

## Variability of Uterine Leiomyoma Incidence Among Premenopausal, Perimenopausal, and Postmenopausal Women

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### **ABSTRACT:**

**Background:** Uterine leiomyoma (UL) or fibroid are the most common gynecological benign tumors. Uterine fibroids are a major cause of morbidity in women of reproductive age with a high prevalence among premenopausal women. Many factors have been suggested to be causing the development and incidence of these common tumors. **Aim:** To investigate the prevalence of uterine leiomyoma in different age groups. **Materials and Methods:** This is a retrospective study of one hundred patients who underwent hysterectomy for uterine leiomyoma in different age groups. The data was collected from laboratory files at the Alamal Fertility Centre and additional data was collected from the Pathology Department archive, Faculty of Medicine Benghazi University. Excel has been used for data collection and descriptive analysis. **Results:** Uterine leiomyoma was most common in the Premenopause 20-40 age group (72%). The most common location of leiomyoma was intramural with 44% in premenopausal state. According to the clinical symptoms Pelvic pain and bleeding were the commonest presentations with 65% and 62%, respectively. Myomectomy was the surgical treatment of choice in the premenopausal age group (67%) to preserve women's fertility. **Conclusion:** A higher prevalence of uterine fibroid in reproductive age. Uterine fibroid usually presents with Pelvic pain and bleeding. The optimal surgical option was myomectomy to preserve their fertility because all of the patients were in the premenopause age group.

**Keywords:** Uterine leiomyoma (UL), fibroid, premenopause, perimenopause, postmenopause, myomectomy

### **INTRODUCTION:**

Uterine leiomyoma, also known as fibroid, myoma, and fibromas, are noncancerous growths of the uterus that develop from the smooth muscle of the uterus. They are the most prevalent group of solid benign gynecologic tumors in premenopausal, perimenopausal, and postmenopausal women. It is estimated that nearly 70-80% of women will develop ULs at some point during their lifetime<sup>1</sup>. The exact cause of uterine leiomyomas is not well known. Even though their pathogenesis is not known<sup>2</sup>. It could be due to various factors such as genetic defects such as genetic abnormalities such as deletion of portions of 7q, trisomy 12, and rearrangements of 12q15, 6p21, or 10q22<sup>3</sup>. Insulin-like growth factor (IGF) may also play a role (Hyperinsulinemia is considered a risk factor since insulin may influence UL development through direct promotion of myometrial smooth muscle cell proliferation or by increasing circulating levels of ovarian hormones)<sup>4</sup>. With regards to hormonal

variations: there's a strong correlation between hormonal variations and the incidence of leiomyoma. Estrogen and progesterone hormones induce cells to release mitogenic stimuli to adjacent immature cells, thereby supporting tumor growth. In particular *progesterone as major promoters* of leiomyoma development and growth<sup>5</sup>. Leiomyomas can vary in size, number, and location in the uterus. It can grow as a single nodule (a solitary growth) or in a cluster (Multifocal). They are also classified by their locations relative to the uterine layers into subserous [develop on the outer surface of the uterus], intramural [develop within the wall of the uterus], and submucous [develop on the inner part of the uterine cavity]<sup>6</sup>. Regarding the clinical presentations, the majority of women show no symptoms, but up to 30% of them have symptoms that are severe enough to warrant seeking medical intervention. For instance, leiomyoma present with the following symptoms: Menstrual irregularities, abnormal uterine bleeding, menorrhagia (heavy cycle), pelvic pain, lower urinary tract symptoms, Urine incontinence (Difficulty emptying the bladder),

Frequent urination, Constipation, Spinal or leg distress (Backache or leg pains), sexual dysfunction, and recurrent pregnancy loss (miscarriage) <sup>7</sup>. Uterine leiomyoma can potentially cause infertility by blocking the fallopian tubes or stopping a fertilized egg from implanting in the uterus, large fibroids may prevent a fetus from growing fully due to decreased space in the uterus <sup>8</sup>. Additionally, submucosal, and possibly intramural, lesions can create a deleterious endometrial inflammatory milieu that can affect sperm migration and embryo implantation <sup>9</sup>. Treatment is based on the size, location, and severity of the condition this includes myomectomy total abdominal hysterectomy (TAH), subtotal hysterectomy, and excisional biopsy. non-surgical treatments are also available <sup>10</sup>. Uterine artery embolization (UAE) is an alternative procedure to a hysterectomy or myomectomy for treating fibroids, it may be recommended for women with large fibroids <sup>11</sup>. The aim of this study is primarily to observe the prevalence of uterine leiomyoma in women of different age groups.

