



## RESEARCH ARTICLE

# Fibroid Histopathological and Morphological Aspects in Correlation to Age

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### Abstract

**Back ground:** A challenging issue is to correlate whether the histological variant of uterine fibroid would affect the clinical presentation of the disease .Additionally in a far more complex manner racial and ethnic differences is considered a cornerstone factor in disease prevalence although asymptomatic in majority of cases around 20 percent would present with bleeding and pelvic related symptoms

**Aim:** To investigate the correlation between uterine fibroid histological type and clinical features of the case such as age, size and number of fibroids.

**Methodology:** A prospective clinical research trial that involved 120 cases and scheduled for myomectomy operative intervention were recruited being characterized by being nulligravida, child bearing age

**Results:** There was no statistical correlation between uterine fibroid histological type patient age (< 35 yrs, ≥ 35 yrs), fibroid number, fibroid size (<5cm, >5cm).

**Conclusions:** The research team of the investigators came to the conclusion that there is no statistical significant difference as regards the correlation of the histopathological type and fibroid size, age, and number.

### Introduction

Fibroid uterus is the chief cause for hysterectomy all over the globe, however the pathophysiological basis is still theoretical and carries various complex interactions at cellular and molecular levels. The histopathological features of fibroid as a benign uterine pathology shows great variability as regards the presentation and clinical symptom profile according to site number and presence of degenerative changes [1, 2].

A challenging issue is to correlate whether the histological variant of uterine fibroid would affect the clinical presentation of the disease .Additionally in a far more complex manner racial and ethnic differences is considered a cornerstone factor in disease prevalence although asymptomatic in majority of cases around 20 percent would present with bleeding and pelvic related symptoms [3, 4].

Caucasians are considered to have the lowest prevalence for fibroids and negros have the highest prevalence that furthermore increases the research requirement if the disease at histopathological levels is correlated to genetic makeup of the patient .Interestingly management lines vary according to desire for conception that have a broad spectrum from medical control of symptoms to surgical intervention in the

form of myomectomy ,cases that completed their families and not wishing to preserve their uteri are usually managed by hysterectomy [5-7].

Fibroid uterus is one of the hyper estrogenic diseases that has a general prevalence of about 30 percent still requires elucidation of its histopathological behavior and presentation that necessitates research efforts of histopathologists in conjunction to gynecologists in harmony to reveal the cornerstone origin of this common gynecological benign disease that represents a management challenge in every day practice [8, 9].

A growing research issue of interest is to correlate the uterine fibroid histological category to the patients age, number and clinical features that may aid in clarification of the pathophysiological course of this disease [10, 11].

### Aim

To investigate the correlation between uterine fibroid

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**Received:** March 12, 2018; **Accepted:** April 01, 2018; **Published:** April 24, 2018

histological type and clinical features of the case such as age, size and number of fibroids

**Methodology**

A prospective clinical research trial that involved 120 cases, in Ain Shams maternity hospital during 2013 and 2014 and scheduled for myomectomy operative intervention were recruited being characterized by being nulligravida, child bearing age inclusive research criteria involved the following in which cases had an age range of 18 till 40 years old, desiring conception, sonographic diagnosis of uterine fibroid by trans vaginal and trans abdominal approaches, heavy menstrual periods (above 80 ml per day), no coexisting medical comorbidities e.g. hypertension, DM, all recruited subjects have undergone full clinical history and examination withy routine preoperative investigations, exclusive research criteria was the presence of any medical comorbidities, usage of hormonal therapy before the intervention by 6 months such as hormonal contraception and GnRh agonists .primary research outcome was to correlate the histological type and grade of

**Table 1:** uterine fibroid histological type cases age, count, fibroid average diameter

Uterine fibroid histological type	Total no. = 120 (100.0%)
Normal	102 (85.0%)
Mitotic	0 (0.0%)
Cellular	3 (2.5%)
Apoplectic	0 (0.0%)
Epithelioid	5 (4.17%)
Myxoid	1 (0.83%)
Atypical	3 (2.5%)
Lipoleiomyoma	1 (0.83%)
Others	5 (4.17%)
<b>Patients age</b>	34.9 ± 6.3
< 35	61 (50.8%)
≥ 35	59 (49.2%)
<b>Uterine fibroid count</b>	
Solitary fibroid	88 (73.3%)
Multiple fibroids (2 or more)	32 (26.7%)
<b>Uterine fibroid average diameter</b>	5.11 ± 2.20
< 5 cm	74 (61.7%)
> 5 cm	46 (38.3%)

fibroid examined incidence and clinical data of recruited research study subjects (e.g. age ,size ,number).

