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***Original Research Article***

# OBSTETRIC OUTCOMES IN FEMALES WITH UTERINE FIBROIDS: A STUDY IN A TERTIARY CARE HOSPITAL

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**Abstract:** *Uterine fibroids, a type of leiomyoma originating from the myometrium of the uterus, have been associated with adverse consequences during pregnancy. However, the local evidence regarding these outcomes remains scarce. To address this knowledge gap, we conducted a comprehensive study investigating obstetric outcomes among females presenting with fibroid uterus in a tertiary care hospital. This study aimed to provide scientific evidence about uterine fibroids' impact on pregnancy outcomes. This descriptive case series study was conducted at Unit-IV, Department of Obstetrics and Gynecology, Lady Aitchison Hospital, Lahore, from August 10, 2016, to February 9, 2017. The study aimed to assess obstetric outcomes in females with fibroid uterus during pregnancy. 200 eligible cases were enrolled after obtaining informed consent and demographic information. Participants were followed until obstetric outcomes, including miscarriage, intrauterine demise (IUD), and delivery, occurred. Collected data were entered into SPSS version 17 for analysis. The mean age of the patients was 29.43±5.85 years. Miscarriage and IUD occurred in 15 cases (7.5%) and 19 cases (9.5%). Cesarean section was performed in 107 cases (53.5%), pre-term birth (PTB) occurred in 105 cases (52.5%), intrauterine growth restriction (IUGR) was observed in 17 cases (8.5%), and postpartum hemorrhage (PPH) occurred in 82 cases (41%). These findings suggest a higher frequency of complications, such as cesarean section, PTB, IUGR, and PPH, in females presenting with fibroid uterus during pregnancy, while miscarriage and IUD were less frequent.*

**Keywords:** Female, Uterine, Fibroid, PPH, Miscarriage, IUGR

## Introduction

Uterine fibroids are benign tumors derived from the smooth muscle tissue of the uterus, specifically the myometrium. They often occur as multiple growths, and in cases where numerous leiomyomata cannot be quantified, it is referred to as diffuse uterine leiomyomatosis (Commandeur et al., 2015). As of 2010, it is estimated that approximately 235 million individuals worldwide, accounting for 6.6% of females, are affected by uterine fibroids (Onyije et al., 2019).

The prevalence of uterine fibroids during pregnancy varies between 1.6% and 10.7%, depending on the trimester and the size threshold used for assessment. Factors such as higher parity and extended duration of breastfeeding have been associated with a statistically significant, albeit small, reduction in the prevalence of fibroids. Complications during pregnancy can develop in approximately 10% to 30% of women with uterine fibroids (Upson and Missmer, 2020).

Previous studies have reported varying frequencies of obstetric complications associated with the fibroid uterus. A study conducted in 2009 reported rates of miscarriage (6.66%), intrauterine fetal demise (3.33%), cesarean section (70%), forceps delivery (3.33%), vaginal delivery (16.66%), intrauterine growth restriction (6.66%), and postpartum hemorrhage (33.33%) (Noor et al., 2009). Another study conducted in 2010 reported rates of miscarriage (13.6%), cesarean section (48.8%), pre-term delivery (16.0%), intrauterine growth restriction (11.2%), and postpartum hemorrhage (2.5%) (Lee et al., 2010). However, a local study conducted in 2012 reported rates of miscarriage (26.67%), intrauterine fetal demise (13.33%), cesarean section (26.67%), vaginal delivery (20%), pre-term delivery (33.33%), and postpartum hemorrhage (26.67%) (Sarwar et al., 2012).

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This study aims to determine the obstetric outcomes in pregnant females with fibroid uterus during the third trimester. Although the literature has reported numerous feto-maternal complications associated with the fibroid uterus, conflicting results exist. Therefore, the objective was to ascertain whether the frequency of these complications is high or low among females seeking care at a tertiary hospital. Despite advancements in managing uterine fibroids and a better understanding of their impact, obstetricians still face complications. Furthermore, previous studies conducted on the local population had limited sample sizes. In this study, we have addressed this limitation by including a large sample, which could improve patient satisfaction, enhance our knowledge and practices, and update local guidelines.