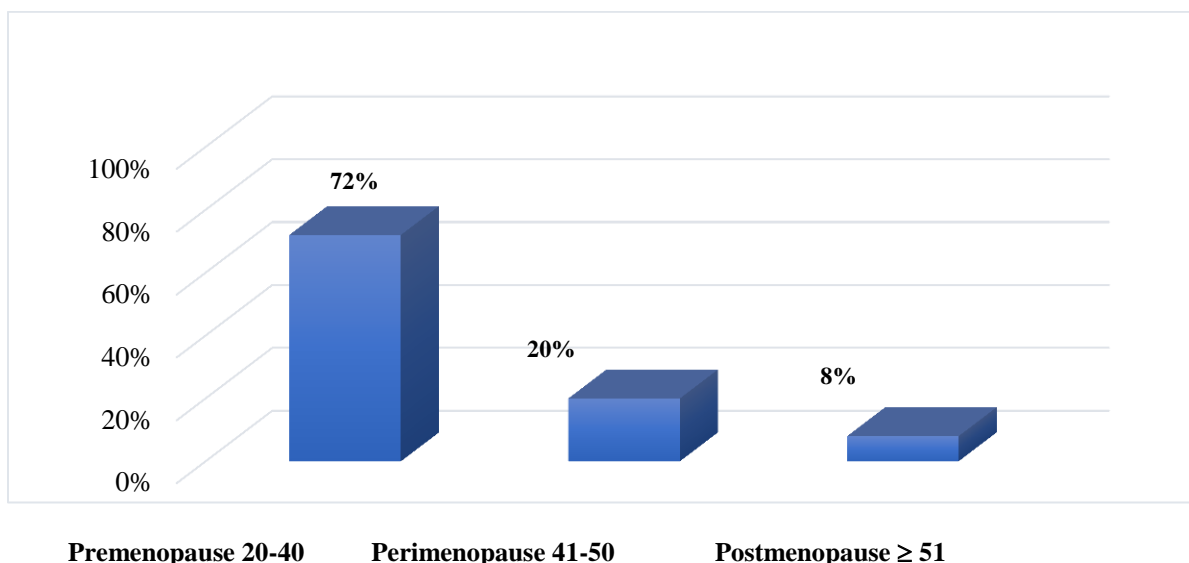
**MATERIAL AND METHODS:**

In this study, 100 surgically resected samples from myomectomy, hysterectomy, or sub-total hysterectomy were sent to the histopathology laboratory for analysis. Within the last three years, the data were collected from the laboratory files at Alamal Fertility Centre and Pathology Department archive, Faculty of Medicine Benghazi University. As a routine, all hysterectomy specimens were fixed in 10% formalin neutral buffered formalin and 5µ sections were stained with hematoxylin and eosin stain (H & E stain). Patients diagnosed with leiomyoma on histopathological examination of hysterectomy specimens were included in the study. A histopathological examination was done under light

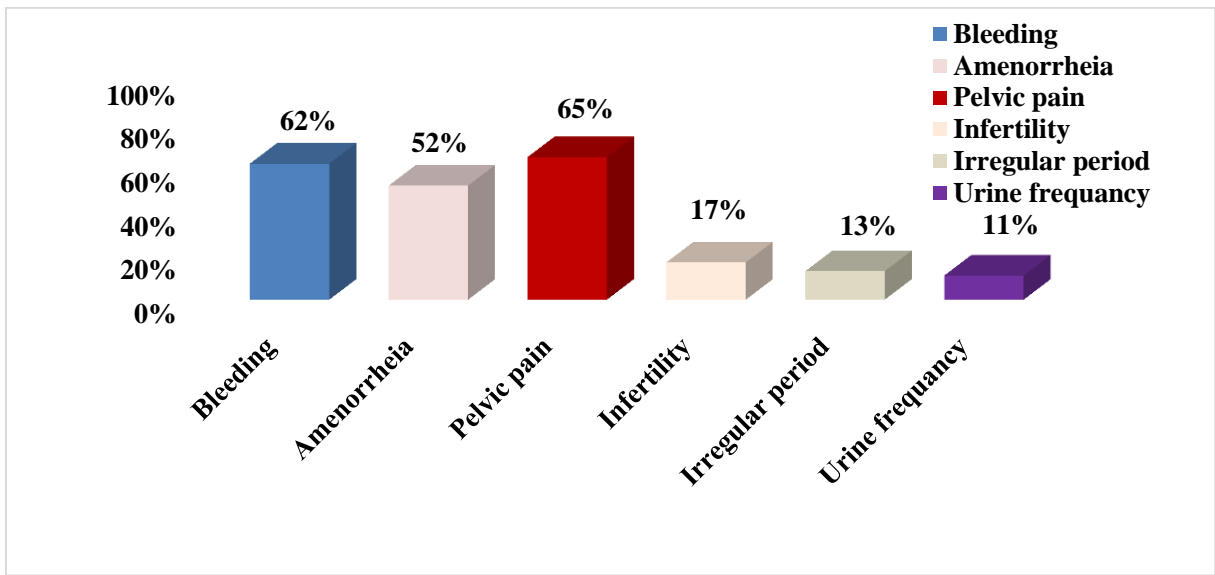
microscope. The patients were grouped, based on age in years, into three groups as follows: reproductive age (20-40), perimenopausal (41-50), and postmenopausal (≥50yrs). Excel has been used for data collection and descriptive analysis. The data was presented as mean ± SD for age, frequencies, and percentages were calculated.

