

# Clinicopathological Study of Leiomyomas

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**Abstract:** The Objective is to study the clinical features and histopathological pattern of leiomyomas.

**Materials and methods:** the material was obtained from the patients admitted to M.R. Medical college Gulbarga. Brief essential clinical history and findings were recorded from the patients case papers.

Following the receipt of surgical specimens, the specimens were allowed to fix in 10% formalin for 24-48 hours. Multiple parallel sections through each half, about 1 cm apart were made and each surface were carefully examined. In a leiomyomatous uteri, a detailed gross morphology of myomas were noted, which included number, location, size, sessile, pedunculated and secondary changes like hemorrhage, necrosis and calcification.

The tissue bits from representative area were taken for histopathological examination and paraffin blocks were prepared and routinely stained with haematoxylin and eosin stain.

**Results:** Leiomyoma was diagnosed in 318 cases of which 48 uteri sowed leiomyoma associated with adenomyosis, and 270 with only leiomyomas. The rest 2 were from myomectomy specimens. Age of the patients with leiomyoma ranged from 21 to 90 years. Majority of the patients (45.92%) were in the 4<sup>th</sup> decade, were diagnosed in multiparous women. Menorrhagia was the commonest symptom constituting 41.50%. Out of 318 cases of leiomyomas, 247 were intramural in location, 62 were sub-serosal in location and rest 51 were submucosal the major associated endometrial change was proliferative endometrium

**Conclusion:** Uterine fibroids are the most common benign conditions found in hysterectomy specimens with peak incidence at 41-50 years. Majority of them presented with menorrhagia. Histopathology is mandatory for confirming diagnosis

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## 1. INTRODUCTION

Leiomyomas of the uterus are extremely common neoplasms<sup>1</sup>. These tumors are most frequently seen clinically between the ages of 30 and 45, although they may start developing in the early twenties<sup>2</sup>.

Thirty percent are found in patients between the ages of 30 and 40. The tumors are very rare indeed before the age of 20, but are found not infrequently in women of postmenopausal age. The women with high parity is far less likely to develop myomata than a woman who has never been pregnant at all. The statistics show that 60% of myomata arise in women who have either never been pregnant or have had only one child<sup>3</sup>.

The course of fibromyoma is undetermined. Many factors have been considered but heredity is sometimes considered to be a factor – fibroids run in families<sup>4</sup>.

## 2. MATERIALS AND METHODS

This study consists of 1556 hysterectomy specimens collected over a period of 3 years from January 2003 to December 2005. The material was obtained from the patients admitted to Government General Hospital and Basaveshwar Teaching & General Hospital, attached to Mahadevappa Rampure Medical College, Gulbarga. Brief essential clinical history and findings were recorded from the patients case papers. Following the receipt the surgical specimens were allowed to fix in

10% formalin for 24-48 hours. Multiple parallel sections through each half, about 1 cm apart were made and each surface were carefully examined. In a leiomyomatous uteri, a detailed gross morphology of myomas were noted.

The tissue bits from representative area were taken for histopathological examination and paraffin blocks were prepared and routinely stained with haematoxylin and eosin stain.

### 3. RESULTS

Leiomyoma was diagnosed in 318 cases of which 48 uteri sowed leiomyoma associated with adenomyosis, and 270 with only leiomyomas. The rest 2 were from myomectomy specimens.

Age of the patients with leiomyoma ranged from 21 to 90 years. Majority of the patients (45.92%) were in the 4<sup>th</sup> decade, followed by 5<sup>th</sup> decade (35.84%) with only one patient in 9<sup>th</sup> decade (85 years old).

**Table.1 Age distribution in Leiomyoma**

Age in years	No. of Cases	Percentage of Cases
11 – 20	--	--
21 – 30	40	12.58
31 – 40	146	45.92
41 – 50	114	35.84
51 – 60	17	5.34
61 – 70	--	--
71 – 80	--	--
> 80	1	0.32
<b>Total</b>	<b>318</b>	<b>100.00</b>

#### Symptoms of Leiomyoma:

Menorrhagia was the commonest symptom constituting 41.50%, followed by dysmenorrhea 13.21%, mass per abdomen 10.06%, pain abdomen in 9.44%, remaining is as shown in the table-2.

