



## Effect of Fibroid on Pregnancy and Pregnancy on Fibroid Uterus (Original Article)

Authors

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### ABSTRACT

**Objective:** We study the effect of fibroids on women with pregnancy and pregnancy on uterine leiomyoma (fibroids) documented by ultrasonography.

**Materials and Methods:** Fifty (50) pregnant women diagnosed with leiomyoma during pregnancy were evaluated clinically and sonographically. The number, size and location of the fibroid were observed with their impact on pregnancy outcome.

**Result:** Our study population consisted of fifty pregnant women with fibroid. Among them maximum 72.0% uterine fibroid were found at the age range between 25-35 years, majority (50.0%) being primi. The rate of spontaneous pregnancy loss in women with fibroid was 28.0%. Again the loss rate was higher in women with multiple fibroids 40.9%. We observed good association of uterine fibroid with first trimester bleeding 28.0%, premature delivery 14.0%, premature rupture of membranes (PROM) 20.0%, abruptio placentae 2.0% and breech presentation 8.0%. The rate of Caesarean delivery was higher 76.0% in patients with fibroid. The risk of intrauterine growth retardation (IUGR) 18.0 and congenital anomalies of the fetus were also high (6.0%). Most common effect of Pregnancy on fibroid is degeneration.

**Conclusion:** Fibroids with pregnancy appear to increase likelihood of complications during pregnancy, labour and delivery.

**Key word:** Uterine fibroid, Ultrasonogram, effect.

### INTRODUCTION

Approximately 20-40% of women of reproductive age are known to have uterine myomas beyond 30-35 years of age<sup>1</sup>. With wide spread use of ultrasonogram, uterine fibroids are more frequently detected during pregnancy. The prevalence of fibroid among pregnant women ranged from 0.1-3.9%<sup>2-6</sup>. Uterine myomas cause a variety of complications in pregnancy but it has always been assumed that such complications are due to accelerated growth of this neoplasm caused

by increased level of estrogen during pregnancy. When fibroid are identified in the first trimester of pregnancy, the risk of pregnancy loss is elevated. Fibroids especially larger ones are reported to be associated with an increased risk of threatened abortion<sup>20</sup>. During the third trimester of pregnancy uterine fibroids are associated with increased complication like preterm labour, abruptio placentae (APH), pelvic pain, premature rupture of membranes (PROM) and breech presentation<sup>7</sup>. We also evaluated whether the number, location

or size of the fibroids affected the spontaneous pregnancy loss rate. In addition, the rate of Caesarean delivery is higher in women with fibroid and the risk of uterine inertia leading to post partum haemorrhage (PPH) is elevated<sup>8-16</sup>. It was earlier observed that 7.0% of pregnant women with fibroid go into preterm labour<sup>17</sup>. The goal of our study is to assess the outcome of pregnancies and changes of fibroids in which fibroid had been documented sonographically in the first trimester of pregnancy.

## MATERIALS AND METHODS

We conducted a prospective study of women who had undergone first trimester sonography. We included all patients who met the following criteria. Those were singleton pregnancy, fetal heartbeat documented on sonography, uterine fibroids identified on sonography, known mode of conception and sonogram available for review. Cases were included in the study only if information about pregnancy outcome was available.

Data collected and recorded include maternal age, gestational age at the time of sonography and mode of delivery. All sonograms were reviewed to determine the number of fibroids present, their sizes and their locations.

Machine used for ultrasonogram was Real time grey scale scanner sonoline Adara, Siemens and Logic 200 Pro-series GE, Curvilinear 3.5 MHz probes were used for transabdominal USG. The sonographic examinations were performed transabdominally. In cases in which the transabdominal sonogram were insufficient, regarding location, characteristics and size of the fibroid, transvaginal (TVS) sonography was also performed.

Pregnancy outcome was considered live born when a live infant was delivered at or beyond 28 weeks of gestation or as spontaneous loss otherwise. Mode of conception was classified as assisted when pregnancy resulted after treatment for infertility.

Measurements of the fibroid were recorded based on our review of sonograms. The location of a fibroid was classified as submucosal if the part of the fibroid bordered on or protruded into the endometrium, intramural if the fibroid was within the wall of the uterus surrounded by myometrium and subserosal if the fibroid extended to the serosal surface of the uterus. We also assessed the pregnancy loss rates based on the number of fibroid present, size of the largest fibroid and the location of the largest fibroid.