**Statistical Analysis**

Research Data were collected, revised, coded and entered to the Statistical Package for Social Science version 23 (IBM SPSS Ver. 23). Qualitative research data were presented as numbers and percentages and compared between groups using Chi-square test and/or Fisher exact test only when the expected count in any cell found less than 5. Also quantitative data were presented as means and standard deviations. The confidence interval was set to 95% and the margin of error accepted was set to 5%. So, the p-value was considered significant at the level of < 0.05.

**Results**

Table 1 reveals and displays that as regards the Uterine fibroid histological type 102 cases were normal (85 % of the research study cohort), 3 cases only had cellular pattern (2.5 %), 5 cases had epithelioid pattern (4.17%), 1 cases only myxoid (0.83%),3 cases were atypical in nature (2.5%), 1 cases only was Lipoleiomyoma (0.83%), others were 5 cases only (1.17%), whereas mean +/- SD age of cases was 34.9 ± 6.3 years, 61 cases were < 35 years (representing 50.8% of the research study cohort), 59 cases were ≥ 35 years (representing 49.2% of the research study cohort). concerning the uterine fibroid count solitary fibroid was present in 88 cases (73.3%), multiple fibroids was present in 32 cases (26.7%), whereas uterine fibroid mean diameter +/-SD =5.11 ± 2.20 cm, in which there was 74 cases under 5 cm in diameter (representing 61.7% of the research study cohort), 46 cases were above 5 cm in diameter( representing 38.3% of the research study cohort).

Table 2 reveals and displays the correlation between uterine fibroid histological type and age, number, fibroid size in which there was no statistical correlation between uterine fibroid histological type patient age (< 35 yrs., ≥ 35 yrs.), fibroid number, fibroid size (<5cm, >5cm).

**Discussion**

Smooth muscle tumors of the uterus represent a broad from benign to malignant categories e.g. benign fibroids, smooth muscle tumors of uncertain malignant potential),

**Table 2:** Correlations between uterine fibroid histological type and age, number, fibroid size

Uterine fibroid histological type (WHO)	Patients age (yrs)		P-value*	Fibroid number		P-value	Fibroid size		P-value*
	< 35 yrs No. = 61	≥ 35 yrs No. = 59		Solitary No. = 88	Multiple No. = 32		<5cm No. = 74	>5cm No. = 46	
Normal	48 (78.7%)	53 (89.8%)	0.073	74 (84.1%)	25 (78.1%)	0.398	62 (83.8%)	39 (84.8%)	1.000
Mitotic	0 (0.0%)	0 (0.0%)	NA	0 (0.0%)	0 (0.0%)	NA	0 (0.0%)	0 (0.0%)	NA
Cellular	1 (1.6%)	3 (5.1%)	0.356	0 (0.0%)	4 (12.5%)	0.004	4 (5.4%)	0 (0.0%)	0.297
Apoplectic	0 (0.0%)	0 (0.0%)	NA	0 (0.0%)	0 (0.0%)	NA	0 (0.0%)	0 (0.0%)	NA
Epithelioid	4 (6.6%)	1 (1.7%)	0.365	4 (4.5%)	1 (3.1%)	1.000	5 (6.8%)	0 (0.0%)	0.155
Myxoid	1 (1.6%)	0 (0.0%)	1.000	2 (2.3%)	0 (0.0%)	1.000	0 (0.0%)	1 (2.2%)	0.383
Atypical	2 (3.3%)	1 (1.7%)	1.000	3 (3.4%)	1 (3.1%)	1.000	1 (1.4%)	3 (6.5%)	0.157
Lipoleiomyoma	1 (1.6%)	0 (0.0%)	1.000	1 (1.1%)	0 (0.0%)	1.000	1 (1.4%)	0 (0.0%)	1.000
Others	4 (6.6%)	1 (1.7%)	0.365	4 (4.5%)	1 (3.1%)	1.000	1 (1.4%)	3 (6.5%)	0.157