**RESULTS:**

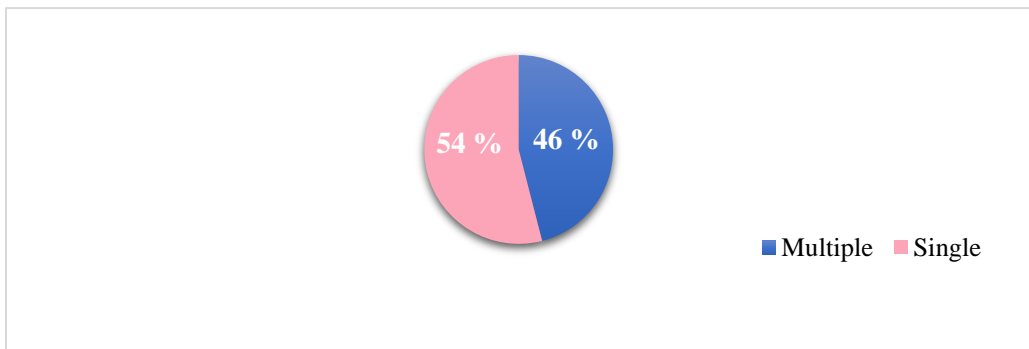
A total of one hundred cases of leiomyoma were studied. Age of the patients ranged from 20-90 years. The mean age of UL cases included in this study was 48.03 years ±11.02. The majority of the patients were in the premenopausal age group 20-40 years which included (72%), followed by the perimenopausal age group 41-50 years 20%, and the postmenopausal age group ≥51 years 8% (Figure). For the 100 total patients with uterine fibroid, we compared the clinical findings across pre-, peri-, and postmenopausal patients were classified according to the clinical symptoms into six groups. Pelvic pain which included (65%) was the most distressing presenting symptom for the patients who entered this study, follow up bleeding (62%), amenorrhea (52%), infertility (17%), irregular menstrual period (13%), and the least presenting symptom was urinary frequency (11%) (Figure 2). Most of the patients had at least two symptoms at presentation. cases enrolled in the study had single uterine fibroid (54%), while the remaining (46%) patients showed multiple uterine leiomyoma (Figure 3). With regards to patients' age the proportion of intramural leiomyoma (44%) accounting for the most common location in the Pre-menopause age group 20-40 years (Table 1). Myomectomy was the most common surgical procedure performed in the premenopausal age group (67%) cases.



