



SONOGRAPHIC ASSOCIATION OF UTERINE FIBROIDS WITH INFERTILITY AMONG WOMEN OF CHILDBEARING AGE.

1. MID
Sonologist Radiology
University of Lahore.
2. MID
Sonologist Radiology
University of Lahore.
3. Ph.D. (Ultrasound)
Assistant Professor Radiology
University of Lahore.
4. Ph.D. (Ultrasound)
Professor Radiology
University of Lahore.
5. MID
Sonologist Radiology
University of Lahore.
6. DMRD
Assistant Professor Radiology
University of Lahore.
7. M. Phil Biostatistics
Lecturer Radiology
University of Lahore.
8. M. Phil (Ultrasound)
Lecturer Radiology
University of Lahore.

Correspondence Address:

Dr. Sana Amjad
Al-Sheikh Jinnah Memorial Welfare
Hospital,
Near Fort Urdu Bazar Sialkot.
sanaamjad52@gmail.com

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INTRODUCTION

Infertility, is a great social, psychological and economical problem, influencing a large number of individuals all around the world.¹ It is actually characterized by the failure to give birth to children following more than a year of standard unprotected sexual intercourse. It is classified into primary and secondary infertility² and has proven to be one of the main reasons for women to fall under mental misery due to tremendous pressure and social disgrace.³ According to the worldwide prevalence of infertility in 2010, an expected 48.5 million couples around the world were not able to have a child following five years. Primary infertility rate was found to be 1.9% among the women aged 20– 44, while secondary infertility rate was noted to be 10.5%.⁴ Pakistan on the other hand being one of the most crowded nations of the world, with the population growth

Sana Amjad¹, Hania Iqbal², Raham Bacha³, Syed Amir Gilani⁴, Muhammad Uzair⁵, Sajid Shaheen Malik⁶, Mehreen Fatima⁷, S Muhammad Yousaf Farooq⁸

ABSTRACT... Objectives: To determine sonographic association of uterine fibroids with infertility among women of childbearing age. **Study Design:** Cross-sectional study. **Setting:** Gilani Ultrasound Clinic opposite Lahore General Hospital, University of Lahore. Ahsan Diagnostic Centre, Sialkot. **Period:** From 10th July to 10th October 2018. **Materials & Methods:** The study was started after the approval of ethical committee of the University of Lahore. All the patients were enrolled in this study after signing the informed consent form. Toshiba Xario and Medison Accuvix V20 with convex transducer frequency ranging from 2 to 6 MHz were used. Fibroids were evaluated through trans-abdominal scan and sonographic data was stored in the ultrasound machine. A convenient sampling technique was used and data was further analyzed with the help of Statistical Package for the Social Sciences version 24 (SPSS 24, IBM, Armonk, NY, United States of America). **Results:** Among 113 subjects, the incidence of uterine fibroid was 32.7%. A significant association (p-value=0.010) was seen between existence of fibroid and the type of Infertility. The mean size of the fibroids was found to be 32.3568mm, 26(23.0%) of participants had single while 11(9.7%) of them had multiple fibroids. The location was most commonly seen in anterior and posterior wall, whereas the most common type was found to Sub-Mucosal and Sub-Serosal. **Conclusion:** Uterine Fibroids were commonly associated with Secondary infertility as compared to primary infertility.

Key words: Child Bearing Age, Primary Infertility, Secondary Infertility, Uterine Fibroid, Ultrasound.

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rate of around 2%, has comparatively a higher rate of infertility of about 21.9% (3.5% primary and 18.4% secondary).⁵

Uterine fibroids also known as uterine myomas, is the most commonly occurring (in 20-25% women) benign tumors of the smooth muscle cells of uterus^{6,7}, which is seen to increase with age until fifth decade after which it decreases⁸. and these fibroids are classified on the basis of its location, that is; subserosal fibroids(outside of the uterus), intramural fibroids (within the muscular walls) and submucosal fibroids (in the middle muscle layer of uterus).⁹ Despite the fact that the exact reasons for myomas are not known, progresses have been made in the explanation of the hereditary components (hormones and developmental factors) of these tumors.¹⁰ On the other hand additional established risk factors for fibroids