**Methodology**

This Descriptive Case Series was conducted at Unit-IV, Department of Obstetrical and Gynaecological, Lady Aitchison Hospital, Lahore, from August 10, 2016, to February 9, 2017.

The sample size of 200 cases is calculated with a 95% confidence level, 2.5% margin of error, and taking the expected percentage of IUD, i.e., 3.33% among the females presenting with fibroid uterus presenting in a tertiary care hospital. Non-probability consecutive sampling was used to collect data. The participant with age 20-40 years with singleton pregnancy and gestational age >15 weeks (on ultrasound), parity <6 with the diagnosis of fibroid uterus were included in the study.

Participants with vaginal and urinary tract infections (by HVS and total leukocytes count), molar or multiple pregnancies (by ultrasound), diagnosed cases of essential hypertension (on history and medical record), females with gestational diabetes (GTT>140gm/dl) and the diagnosed case of deranged RFTs (serum creatinine>2gm/dl) or deranged LFTs (AST>40IU, ALT>40IU) were excluded from the study.

After the approval of the hospital Ethical Committee, 200 females fulfilling the selection criteria were enrolled in the study from the OPD of Obstetrical and Gynaecological Department, Lady Aitchison Hospital, Lahore. Informed written consent was taken. Their demographic details were noted, including name, age, gestational age, and parity. Then females were followed till any obstetric outcome like miscarriage, IUD, etc., and till delivery (per operational definition). The last dating scan was done to note IUGR. At the time of delivery, gestational age was noted to measure pre-term delivery and obstetrics outcomes like mode of delivery, and Postpartum hemorrhage was noted and labeled (per operational definition). All this information was collected on pre-designed Proforma.

Data was entered and analyzed through SPSS version 17. Mean, and standard deviation was calculated for age, gestational age, and gestational age at birth. Frequency and percentage were calculated for parity and obstetrics outcomes like Miscarriage, Intrauterine death, mode of delivery, Pre-term birth, intrauterine growth retardation, and postpartum hemorrhage.

**Results**

In this study, a total of 200 cases were included. The patients had a mean age of 29.43±5.85 years, ranging from 20 to 40. The mean gestational age at presentation was 24.99±6.344 weeks, with the minimum and maximum values observed at 15 and 35 weeks, respectively. The mean gestational age at birth was 34.75±5.46 weeks, ranging from 16 to 40 weeks. The patients had a mean body mass index (BMI) of 24.62±3.82 kg/m2, with the minimum and maximum values recorded at 18.50 and 31.99 kg/m2, respectively. The patients' mean hemoglobin (Hb) level was 12.13±1.35 g/dl, with the minimum and maximum values observed at 10 and 14.50 g/dl, respectively. (Table 1)

**Table 1 Demographic variables of the study population:**

| Variables | Mean | SD | Minimum | Maximum |
|---|---|---|---|---|
| Age (years | 29.43 | 5.85 | 20 | 40 |
| Gestational age at presentation (weeks) | 24.99 | 6.344 | 15 | 35 |
| Gestational age at birth (weeks) | 34.75 | 34.75 | 16 | 40 |
| BMI ($Kg/m^2$ | 24.62 | 3.82 | 18.50 | 31.99 |
| Hb level | 12.13 | 1.35 | 10.00 | 14.50 |

The study results showed that 32(16%) patient were primiparous, 47(23.50%) patients had parity 1, 39(19.50%) patients had parity 2, 50(25%) had parity 3 and 32(16%) patients had parity 4. (Figure 1)