**Table.2 Symptoms of leiomyoma**

Symptoms	Number of cases	Percentage of cases
Menorrhagia	132	41.5
Dysmenorrhoea	42	13.21
Pain abdomen	30	9.44
Mass per abdomen	32	10.06
Prolapse	20	6.28
White discharge per vagina	16	5.04
Mass per vagina	4	1.25
Backache	5	1.57
Bladder disturbances	3	0.94
Metrorrhagia	12	3.77
Sterility	4	1.26
Polymenorrhea	12	3.77
Fever	6	1.88
<b>Total</b>	<b>318</b>	<b>100.00</b>

#### Gross Features:

Out of 318 cases of leiomyomas, 247 were intramural in location, of which 197 were single and 50 were multiple. 62 were sub-serosal in location, of which 60 were from hysterectomies and 2 from myomectomy specimens. Among these 62 cases, 40 cases were single and 22 were multiple in location. Rest 51 were submucosal in which 49 were single and 3 were multiple.

**Table.3 Location and Number of Leiomyomas (n=318)**

Location	Single	Multiple	Total	Percentage of Cases
Intramural	197	50	247	68.61
Subserosal	40	22	62	17.23
Submucosal	49	2	51	14.16
<b>Total</b>	<b>286</b>	<b>74</b>	<b>360</b>	<b>100.00</b>
<b>Percentage</b>	<b>79.44</b>	<b>20.56</b>		

**Histological features of Leiomyoma:**

In this three study 287 cases (95.25%) showed features of leiomyoma consisting of anastomising and whorled fascicles of fusiform cells o a relatively uniform size.

These cells contain abundant eosinophilic and fibrillar cytoplasm with elongated nuclei having finely dispersed chromatin with occasional nucleoli and with rare mitotic figures. Associated secondary changes were seen in 31 (9.75%) cases. Also seen are 3 variants. One each case of cellular, epitheloid and symplasticleiomyomas.

**Degenerative Changes in Leiomyoma:**

Degenerative changes were observed in 31 leiomyomas (9.75%). Among these 23 leiomyomas showed (74.19%), hyaline change, which constituted the most common degenerative change in the study observed in the study.

**Endometrial Changes in Leiomyomatous Uterus:**

Out of 318 cases, leiomyoma was diagnosed in 316 hysterectomy specimen and other 2 from myomectomy specimen. In the present study, the major associated endometrial change was proliferative endometrium observed in 228 cases (72.15%), followed by secretory phase in 55 cases (17.42%).

**4. DISCUSSION**

In the present study, all the benign tumors are encountered in the uterus were leiomyomas (20.43%). Percentage of leiomyomas (20.43%) in the present study is comparable with the study of , Novak<sup>5</sup> (1952, 20%) and slightly more when compared to Shaw<sup>6</sup> (1971, 10%), while Tiltman<sup>7</sup> (1980, 56%) and Cramer and Patel<sup>9</sup> (1990, 77%) noted highest incidence of leiomyomas.

**Table.4 Comparative Percentage of Comparison of Leiomyomas in various Studies**

Author	Year	Percentage
Novak <sup>5</sup>	1952	20.00
Reddy & Malathy <sup>6</sup>	1963	3.19
Shaw <sup>7</sup>	1971	10.00
Tiltman <sup>8</sup>	1980	56.00
Cramer & Patel <sup>9</sup>	1990	77.00
BazotM et al <sup>10</sup>	2001	47.5
Present Study	2005	20.43

**Age:** Leiomyomas are usually found in reproductive age group<sup>11,12,13,14</sup>.

In the present study, the highest incidence (45.92%) was observed between 31-40 years. This finding correlates well with the observations made by Reddy & Malathy<sup>6</sup> (1963; 50%) and Rosario Pinto studies<sup>15</sup>.

**Table.5 Distribution noted by various authors in leiomyomas according to age in variousstudies**

Age	Reddy & Malathy <sup>6</sup> (1963) (%)	Rosario Pinto <sup>15</sup> (1968) (%)	Present study (2005) (%)
11 – 20	2.80	--	--
21 – 30	21.50	13.92	12.58
31 – 40	50.00	44.77	45.92
41 – 50	23.60	41.31	35.84
51& above	2.10	--	5.66

**Clinical Features:**

The clinical features of leiomyomas are variable, the vast majority being symptomless especially when small the symptomatology. The symptoms and severity usually depends on size, position and the number of leiomyomas present<sup>3</sup>. In the present study, highest number of patients with leiomyoma presented with menorrhagia 41.5% followed by dysmenorrhea 13.2%.

