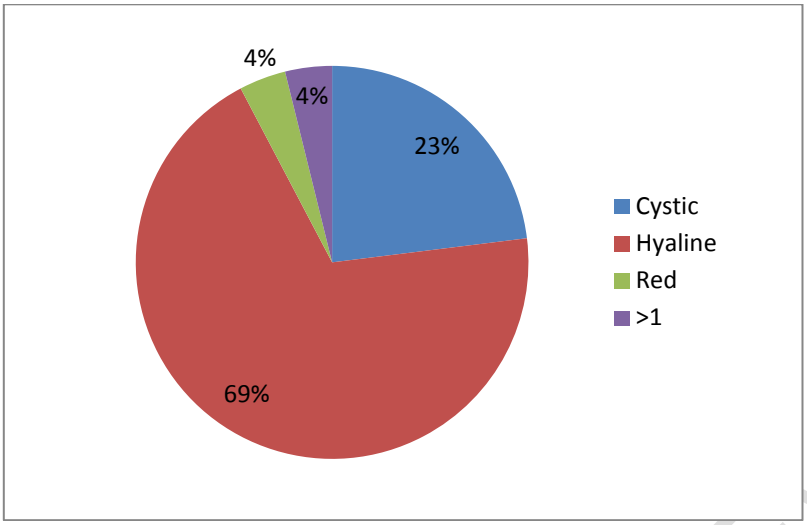


Fig 2: Location of leiomyomas - A.Solitary, intramural leiomyoma. B. Multiple intramural leiomyomas. C.Submucosal leiomyoma.D.Subserosal leiomyoma



Degenerative changes were seen in 26 cases.(12.80%) The most common degenerative change found was hyaline degeneration (69.23%) followed by cystic degeneration (23.07%). This was followed by Red degeneration and more than one type of degeneration - each making up 3.85%. (Fig3)

Fig3: Various degenerative changes seen in uterine leiomyomas



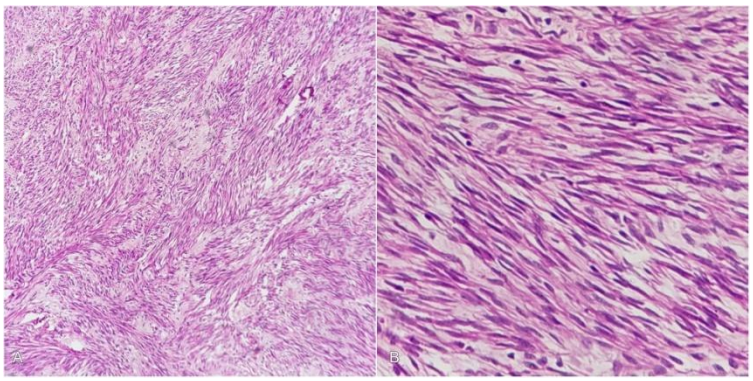
Hyaline degeneration was most frequently associated with intramural fibroids (61.11%). Red degeneration and >1 type of degeneration were only seen in intramural fibroids (100% each) and cystic degeneration was most frequently seen in fibroids having multiple locations (66.66%).(Table 3)

Table 3: Correlation of location with secondary changes

Fibroid Type	Hyaline degeneration	Red degeneration	Cystic degeneration	>1 type of degeneration
Intramural	11	1	2	1
Submucosal	2	-	-	-
Subserosal	-	-	-	-
>1 type	5	-	4	-
Total (26)	18	1	6	1

Micrscopically all the leiomyomas showed the classical pattern of fascicular arrangement of benign spindle cells with eosinophilic cytoplasm and elongated blunt edged nucleus.