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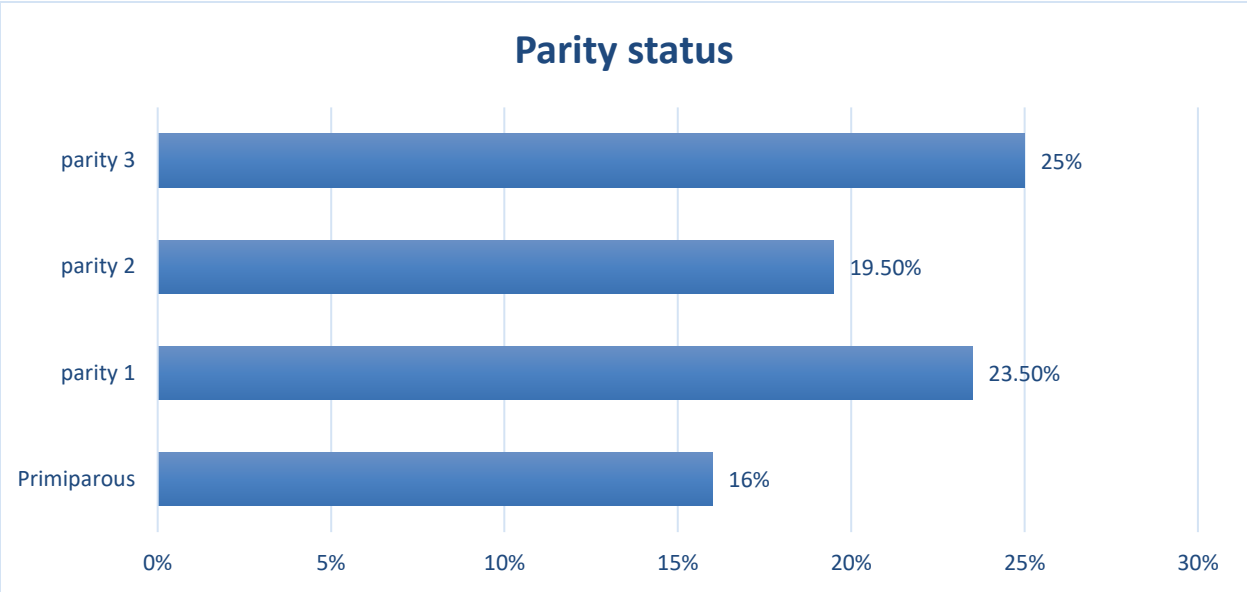


***Figure 1 Status of parity in the study population***

In our study, out of the 200 patients included, 104 (52%) had a history of miscarriage, while 96 (48%) did not. A total of 93 (46.5%) patients had a history of pre-term birth (PTB), whereas 107 (53.5%) patients had no history of PTB. Among the 200 patients, 15 (7.5%) experienced miscarriage during the study. Additionally, 19 (9.5%) patients had an intrauterine device (IUD) present, while 181 (90.5%) did not. Cesarean section was performed on 107 (53.5%) patients, while 93 (46.5%) had a vaginal delivery. PTB occurred in 105 (52.5%) patients. Of the 200 patients, 17 (8.5%) were diagnosed with intrauterine growth restriction (IUGR), while 183 (91.5%) did not show signs of IUGR. Furthermore, 82 (41%) patients experienced postpartum hemorrhage (PPH), whereas 118 (59%) did not encounter PPH during the study (Table 2).

**Table 2 Frequency distribution of side effects in the study population:**

| Variables | Constructs | Frequency | Percent |
|---|---|---|---|
| **History of miscarriage** | Yes | 104 | 52.0 |
| | No | 96 | 48.0 |
| **Miscarriage** | Yes | 15 | 7.5 |
| | No | 185 | 92.5 |
| **IUD** | Yes | 19 | 9.5 |
| | No | 181 | 90.2 |
| **MOD** | C-section | 107 | 53.5 |
| | Vaginal delivery | 93 | 46.5 |
| **PTB** | Yes | 105 | 52.5 |
| | No | 95 | 47.5 |
| **IUGR** | Yes | 17 | 8.5 |
| | No | 183 | 91.5 |

The findings of the study indicated that there was no significant difference in the occurrence of miscarriage, intrauterine device (IUD), mode of delivery (MOD), pre-term birth (PTB), intrauterine growth restriction (IUGR), and postpartum hemorrhage (PPH) in relation to age (p-value > 0.05). Similarly, there was no significant difference in the occurrence of these outcomes based on parity ($p > 0.05$). However, there was a significant difference observed in the occurrence of miscarriage, IUD, and PTB in relation to body mass index (BMI) ($p < 0.05$), while there was no significant difference observed for MOD, IUGR, and PPH ($p > 0.05$) (see Table 3).