## RESULT

Our study group consists of fifty pregnant women in whom fibroids were documented sonographically in the first trimester. Fetal cardiac activity was also documented in the first trimester in all cases. The mean maternal age was  $27.4 \pm 6.7$  years with fibroid. Among the fifty patients with fibroid, 18.0% of pregnancies resulted from assisted conception. The rate of spontaneous pregnancy loss was 28.0%. Pregnancy outcome was significantly worse in patients with multiple fibroids than in patients with a single fibroid (Table 2), the pregnancy loss rate was 40.9% in women with multiple fibroids versus 17.9% in women with single fibroids. Pregnancy loss rates correlate with the size of the largest fibroid (Table 3). The fibroid was classified as Subserosal in 15 patients. Intramural 35 patients and no patients found with Submucosal fibroid. In our study, largest fibroid (24x24) cm) Intramural variety occupying whole length of body including cervix, showed congenital anomalies of the foetus i.e. dolicocephaly.

Many complications were also noted during second and third trimester of pregnancy such as premature rupture of membrane (PROM) in 20.0% cases, Premature delivery in 14.0% cases, Abruptio placentae in 2.0% cases, Placenta previa in 4.0% cases, less liquor (Oligohydramnios) in 10.0% cases, breech presentation in 8.0% cases, preeclampsia in 4.0% cases and post partum haemorrhage in 16.0% cases. Among 50 cases

most of the patients 76% needed Caesarean section i.e. 38 cases, whereas 12 cases delivered normally (Table 6). In our study intrauterine

growth retardation (IUGR) was found in 18.0% cases, intrauterine death (IUD) 8.0% cases, congenital anomalies of fetus in 6.0% cases.

**Table 1:** General Consideration and Medical Status (N=50)

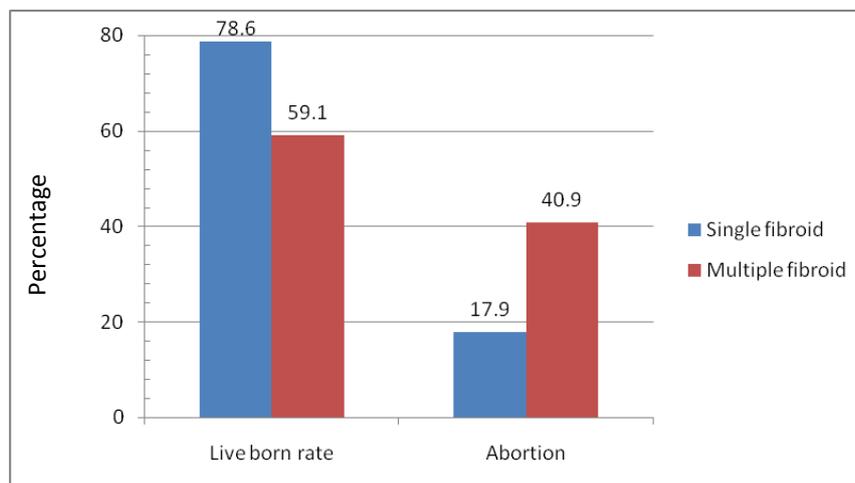
	No of patients	Percentage
Age (year)		
<25	10	20.0
25-35	4	72.0
>35		8.0
Marital status	50	
Married		100.0
Number of pregnancies	25	
1	13	50.0
2	12	26.0
≥3		24.0
Maternal medical status		
Diabetes		
Established	1	2.0
Gestational	3	6.0
Hypertension	2	4.0
Anemia	6	12.0

**Table 2:** Effect on pregnancy based on number of fibroid (N=50)

Parameters	No of patients n=50	Live born rate n(%)	Abortion n(%)
Single fibroid	28	23(78.6)	5(17.9)
Multiple fibroid	22	13(59.1)	9(40.9)
2	15	10(66.7)	5(33.3)
3	4	2(50.0)	2(50.0)
≥4	3	1(33.3)	2(66.7)

Single fibroid was found in 28 (56.0%) cases, out of which 22 (78.6) was live born and rest 5 (17.9%) was aborted. Multiple fibroid was found

in 22(44.0) cases, out of which 13 (59.1%) was live born and rest 9 (40.9%) was aborted.



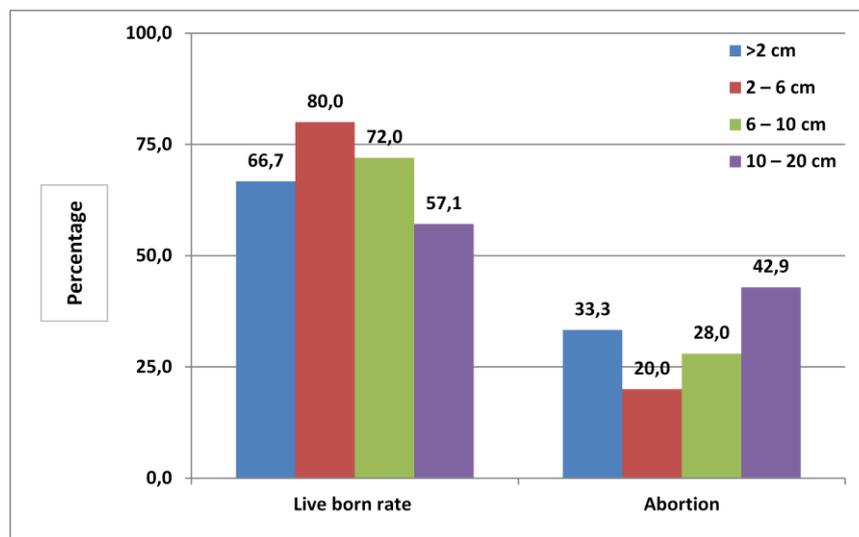
**Fig 1:** Bar diagram showing outcome of pregnancy with types of fibroids.