Fig4: Microscopic appearance of leiomyoma - A.Benign spindle cells arranged in fascicles. H & E: 100 x. B. Spindle cells with eosinophilic cytoplasm and elongated blunt edged nucleus. H & E: 400 x



The various endometrial patterns observed in the cases were noted.(Table 4)

Table 4: Histopathological pattern of endometrium in uterine leiomyomas

Endometrial pattern	Number of cases	Percentage of cases (%)
Proliferative	115	56.7
Disordered proliferative	7	3.4
Secretory	50	24.6
Senile Cystic Atrophy	9	4.9
Atrophic	21	10.3
Typical Hyperplasia	1	0.3

Other associated findings in the hysterectomy specimens were also tabulated. (Table5)

Table 5: Other uterine pathologies associated with leiomyomas

Uterine pathology	Number	Percentage(%)
Paratubal Cyst	14	6.89
Fimbrial Cyst	4	1.97
Nabothian Cyst	9	4.44
Ovarian Cortical Cyst	21	10.34
Ovarian Mass	1	0.50
Hemorrhagic Corpus Luteum	7	3.44
Hypertrophied Cervix	13	6.40

Hydrosalpinx	1	0.50
Endocervical Polyp	1	0.50
Uterine Polyp	4	1.97
No specific pathology	128	63.05

3.1 DISCUSSION:

Uterine leiomyomas are the most common form of benign uterine tumors. [10] They are the primary cause of hysterectomy in premenopausal women . [11] In the present study, it was found that the most common age group in which the fibroids were found was in the range of 31 - 50 years, consisting of 82.26% of the total number of studied specimens. Hence it can be said that the major number of cases of leiomyoma were found in the reproductive age group. This was found to be a relatively consistent finding across various studies (Table 6). Least number of cases was found in the post reproductive age group of 61 – 70 years of age, comprising of only 2.96% of the total cases

Table 6 :Comparison with other studies for most common age group

Author	**% of patients in age group 41-50 years**
ManpreetKaur et Al.[7]	61.54
Mega Lahori et Al.[8]	46.84
BhattaSushama et Al.[9]	54.76
Present study	51.23

Most of the cases in this study presented with multiple leiomyomas. Of these, a single leiomyoma alone was recorded in 90 cases (44.33%) while 113 cases (55.67%) presented with two or more fibroids. However, in a study conducted by Priyardarshini et al., more cases of single leiomyomas were reported (59%) than cases of multiple leiomyomas (41%). [12]

Leiomyomas vary in size and location. In this study, majority of the specimens fell in the size range of 0.5 to 3.0cm in diameter. The location with which the leiomyomas were most commonly associated was intramural, comprising of 139 cases (68.47%), with the least number of cases being found in the subserosa having 8 cases (3.95%). Similar results were obtained in a study by ManpreetKaur et al. Their study showed that the most common site of leiomyomas was intramural (62.9%), followed by submucosal (21.8%) and then subserosal (15.3%). [7]

Degenerative changes were observed in 26 of the 203 uterine leiomyoma specimens. (12.80%) Various types of degeneration were recognized, of which hyaline degeneration made up more than half of the cases (69.23%) , followed by cystic degeneration (23.07%) and red degeneration (3.85%). More than one type of degeneration was found in 3.85% of cases. Similar results were found in other studies which showed that hyaline degeneration was the most frequently occurring type of degeneration, accounting for 63%.[9] [16] However, another study by MaitriRaghavendra et al. found myxoid type of degeneration to be the most common (3% of cases) followed by hyaline degeneration (2%). [6]

Majority of the cases in the present study showed proliferative pattern of endometrium,. (56.65%), similar to the results obtained by Maitri et al. (66.3%) [6], Manpreet et al. (46.15%).[7] and Geethamala k et al [9] Secretory type was the second most commonly associated uterine endometrial pattern (24.6%) and the least common was hyperplasia.
Of the uterine pathologies associated with leiomyomas, ovarian cortical cysts were the most commonly encountered (10.34%) and the least common were, accounting for 0.50% each, ovarian mass, endocervical polyp and hydrosalpinx.

4. CONCLUSION

Uterine leiomyomas, also known as fibroids, are the most common benign tumors, commonly found in reproductive age groups . Multiple leiomyomas were more common than single tumors. Proliferative endometrium was the pattern most commonly associated with uterine leiomyomas. The fibroids were most frequently found in the age group of 31-50 years of age, often associated with an intramural location. Degenerative changes were few, with hyaline degeneration being the most common. More leiomyomas occurred in multiples than as a single benign tumor. It is important to study uterine leiomyomas as the detailed histopathological study of these tumors helps to confirm the diagnosis and ensure optimal patient management.

ETHICAL APPROVAL

Institutional human ethical committee was obtained.

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