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**Table 3: Stratification of Side effects with respect to age, parity, and BMI:**

| Variables | | Age (years) | | p-value | Parity | | p-value | BMI | | p-value |
|---|---|---|---|---|---|---|---|---|---|---|
| | | *≤ 30* | *> 30* | | *Primary* | *Multiparity* | | *Normal* | *Abnormal* | |
| **Miscarriage** | *Yes* | 8 | 7 | **0.643** | 5 | 10 | **0.611** | 15 | 0 | **0.000** |
| | *No* | 110 | 75 | | 74 | 111 | | 96 | 89 | |
| **IUD** | *Yes* | 12 | 7 | **0.698** | 8 | 11 | **0.807** | 15 | 4 | **0.031** |
| | *No* | 106 | 75 | | 71 | 110 | | 96 | 85 | |
| **Cesarean section** | *Yes* | 61 | 46 | **0.539** | 44 | 63 | **0.615** | 62 | 45 | **0.456** |
| | *No* | 57 | 36 | | 35 | 58 | | 49 | 44 | |
| **PTB** | *Yes* | 62 | 43 | **0.989** | 45 | 60 | **0.307** | 48 | 57 | **0.003** |
| | *No* | 56 | 39 | | 34 | 61 | | 63 | 32 | |
| **IUGR** | *Yes* | 10 | 7 | **0.988** | 9 | 8 | **0.236** | 8 | 9 | **0.464** |
| | *No* | 108 | 75 | | 70 | 113 | | 103 | 80 | |
| **PPH** | *Yes* | 44 | 38 | **0.200** | 30 | 52 | **0.482** | 44 | 38 | **0.662** |
| | *No* | 74 | 44 | | 49 | 69 | | 67 | 51 | |

***IUD= intrauterine death. PTB= Preterm birth, IUGR= Intrauterine growth restriction, PPH=** Postpartum hemorrhage*

The study findings revealed that there was no significant difference in the occurrence of miscarriage, intrauterine device (IUD), mode of delivery (MOD), pre-term birth (PTB), intrauterine growth restriction (IUGR), and postpartum hemorrhage (PPH) in relation to the history of miscarriage ($p > 0.05$). Similarly, there was no significant difference in the occurrence of these outcomes based on the history of pre-term birth ($p > 0.05$). Additionally, there was no significant difference observed between miscarriage, IUD, MOD, PTB, IUGR, and PPH with respect to the hemoglobin (Hb) level ($p > 0.05$) (see Table 4).