include age, parity, african american heritage and early menarche age. The greater part of women with uterine fibroids are usually asymptomatic, where as only a few have reported symptoms like, irregular prolonged uterine bleeding or spouting, dyspareunia, non-cyclic pelvic pain, miscarriage, bleeding, difficulty conceiving, spontaneous abortion, preterm birth.^{11,12} The sensitivity of USG in the diagnosis of uterine fibroids is 94.5% while the specificity is 62.5% and ultrasound accuracy in diagnosing uterine fibroids is 92.0%.¹³ The hypoechoic pattern of fibroid nodules is the most common.¹⁴ This present study aims to access the sonographic association of uterine fibroids with infertility among women of childbearing age as female infertility nowadays is a very common social and medical problem, hence this research, therefore intends to determine the possible contribution of uterine fibroids as a predisposing factor of infertility.

MATERIALS & METHODS

In this cross-sectional study, data was collected from infertile women of child bearing age visiting different diagnostic setups of Lahore and Sialkot during 4 months, from 10th July to 10th October 2018.

Sample size of 113 patients was calculated by using standardized formula. The study was started after the approval of ethical committee of the University of Lahore. All the patients were enrolled in this study after signing the informed consent form. Data was collected according to the variable of the age, marriage duration, location of fibroids, types of fibroids and size of fibroids. Ultrasound machine Toshiba Xario with convex transducer of frequency range 3 to 6 MHz was used at Gilani Ultrasound Clinic, Lahore and Medison Accuvix V20 with convex transducer of frequency range 2 to 6 MHz was used at Ahsan medical center, Sialkot to evaluate fibroids trans abdominally. All the patients were examined according the American Institute of Ultrasound in Medicine (AIUM) gynecological ultrasound guidelines.¹⁵ Privacy of the patient was observed all the time and remained of top priority throughout the study.

All the married infertile women (Primary infertile and Secondary infertile) of childbearing age were willingly included.

Any congenital uterine or ovarian anomalies or patients with hysterectomy were excluded.

The collected data was processed thorough Statistical Package for the Social Sciences version 24 (SPSS 24, IBM, Armonk, NY, United States of America) for statistical calculations and analysis. Frequency distribution and descriptive statistics of all involved variables and the incidence were calculated. To find out association between infertility type and presence of fibroid, Chi-square test was applied and a p-value was calculated (p-value less than 0.05 were considered significant).

RESULTS

Out of all 113 infertile women, primary infertility [71(62.8%)] was more commonly reported as compared to secondary infertility [42(37.2%)]. Table-I gives the detailed frequency distribution, range, standard deviation and mean values of the patient's age, duration of marriage, age at marriage and duration of last child birth. Patients come with various health issues and symptoms that are shown in Figure-1. Among the study subjects, 37/113(32.7%) had one child, 4/113(3.5%) had two children and only 1/113(0.9%) had three children while rest of them 71/113(62.8%) reported to have had no child. Only 37(32.7%) out of 113 participants reported the presence of fibroids, while the rest of 76(67.3%) had no fibroids. The mean size of the fibroids was found to be 32.3568mm, with the smallest one being 7.30mm and the largest 81.00mm. Most of the fibroids were of sub-mucosal 11/37(9.7%), sub-serosal 11/37(9.7%) type and were commonly located in the anterior 14/37(12.4%) and posterior wall 14/37(12.4%) of the uterus. A significant association (p-value 0.010) was seen between existence of fibroid and the type of infertility. Cross Tabulation between existence of Fibroid and Type of Infertility is represented by Table-II.

Variables				Descriptive Statistics						
				N	%	Mean	Standard Deviation	Minimum	Maximum	
Age (at time of presentation)				21-25	18	15.9%	30.7434	4.62095	21.00	42.00
				26-30	43	38.1%				
				31-35	33	29.2%				
				36-40	18	15.9%				
				41-45	1	0.9%				
Age at marriage				Less than 25	79	69.9%	23.7345	3.78205	16.00	35.00
				More than 25	34	30.1%				
Duration of marriage				1-5	51	45.1%	6.8761	3.77287	2.00	17.00
				6-10	41	36.3%				
				11-15	20	17.7%				
				16-20	1	0.9%				
Duration of Last child birth	1-5	19	45.2%	6.1190	2.54905	3.00	13.00			
	6-10	21	50.2%							
	11-15	2	4.8%							