Menorrhagia was the commonest clinical symptom noted by Rosario Pinto<sup>15</sup> (1968, 37.9%), whereas it is only about 16% in Bhaskar Reddy and Malathy<sup>6</sup>.

White discharge per vagina in the present study (5.04%) correlates with the Reddy and Malathy study<sup>6</sup>. Fever in the present study (1.88%) is comparable to Rosari Pinto<sup>15</sup> (1968, 1.2%).

**Table.6 Comparative of Statement of various symptoms with other studies**

Symptoms	Reddy Malathy <sup>6</sup> (1963) (%)	Rosario Pinto <sup>15</sup> (1968), (%)	Present study (2005) (%)
Menorrhagia	16.00	37.90	41.50
Metorrhagia	43.00	32.90	3.77
Polymenorrhagia	--	1.20	3.77
Scanty periods	--	0.80	--
Post menopausal bleeding	--	2.40	--
Dysmenorrhea	--	4.20	13.21
Mass per abdomen	27	17.70	10.60
Pain abdomen	25	19.40	9.44
White discharge per vagina	9.50	--	5.04
Mass per vagina	--	--	1.25
Backache	--	--	1.57
Sterility	29.80	22.30	1.26
Fever	--	1.20	1.88
Postcoital bleeding	--	0.40	--
Pressure over the abdomen	--	22.30	--
Bladder disturbances	--	6.70	0.94

In the present study, abnormal uterine bleeding in the form of menorrhagia, metorrhagia and polymenorrhagia was found in 49.04% of cases, which is comparable to the study conducted by Chhabra& Jaiswal<sup>16</sup> (1996).

**Location of Leiomyoma:**

In the present study, highest number of leiomyomas were intramural constituting 68.61%, followed by subserosa 17.23%, whereas the submucosal leiomyoma constituted 14.16%. According to Rosario Pinto<sup>15</sup> (1968) and Chhabra and Ohwri<sup>17</sup> reported intramural leiomyomas as the commonest type observed in these study. Shaw<sup>17</sup> (1917) also noted intramural location of the leiomyomas accounting for 75% in his study, which is comparable to the present study. The location of subserosalleiomyomas in the present study 17.23% correlates with the Chhabra, Ohwri<sup>17</sup> (22.5%) and Shaw<sup>7</sup> (15%). Similarly the distribution of submucosal leiomyoma in the present study (14.16%) is comparable to Chhabra and Ohwri<sup>17</sup> (1992, 20%) and Shaw<sup>7</sup> (1971, 10%) studies.

**Table.7 Comparison of location of Leiomyomas in various studies**

Location	Reddy & Malathy <sup>6</sup> (1963) (%)	Rosario Pinto <sup>15</sup> (1968) (%)	Shaw <sup>7</sup> (1971) (%)	Chhabra& Ohwri <sup>17</sup> (1993) (%)	Present study (2005) (%)
Intramural	28.00	73.50	75.00	47.50	68.61
Subserosal	35	0.80	15.00	22.50	17.23
Submucosal	37.00	25.70	10.00	20.00	14.16

**Histological Features:**

Parker et al<sup>18</sup> (1994) reported secondary changes in 4.35% of the leiomyomas, which is comparable with the present study, whereas Persaud and Arjoon<sup>19</sup> (1970) reported secondary changes in 65% of the leiomyomas and Reddy and Malathy<sup>6</sup> (1963) observed some form of secondary changes present in all leiomyomas (325 cases)<sup>6,16,18,19</sup>.

Endometrial changes associated with leiomyomas may be variable. Majority of leiomyomatous uteri in the present study showed proliferative endometrium (72.15%), an observation comparable to the study of Rosario Pinto<sup>15</sup> (1968, 51.1%) who also found highest incidence of proliferative endometrium. Achari & Khanan<sup>20</sup> (1965) noted highest incidence of endometrial hyperplasia (50%) in their study of 76 cases.