**Table 4 Stratification of outcomes with respect to age, parity, and BMI:**

| Variables | | H/O miscarriage | | p-value | H/O pre-term | | p-value | Hb Levels | | p-value |
|---|---|---|---|---|---|---|---|---|---|---|
| | | *Yes* | *No* | | *Yes* | *No* | | *≤12* | *>12* | |
| **Miscarriage** | *Yes* | 7 | 8 | **0.667** | 7 | 8 | **0.989** | 11 | 4 | **0.060** |
| | *No* | 97 | 88 | | 86 | 99 | | 89 | 96 | |
| **IUD** | *Yes* | 8 | 11 | **0.364** | 9 | 10 | **0.936** | 10 | 9 | **0.809** |
| | *No* | 96 | 85 | | 84 | 97 | | 90 | 91 | |
| **Cesarean section** | *Yes* | 57 | 50 | **0.700** | 52 | 55 | **0.523** | 54 | 53 | **0.887** |
| | *No* | 47 | 46 | | 41 | 52 | | 46 | 47 | |
| **PTB** | *Yes* | 55 | 50 | **0.910** | 46 | 59 | **0.423** | 51 | 54 | **0.671** |
| | *No* | 49 | 46 | | 47 | 48 | | 49 | 46 | |
| **IUGR** | *Yes* | 11 | 6 | **0.273** | 10 | 7 | **0.287** | 11 | 6 | **0.205** |
| | *No* | 93 | 90 | | 83 | 100 | | 89 | 94 | |
| **PPH** | *Yes* | 45 | 37 | **0.497** | 38 | 44 | **0.970** | 40 | 42 | **0.774** |
| | *No* | 59 | 59 | | 55 | 63 | | 60 | 58 | |

*IUD= intrauterien death. PTB= Preterm birth, IUGR= Intrauterine growth restriction, PPH= Postpartum hemorrhage*

## Discussion

This descriptive case series study was conducted at Unit IV, Department of Obstetrics and Gynecology, Lady Aitchison Hospital, Lahore, to determine the obstetric outcomes among women presenting with fibroid uterus in a tertiary care hospital.

Uterine fibroids are a common gynecological issue affecting women of reproductive age, and there are conflicting reports regarding their impact on fertility and pregnancy outcomes. In our study, we observed that fibroids were prevalent in our environment, and their removal was often associated with post-operative complications such as pyrexia, blood loss,

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anemia, and wound infection. Fibroids were also found to be associated with an increased risk of heavy or prolonged menstrual flow (Aboyeji and Ijaiya, 2002; Akinyemi et al., 2004; Chen et al., 2001; Ezeama et al., 2012).

In our study, we found that the frequency of miscarriage, intrauterine device (IUD) use, mode of delivery (MOD), pre-term birth (PTB), intrauterine growth restriction (IUGR), and postpartum hemorrhage (PPH) were 15 (7.5%), 101 (50.5%), 103 (51.5%), 118 (59%), 20 (10%), and 87 (43.5%) respectively.

Other studies have reported similar findings. For instance, N Suleman et al. reported that anemia was the most common complication (20, 66.66%), followed by postpartum hemorrhage (10, 33.33%). The breech presentation was the most common malpresentation associated with fibroids during pregnancy. Other complications, such as premature rupture of membranes, cord prolapse, intrauterine growth restriction (IUGR), abortions, and hysterotomy, were also observed (Noor et al., 2009).

Previous studies conducted in 2009 and 2010 have reported varying frequencies of complications such as miscarriage, cesarean section, pre-term delivery, IUGR, and PPH (Sarwar et al., 2012). Additionally, studies by Muthuramu Poovathi et al. and other researchers have highlighted the association between fibroids and complications during pregnancy, labor, and postpartum (Poovathi and Ramalingam, 2016).

Several studies have also reported a significantly increased risk of obstetric complications such as pre-term delivery, malpresentation, IUGR, and abnormal placentation. An increased likelihood of miscarriage has also been suggested as a complication in women who have undergone UAE (Goldberg et al., 2004; Mara et al., 2008).

Obstetric complications related to fibroids include pre-term delivery, mal presentations, IUGR, abnormal placentation, abdominal pain, spontaneous abortion, changes in the fetal position, placental abruption, cesarean deliveries, PPH, pre-term delivery, low birth weight infants, increased blood loss during delivery. The frequency of these complications can vary among different studies.

## Conclusion

In conclusion, our study showed a high frequency of complications such as cesarean section, pre-term birth, IUGR, and PPH, while miscarriage and IUD use were relatively low among females presenting with fibroid uterus during pregnancy. This local evidence could contribute to updating guidelines and hospital protocols to improve future pregnancy outcomes in women with fibroid uterus.

## Conflict of interest

The authors declared absence of conflict of interest.