Patient History

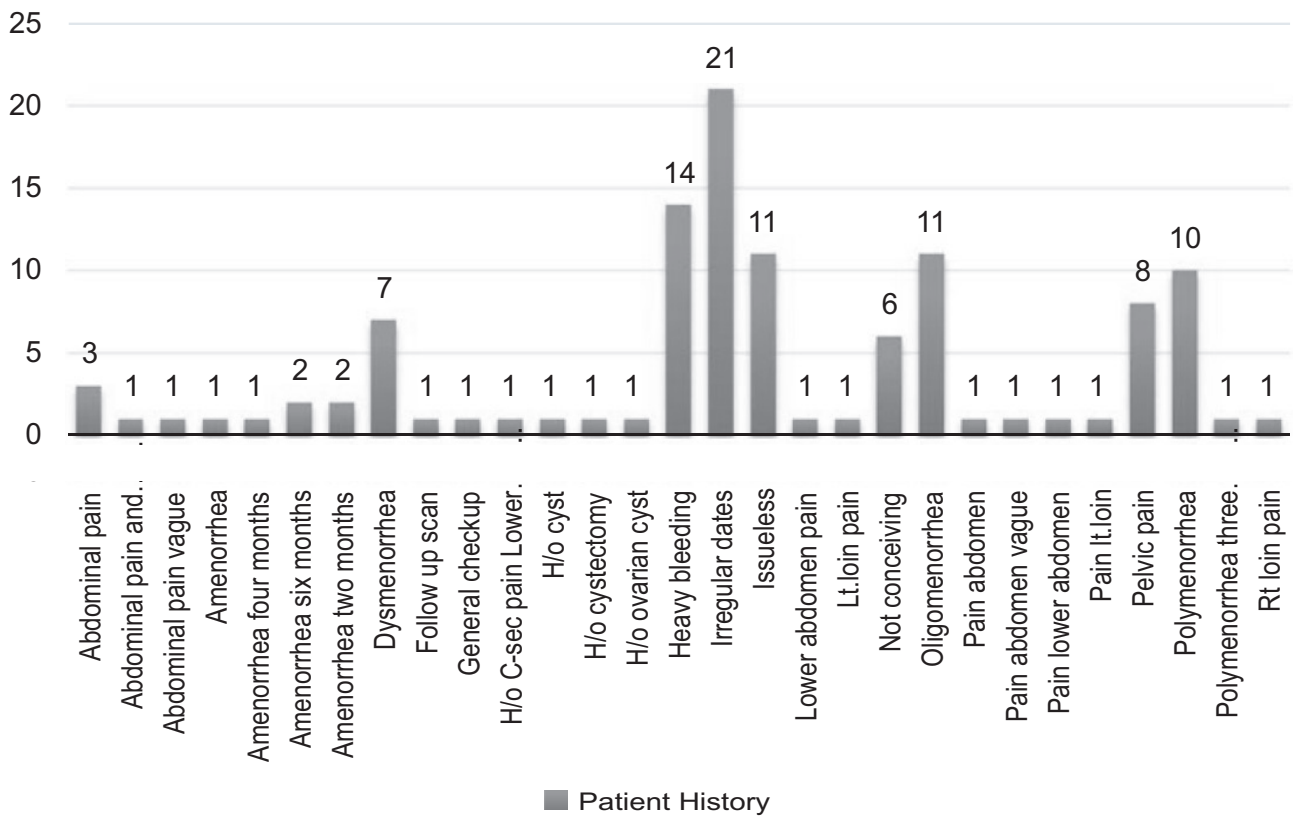


Figure-1. Frequency distribution of the patient history.

Existence of Fibroids	Types of Infertility (Primary or Secondary)				Total
	Primary		Secondary		
	N	%	N	%	
No	54	76.1%	22	52.4%	76
Yes	17	23.9%	20	47.6%	37
Total	71	100.0%	42	100.0%	113

Table-II. Cross Tabulation between existence of Fibroid and Type of Infertility.

