

## A Clinicopathological Study of Leiomyoma with Secondary Changes in Northern Western Rajasthan

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### Abstract

**Background** – Uterine tumors are the most common and the leading cause of hysterectomy in women.

**Methods-** Hospital based cross sectional study conducted in Dept. of Pathology, S.P.Medical College, Bikaner.

**Results-** maximum (47.76%) patients were from 46-60 Yrs, 44.26% patients were from 31-45 Yrs age group and minimum patients (4.28%) was in more than 60 Yrs age group. 835(83.25%) patients were no change, 159(15.85%) patients were show hyalinization, 5(0.49%) patients were show calcification, 2(0.19%) patients were show fatty change, 1(0.09%) patients were show myxoid change and inflammatory change.

**Conclusion-** Leiomyoma is the most common benign tumor of the pelvis. They are commonly seen in perimenopausal females and present with menorrhagia, pain in abdomen or dysmenorrhea.

**Keywords-** Leiomyoma, dysmenorrhea, inflammatory change.

### Introduction

Uterine leiomyomas are benign smooth muscle tumors, found in one in three women over the age of 30 years. Uterine tumors are the most common and the leading cause of hysterectomy in women. Regarding the time of diagnosis they are more common in the fourth and fifth decade of life Leiomyoma of uterus also called as

fibromyoma or fibroid uterus is a benign tumor of uterus, essentially composed of smooth muscle tissue and a variable amount of fibrous connective tissue. It is the most common tumor of uterus and is found in 20% of women in reproductive age group<sup>1</sup>. These are typically found during the middle and late reproductive years. Fibroids have not been described in prepubertal girls but they are occasionally noted in adolescents. Myomas are clinically apparent in approximately 25% of reproductive-age women and noted on pathologic examination of approximately 80% surgically excised uteri. At least 20% of all women and 40% of women older than 40 years have uterine leiomyoma.

Fibroid Uterus is more common among older nulliparous and obese women, particularly the ones with positive family history. Leiomyomas are the reported reason behind one-third of all hospital admissions to gynecology services and one of the commonest indications for hysterectomy<sup>2</sup>. The diagnosis of uterine smooth-muscle tumors is generally unproblematic and straightforward. However there are certain tumors that may create great challenges for the pathologist. They are clinically apparent in up to 25% of women and cause significant morbidity, including prolonged or heavy menstrual bleeding, pelvic pressure or pain and in rare cases

reproductive dysfunction. Thus both the economic cost and the effect on quality of life are substantial<sup>3</sup>.

**Materials & Methods**

**Study design:** Hospital based cross sectional study

**Study place:** Dept. of Pathology, S.P.Medical College, Bikaner.

**Study duration-** 1000 cases in a period of four year.

**Study type:** prospective and retrospective hospital base study.

**Study population:** Patients of Abnormal Uterine Bleeding

**Study Unit:** Tissue specimens obtained from study population

**Sampling method:** Convenience non-probability sampling.

**Sample size:** All patients reporting to the Pathology dept. within study duration and eligible as per inclusion criteria were included in the study.

**Source of data:** All the biopsy or surgically excised specimens and reference material submitted to the Department of Pathology, SPMC, Bikaner for histopathological study during study period.

**Methods of collection of data:**

Clinical data will be obtained from hospital record and requisition submitted along with tissue specimen received in the department. Tissue bits were routinely processed. Three to five micron thick sections will be made from paraffin blocks and was stained with H&E stain. Special stains shall be done whenever necessary. Specimen obtained from eligible study population will be examined grossly as well as microscopically to assess type of fibroid, morphological patterns and variations and +/- of secondary changes.

**Observations**

The present study was undertaken to to assess and correlate demographic and clinic-pathological profile of

patients with uterine leiomyoma in terms of morphological variants and secondary changes in Department of Pathology, S.P.Medical College, Bikaner. This study was conducted on total 1003 number of cases.

**Table 1: Age distribution of study patients (n=1003)**

Age group (Yrs)	No. of patients	Percentage
0-15 Yrs	0	00
16-30 Yrs	27	2.69
31-45 Yrs	444	44.26
46-60 Yrs	479	47.76
More than 60 Yrs	53	5.28
<b>Total</b>	<b>1003</b>	<b>100.00</b>

Above table shows that out of 1003 patients, maximum (47.76%) patients were from 46-60 Yrs, 44.26% patients were from 31-45 Yrs age group and minimum patients (4.28%) was in more than 60 Yrs age group.

**Table 2: Parity wise distribution of study patients (n=1003)**

Parity	No. of patients	Percentage
Nulliparous	42	4.19
Multiparous	961	95.81
<b>Total</b>	<b>1003</b>	<b>100.00</b>

Above table shows that 4.19% patients were nulliparous and 95.81% patients were multiparous.

**Table 3: Year wise data of uterine leiomyoma biopsy.**

Year	Total biopsy	Uterine leiomyoma biopsy
2014	6082	243
2015	7308	222
2016	8483	248
2017	8632	290
<b>Total</b>	<b>30505</b>	<b>1003</b>

In year 2017 out of 8632 total biopsy, 290 (3.35%) were from uterine leiomyoma and in last 4 years out of total biopsy 30505 , 1003(3.29%) from uterine leiomyoma biopsy.