## References

Aboyeji, A., and Ijaiya, M. (2002). Uterine fibroids: a ten-year clinical review in Ilorin, Nigeria. *Nigerian journal of medicine: journal of the National Association of Resident Doctors of Nigeria* **11**, 16-19.

Akinyemi, B., Adewoye, B., and Fakoya, T. (2004). Uterine fibroid: a review. *Nigerian journal of medicine: Journal of the National Association of Resident Doctors of Nigeria* **13**, 318-329.

Chen, C.-R., Buck, G. M., Courey, N. G., Perez, K. M., and Wactawski-Wende, J. (2001). Risk factors for uterine fibroids among women undergoing tubal sterilization. *American journal of epidemiology* **153**, 20-26.

Commandeur, A. E., Styer, A. K., and Teixeira, J. M. (2015). Epidemiological and genetic clues for molecular mechanisms involved in uterine leiomyoma development and growth. *Human Reproduction Update* **21**, 593-615.

Ezeama, C., Ikechebelu, J., Obiechina, N., and Ezeama, N. (2012). Clinical Presentation of Uterine Fibroids in Nnewi, Nigeria: A 5. year Review. *Annals of medical and health sciences research* **2**, 114-118.

Goldberg, J., Pereira, L., Berghella, V., Diamond, J., Darai, E., Seinera, P., and Seracchioli, R. (2004). Pregnancy outcomes after treatment for fibromyomata: uterine artery embolization versus laparoscopic myomectomy. *American journal of obstetrics and gynecology* **191**, 18-21.

Lee, H. J., Norwitz, E. R., and Shaw, J. (2010). Contemporary management of fibroids in pregnancy. *Reviews in Obstetrics and Gynecology* **3**, 20.

Mara, M., Maskova, J., Fucikova, Z., Kuzel, D., Belsan, T., and Sosna, O. (2008). Midterm clinical and first reproductive results of a randomized controlled trial comparing uterine fibroid embolization and myomectomy. *Cardiovascular and interventional radiology* **31**, 73-85.

Noor, S., Fawwad, A., Sultana, R., Bashir, R., Jalil, H., Suleman, N., and Khan, A. (2009). Pregnancy with fibroids and its obstetric complications. *Journal of Ayub Medical College Abbottabad* **21**, 37-40.

Onyije, F. M., Ngokere, A. A., Ligha, A. E., Mgbere, O. O., and Avwioro, G. O. (2019). A 35-year standardized prediction estimates for

[Citation Iftikhar, A., Mubeen, S., Leghari, N., Rauf, N.U.A., Parveen, A., Nisar, M. (2023). Obstetric outcomes in females with uterine fibroids: a study in a tertiary care hospital. *Biol. Clin. Sci. Res. J.*, **2023***: 316*. doi: https://doi.org/10.54112/bcsrj.v2023i1.316]

gynecological lesions in oil and gas exploration and production city in the Niger Delta. *Tropical Journal of Obstetrics and Gynaecology* **36**, 8-14.

Poovathi, M., and Ramalingam, R. (2016). Maternal and Fetal Outcome in Pregnancy with Fibroids: A Prosp ective Study. *International Journal of scientific study* **3**, 169-172.

Sarwar, I., Habib, S., Bibi, A., Malik, N., and Parveen, Z. (2012). Clinical audit of foetomaternal outcome in pregnancies with fibroid uterus. *Journal of Ayub Medical College Abbottabad* **24**, 79-82.

Upson, K., and Missmer, S. A. (2020). Epidemiology of adenomyosis. *In* "Seminars in reproductive medicine", Vol. 38, pp. 089-107. Thieme Medical Publishers, Inc.



[Citation Iftikhar, A., Mubeen, S., Leghari, N., Rauf, N.U.A., Parveen, A., Nisar, M. (2023). Obstetric outcomes in females with uterine fibroids: a study in a tertiary care hospital. *Biol. Clin. Sci. Res. J.*, **2023***: 316*. doi: https://doi.org/10.54112/bcsrj.v2023i1.316]