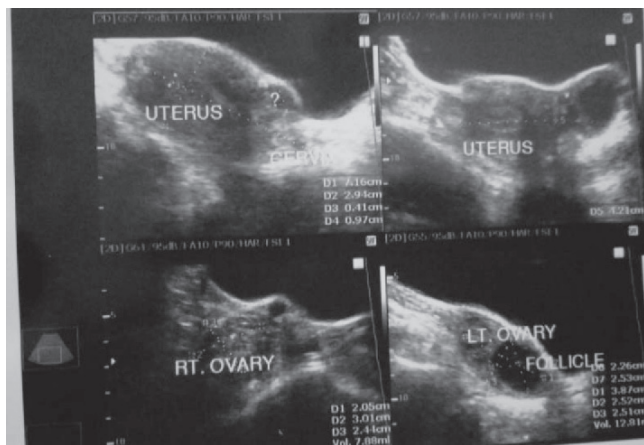


Figure-2. Single fibroid on the anterior wall of the uterus.

DISCUSSION

As this cross-sectional study was conducted to determine infertility's association with fibroid, so both the types of infertility were considered and similar to a study held in 2015, a higher ratio of primary infertility as compared to secondary was noted.¹⁶ In accordance with geographical distribution, primary infertility was more commonly reported by Asian women as compared to African or Latin American women that commonly reported secondary infertility.¹⁷ There is the accompanying ascend in the mean age at which women present with infertility problem. In the present study the mean age at presentation was 30.7434 comparative to the mean age reported by Parveen et al. that is 28.4 years.¹⁸ Similarly a case control study on infertile women in Egypt showed a highest prevalence of females having no children followed by those having one and so on, was seemed to be supported by the results of this present study.¹⁹ On the other hand the duration of secondary infertility as seen in this study are very relative to a study held in Peshawar city in which 23/57 women had their last child birth less than 5 years back, 27/57 had duration between 6-10 years and only 7/57 had

duration of more than 10 years.²⁰ The duration of marriage at which the patients presented with infertility complaint was maximum seen between 1-5 years (45.1%) followed by 6-10 years duration (36.3%) and same trend was noted in the study conducted by Siraj et al.²¹

For the patient history of health issues, irregular dates of menstruation was seen to be the most commonly reported in this current study whereas contrary to these results dysmenorrhea was most common complaint seen, 40% in primary and 30% in secondary infertile patients followed by irregular cycles and dyspareunia in a descriptive study conducted in Hyderabad for laparoscopic evaluation of infertility.²²

A study conducted in 2017 at Bangalore India, showed an insignificant association, where only 3/35 subjects with primary infertility reported presence of fibroid while 1/15 with secondary infertility did so, but this present study along with a study in 2012 at MH Rawalpindi, seemed to contradict these result by reporting a significant association.²¹ However, the general incidence of fibroid 37/113(32.7%) in this study on the other hand, is somewhat similar as mentioned by Gupta.et al in 2008.²³

Ultrasound is normally the underlying examination for looking at the female pelvis. The mean size of fibroids was 32.3565mm and according to a study in 2018, the fibroid with the size more than 4cm was seen to be a significant factor causing infertility.²⁴ As for the location of Fibroid, the most commonly seen areas in this study were anterior and posterior walls and Peng et al. in 2012 seemed to support these outcomes.²⁵ However the most common fibroid's type as supported by this and most others was intramural followed by sub-serosal and sub-mucosal.²⁶ Ultrasound plays

an important role to classify and assess uterine fibroids that help in management and further follow-up.

CONCLUSION

Uterine Fibroid prevalence according to this study was 32.7% and was seen to significantly associate with Infertility. Among the infertile women that reported the presence of fibroids, secondary infertility was seen to be more common as compared to primary infertility.







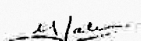
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AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author(s) Full Name	Contribution to the paper	Author(s) Signature
1	Sana Amjad	Corresponding author	
2	Hania Iqbal	Co-Author	
3	Raham Bacha	SUPervisor + Reviewer	
4	Syed Amir Gilani	Reviewer (Final)	
5	Muhammad Uzair	Co-supervisor	
6	Sajid Shaheen Malik	Reviewer	
7	Mehreen Fatima	Co-Author	
8	S Muhammad Yousaf Farooq	Reviewer	