**Table 4: Basis of diagnosis wise distribution of study patients**

Basis of diagnosis	No. of patients	Percentage
Clinical diagnosis	540	53.83
Clinical diagnosis + USG	463	46.17
<b>Total</b>	<b>1003</b>	<b>100.00</b>

Above table shows that 540(53.83%) patients were diagnosis by clinically and 463(46.17%) diagnosed by clinical diagnosis + USG.

**Table 5: Histopathological within leiomyomas.**

Secondary Change	No. of patients	Percentage
Hyalinization	159	15.85
Calcification	5	0.49
Fatty change	2	0.19
Myxoid change	1	0.09
Inflammatory change	1	0.09
Absent	835	83.25
<b>Total</b>	<b>1003</b>	<b>100.00</b>

As above table show that 835(83.25%) patients were no change, 159(15.85%) patients were show hyalinization, 5(0.49%) patients were show calcification, 2(0.19%) patients were show fatty change, 1(0.09%) patients were show myxoid change and inflammatory change.

**Discussion**

The present study was undertaken to to assess and correlate demographic and clinic-pathological profile of

patients with uterine leiomyoma in terms of morphological variants and secondary changes in Dept. of Pathology, S.P.Medical College, Bikaner. This study was conducted on total 1003 number of cases.

Uterine leiomyomas are benign neoplasms commonly encountered in gynaecological practice. Estrogen and progesterone are recognized as promoters of tumor growth, and the potential role of environmental estrogens has only recently been explored. Growth factors with mitogenic activity, such as transforming growth factor-β3, basic fibroblast growth factor, epidermal growth factor, and insulin-like growth factor-I, are found to be elevated in leiomyomas and may be the effectors of estrogen and progesterone promotion. Nonrandom cytogenetic abnormalities have been found in about 40% of tumors examined. One of the most common of these is a translocation between chromosomes 12 and 14, specifically t(12;14) (q14-q15;q23- q24), which is present in about 20% of karyotypically abnormal leiomyomas. Another frequently encountered karyotypic abnormality in fibroids is a deletion of chromosome 7, del(7)(q22q32), which is present in about 17% of karyotypically abnormal leiomyomas. A third cytogenetic subgroup consists of aberrations of 6p21, including deletions, inversions, translocations, and insertions. Trisomy 12 has been reported in as many as 12% of karyotypically abnormal leiomyomas<sup>4</sup>.

Charles Clay was the first to perform subtotal and total hysterectomy in Manchester, England, in 1843 and 1929, respectively.<sup>5,6</sup> Benign conditions such as leiomyoma, dysfunctional uterine bleeding, adenomyosis, pelvis inflammatory diseases, endometriosis, pelvic organ prolapse account for major hysterectomies, and rest for malignancy.<sup>7,8</sup> Of these benign lesions, leiomyoma followed by adenomyosis is the most common indication for hysterectomy.<sup>7,8</sup> It is a successful procedure done in

terms of symptom relief; patient satisfaction; and definitive cure in many diseases.<sup>8</sup>

Leiomyomas are commonly seen in women of reproductive age.<sup>9</sup>The present study out of 1003 patients, maximum (47.76%) patients were from 46-60 Yrs, 44.26% patients were from 31-45 Yrs age group and minimum patients (4.28%) was in more than 60 Yrs age group. similar to studies by Ashraf,<sup>10</sup> and Begum and Khan<sup>75</sup> whereas in contrast, Hafiz *et al.*<sup>11</sup>observed that affected females were a decade lesser than 20-40 years of age possibly since they included only menorrhagic patients with fibroid.

In our study multiparous women (95.81%) were found to have leiomyomas more frequently than nulliparous (4.19%) analogous to a study by Begum and Khan,<sup>75</sup>in contrast to a study by Derek<sup>12</sup> who observed fibroids are more common in nulliparous or infertile patients since he included more of asymptomatic infertile patients with fibroids.

In the present study, secondary degenerative changes were noted grossly in 16.75% of cases. The degenerative changes in leiomyomas occur due to inadequate blood supply which may result in hyalinization, most common followed by cystic, hemorrhage, hydropic, or calcification, and very rarely malignant degeneration or LMS. The type of secondary change depends on the rapidity and degree of vascular insufficiency.<sup>9</sup> Epithelioid variants of leiomyoma 2 cases(0.19%) was reported in our study. In the present study also, hyalinization was the most common secondary change similar to the study by Begum and Khan,<sup>9</sup> and Persaud and Arjoon.<sup>13</sup> Red degeneration occurs predominantly during pregnancy,<sup>14</sup> one of our cases were diagnosed during pregnancy .In addition, these secondary changes usually occur in old mature lesions and hence careful conscientious histopathological sampling should be carried out.<sup>14</sup>

## Conclusion

Leiomyoma is the most common benign tumor of the pelvis. They are commonly seen in perimenopausal females and present with menorrhagia, pain in abdomen or dysmenorrhea.

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