\*:Chi-square and/or Fisher exact test (when the expected count was less than 5) was used in the comparison between groups

and leiomyosarcomas. Uterine fibroids, are the most frequent tumors of benign nature of the female genital system interestingly prior research groups of investigators have revealed and displayed that around 77% of females have fibroids. Symptomatic fibroids are the chief cause for hysterectomies all over the world in gynecological practice [12-14].

Fibroids have a chief influence on fertility potential with negative impact on rates of implantation and spontaneous abortion in comparison to infertile females not having fibroids, those research findings could be justified by the fact that there is distorted peristalsis, inflammatory reaction and morphological deformity of the endometrial cavity decreasing fertility potential outcomes [15, 16].

A prior research study similar to the current research in approach and methodology have investigated the incidence of histologic categories of different fibroid types in nulligravida cases undergoing myomectomy the research team of investigators have revealed among their results that the most common type of histological variant of fibroid was the normal benign category most cases were having a solitary fibroid and around 50 percent of cases had an age under 35 years old ,similar to the current research study findings there was no statistical significant difference as regards the fibroid size ,histological type and patient age. Interestingly it was revealed that a cellular form of fibroids is more common in cases of multiple fibroids [17, 18].

A prior research study of 827 cases with sonographically observed fibroids revealed that deep dyspareunia is correlated to fibroids those findings were justified by the histopathological fact that as fibroids enlarge, they outgrow their blood supply causing cell death and degenerative changes e.g. hyaline, cystic, or hemorrhagic, after uterine artery embolization it was shown by prior research teams of investigators that there is 35% decrease in mean uterine volume, besides there was 68% of cases had considerable or moderate resolution of clinical symptoms of frequency and urgency. A 55% reduction in uterine volume was observed after 6-month administration of GnRH- agonists. Similarly causes a reduction in urinary symptoms of nocturia, frequency, and urgency [19, 20].

Another research study priorly performed have revealed that serial MRIs of 72 premenopausal cases having fibroids have shown in an interesting manner that there was a median rate of growth over 1 year around 9%, besides it was shown that the range of growth and shrinkage have been very broad: -89% to +138%, those findings could be justified by the fact that the cellular responsiveness is widely variable among the cases leading to differences in hyperplasia rates although even benign in nature furthermore it was shown that fibroids having a diameter under 5 cm have more common spurts of growth spurts than larger diameter fibroids. Unexpectedly, it was revealed and displayed that multiple fibroids within the same case had very different rates of growth, denoting that hormone levels do not determine the rate of growth rate [7, 9].

## Conclusions and Recommendations

The research team of the investigators came to the conclusion that there is no statistical significant difference as regards the correlation of the histopathological type and fibroid size, age, and number. However future research studies are recommended to involve larger sample sizes with consideration of racial and ethnic differences that could affect the results and furthermore genetic factors that could affect the histopathological aspects of the disease presentation.