**Figure 1: Prevalence of uterine fibroids across different age groups**



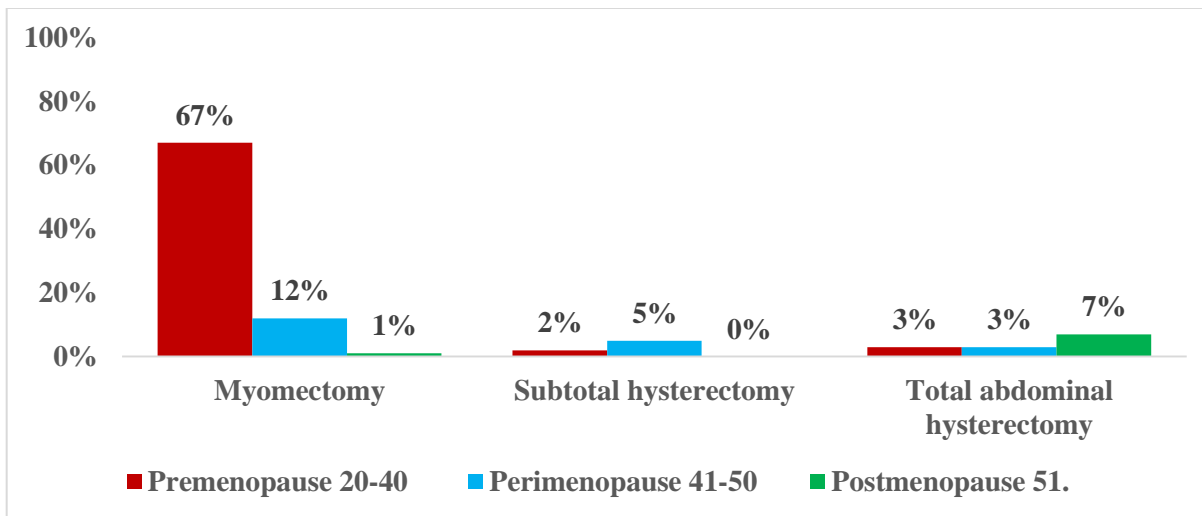
**Figure 2: The incidence of various clinical Symptoms amongst patients in the study.**



**Figure 3: Distribution of fibroid numbers among studied cases**

**Table 1: Association between Uterine fibroid site and age group**

Variability	Pre-menopause	Peri-menopause	Post-menopause
1. Age	20-40	41-50	≥51
2. Uterine fibroid site (corporeal):			
Intermural	<u>44%</u>	14%	6%
Sub-mucosal	7%	4%	2%
Sub-serosal	19%	2%	0%



**Figure 4: The correlation between the choice of surgical approach is guided by the patient's age**

### **DISCUSSION:**

In this study, the majority of studied cases (72%) of the cases occurred in the Premenopause 20-40 age group; in keeping with similar reports from other researches<sup>12, 13</sup>. The reasons for the high incidence of uterine fibroid from the Premenopause age group are highly speculative, however, female sex hormones have been implicated, particularly stimulation by estrogen unbalanced by progesterone as a result of persistent anovulation<sup>14, 15</sup>. It might be hard to identify uterine fibroids' particular symptoms due to their high prevalence and diverse clinical appearance.

Pelvic pain was the commonest presenting symptom in these women with confirmed uterine fibroid. The incidence of pelvic pain of 65% in this study is comparable to 52.2% reported in other study<sup>16</sup>. In the present study, 80.95% of leiomyomas were single. This is in concordance with other studies<sup>17</sup>.

Based on location uterine leiomyomata are classified as intramural, submucosal, or subserosal. Our data showed that the most common location of leiomyoma was intramural (44%). It was also the most common location in studies by Lahori M et al and Bhatta S et al<sup>18, 19</sup>.

Untreated leiomyoma may result in consequences such as miscarriage (large fibroids might obstruct the birth canal), severe pain or abnormal bleeding, anemia from excessive bleeding, urinary tract difficulties, acute urine retention, and renal failure. According to surgical intervention in patients with uterine fibroid, our study indicated that 67% of premenopausal age groups' leiomyomas were treated with myomectomy. This is in agreement with another study by S.O. Abduljabbar H et al showed that myomectomy is considered an alternative to hysterectomy for the treatment of leiomyoma, especially in patients who need to preserve their fertility<sup>20</sup>. Total hysterectomy and subtotal hysterectomy were performed in (13%) and (7%) women respectively.

Hysterectomy is usually the decision often depends on how far or close a patient is to menopause<sup>21</sup>.

### **CONCLUSION:**

A higher prevalence of uterine fibroid in the reproductive age group. Pelvic pain and Bleeding are the most presenting clinical symptoms among patients in the study. The majority of patients had multiple uterine leiomyomas. Uterine Intramural leiomyoma is the most common location. The choice of surgical procedure in treating uterine fibroid largely depends on the patient's age, Myomectomy in women who have in women who have not completed their family size should be adopted.

### **Limitation:**

Direct comparisons of results across studies evaluating the prevalence or incidence of uterine fibroid disease are difficult to make because of differences in the study sample size, populations, and methodology.

### **Recommendations:**

Future prospective work recommended covering several hospitals globally for the determination of risk stratification for women at high risk of developing uterine fibroid in their lifetime to set a new therapeutic plan and preventive measures.

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**Conflict of Interest:** none declared

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