In the present study, secretory endometrium was seen in 17.42% of cases, which is comparable to the study of Rosario Pinto<sup>15</sup> (1968, 17.5%).

**Table.8 Comparative Percentage of Endometrial Changes in Leiomyoma indifferent Studies.**

Endometrial changes	Achari & Khanan <sup>20</sup> (1965) (%)	Rosario Pinto <sup>15</sup> (1968), (%)	Present study (2005) (%)
Proliferative	34.20	51.10	72.15
Secretory	13.20	17.50	17.42
Endometrial hyperplasia	50.00	20.40	0.94
Atrophy	2.60	11.00	9.49

**5. CONCLUSION**

Majority of the patients with leiomyoma were in the 4<sup>th</sup> decade constituting 45.92%.

Most patients with leiomyoma were multiparous – 98.74% and only 4 cases were nulliparous – 1.26%.

- Menorrhagia and dysmenorrhea were the commonest clinical features observed in 41.50% and 13.21% of patients respectively.
- Grossly most leiomyomas were intramural 68.61% followed by subserosal 17.23% and least were submucosal leiomyomas 14.16%. The number of leiomyomas in a uterus varied up to 8.
- Of the total 318 leiomyomas, degenerative changes were observed in 9.75% of leiomyomas. Hyaline change was the commonest – 7.23%.
- Variants of leiomyoma constituted 0.94%, which included 1 case each of cellular, symplastic and epitheloid leiomyoma.
- Proliferative endometrium (72.15%) was the commonest endometrial change associated with leiomyomas.

**The informed consent and permission was obtained by the head of the Institute for the study and for publication of the case report, as it is the teaching institute all the cases will be operated with prior informed consent and permission.**

I/we believe the manuscript represents valid work. Neither this manuscript nor one with substantially similar content under my/our authorship has been published or is being considered for publication elsewhere, except as described in the covering letter.

I/we certify that all the data collected during the study is presented in this manuscript and no data from the study has been or will be published separately.

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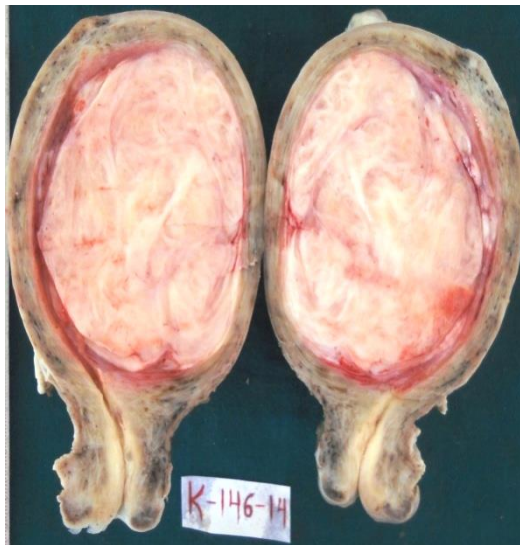
**Ethical clearance taken from ethical clearance committee M. R. Medical college Gulbarga.**

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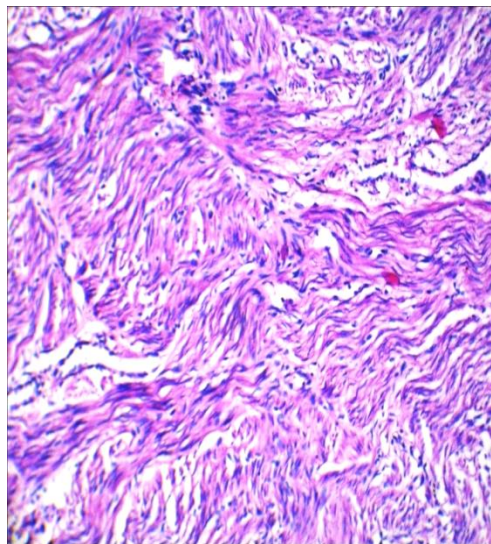
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**APPENDIX - A**



**Gross section of uterus showing submucosal leiomyoma**



**Microphotograph of classical leiomyoma showing bundles of smooth muscles running in different directions (H&E X60)**