## References

1. Sparic R, Mirkovic L, Malvasi A, Tinelli A (2016) Epidemiology of uterine Myomas: a review. *Int J Fertil Steril* 9(4):424-435. [[View Article](#)]
2. Di Tommaso S, Massari S, Malvasi A, Vergara D, Maffia M, et al. (2015) Selective genetic analysis of myoma pseudocapsule and potential biological impact on uterine fibroid medical therapy. *Expert Opin Ther Targets* 19(1):7-12. [[View Article](#)]
3. Reis FM, Bloise E, Ortiga-Carvalho TM (2016) Hormones and pathogenesis of uterine fibroids. *Best Pract Res Clin Obstet Gynaecol* 34:13-24. [[View Article](#)]
4. Puchar A, Luton D, Koskas M (2015) Ulipristal acetate for uterine fibroid-related symptoms. *Drugs Today (Barc)* 51(11):661-667. [[View Article](#)]
5. Styer AK, Rueda BR (2016) The epidemiology and genetics of uterine leiomyoma. *Best Pract Res Clin Obstet Gynaecol* 34:3-12. [[View Article](#)]
6. Wise LA, Laughlin-Tommaso SK (2015) Epidemiology of uterine fibroids: from menarche to menopause. *Clin Obstet Gynecol* 59(1):2-24. [[View Article](#)]
7. Parazzini F, Di Martino M, Candiani M, Vigano P (2015) Dietary components and uterine leiomyomas: a review of the published data. *Nutr Cancer* 67(4):569-579. [[View Article](#)]
8. Brakta S, Diamond AS, Al-Hendy A, Diamond MP, Halder SK (2015) Role of vitamin D in uterine fibroid biology. *Fertil Steril* 104(3):698-706. [[View Article](#)]
9. Haan YC, Oudman I, de Lange ME, Timmermans A, Ankum WM, et al (2015) Hypertension risk in Dutch women with symptomatic uterine fibroids. *Am J Hypertens* 28(4):487-492. [[View Article](#)]
10. Ono M, Qiang W, Serna VA, Yin P, Coon JS 5th, et al (2012) Role of stem cells in human uterine leiomyoma growth. *PLoS One* 7(5):e36935. [[View Article](#)]
11. Tinelli A, Malvasi A (2015) Uterine fibroid pseudocapsule. In: Tinelli A, Malvasi A, editors. *Uterine myoma, myomectomy and minimally invasive treatments*. Cham: Springer Publisher p.73-93. [[View Article](#)]
12. Grings AO, Lora V, Dias Ferreira G, Brum IS, Corleta HV, et al. (2012) Protein expression of estrogen receptors  $\alpha$  and  $\beta$  and aromatase in myometrium and uterine leiomyoma. *Gynecol Obstet Invest* 73(2):113-117. [[View Article](#)]
13. Mittal P, Shin YH, Yatsenko SA, Castro CA, Surti U, et al. (2015) Med12 gain-of-function mutation causes leiomyomas and genomic instability. *J Clin Invest* 125(8):3280-3284. [[View Article](#)]
14. Croce S, Chibon F (2015) MED12 and uterine smooth muscle oncogenesis: state of the art and perspectives. *Eur J Cancer* 51(12):1603-1610. [[View Article](#)]

15. Vergara D, Greco M (2015) Genetics and genomics of uterine myomas. In: Tinelli A, Malvasi A, editors. Uterine myoma, myomectomy and minimally invasive treatments. *Cham: Springer Publisher* p.12–25. [[View Article](#)]
16. Worhunsky DJ, Gupta M, Gholami S, Tran TB, Ganjoo KN, et al (2015) Leiomyosarcoma: one disease or distinct biologic entities based on site of origin? *J Surg Oncol* 111(7):808-812. [[View Article](#)]
17. Malvasi A, Cavallotti C, Morroni M, Lorenzi T, Dell'Edera D, et al (2012) Uterine fibroid pseudocapsule studied by transmission electron microscopy. *Eur J Obstet Gynecol Reprod Biol* 162(2):187-191. [[View Article](#)]
18. Malvasi A, Cavallotti C, Nicolardi G, Pellegrino M, Vergara D, et al (2013) The opioid neuropeptides in uterine fibroid pseudocapsules: a putative association with cervical integrity in human reproduction. *Gynecol Endocrinol* 29(11):982-988. [[View Article](#)]
19. Parker WH (2015) Uterine fibroids: clinical features. In: Tinelli A, Malvasi A, editors. Uterine myoma, myomectomy and minimally invasive treatments. *Cham: Springer Publisher* p.39–52. [[View Article](#)]
20. Sparic R, Nejkovic L, Mutavdzic D, Tinelli A (2014) Conservative surgical treatment of uterine fibroids. *Acta Chir Jugosl* 61(4):11-16. [[View Article](#)]

**Citation:** El Ghazaly T, Fahmy RA (2018) Fibroid Histopathological and Morphological Aspects in Correlation to Age. *Women's Health and Complications* 1: 001-004.

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