**Table 3:** Effect on Pregnancy based on size of fibroid (N=50)

Parameters	No of patients n=50	Live born rate n(%)	Abortion n(%)
Size of fibroids			
>2 cm	3	2(66.7)	1(33.3)
2 – 6 cm	15	12(80.0)	3(20.0)
6 – 10 cm	25	18(72.0)	7(28.0)
10 – 20 cm	7	4(57.1)	3(42.9)

Among the fifty patients, half of them had fibroid size of 6 – 10 cm, out of which 18(72.0%) was live born and 7(28.0%) was aborted. Size of largest fibroid 10 – 20 cm was found in 7(14.0)

cases, out of which 4(57.1%) was live born and rest 3(42.9%) was aborted. Abortion case was higher in size of the largest fibroid 10-20 cm.

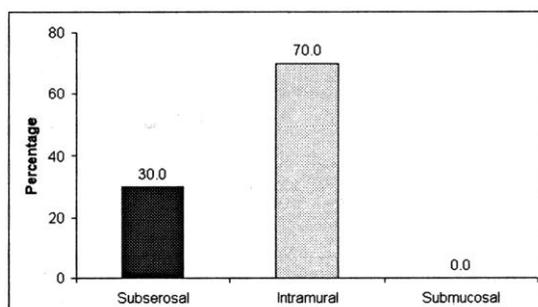


**Fig 2:** Bar diagram showing Effect on pregnancy with size of fibroids.

**Table 4:** Effect on Pregnancy based on site of fibroid (N=50)

Parameters	No of patients n=50	Live born rate n(%)	Abortion n(%)
Site of fibroids			
Fundus of uterus	4	3(66.7)	1(25.0)
Body of uterus	40	30(80.0)	10(20.0)
Ant wall	30	23(72.0)	7(23.3)
Post wall	10	8(57.1)	2(20.0)
Both Ant and Post	3	2(66.7)	1(33.3)
Lower segment	3	2(66.7)	1(33.3)

Regarding the site (of uterus) it was observed that 4(8.0%) cases were found in fundus of uterus, 40(80.0%) in body of uterus and 3(6.0%) in lower segment. The rate of abortion related to site of fibroid is shown in table<sup>4</sup>.



**Fig 3:** Bar diagram showing fibroid classification of the study patients.

**Table 5:** Uterine Leiomyomas Complicate pregnancy and labour (N=50)

Labor complications	No of patients	Percentage
First-trimester bleeding	14	28.0
Abortion	12	24.0
Placenta previa	2	4.0
Abruption placentae	1	2.0
Oligohydramnios	5	10.0
Preeclampsia	2	4.0
Premature rupture of membrane	10	20.0
Malpresentation (breech)	4	8.0
Premature delivery	7	14.0
Post partum haemorrhage	8	16.0

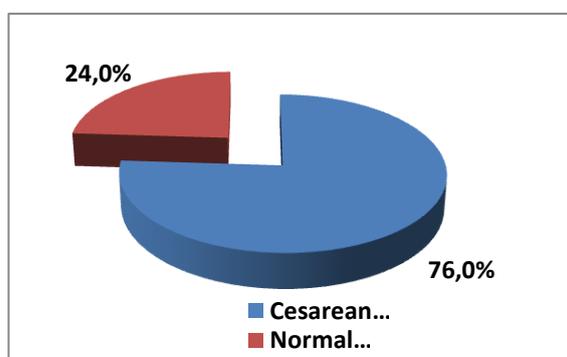
Among the fifty patients with fibroid, commonest complications were first-trimester bleeding, abortion, premature rupture of membrane, post

partum haemorrhage and premature delivery. Other complications are shown in table<sup>5</sup>

**Table 6:** Leiomyomas affect mode of delivery (N=50)

Mode of delivery	No of patients	Percentage
Cesarean delivery	38	76.0
Normal vaginal delivery	12	24.0

Cesarean delivery was in 38 (76.0%) and normal vaginal delivery was in 12(24.0%) cases.



**Fig 4:** Pie diagram showing mode of delivery of a women pregnancy with fibroid.

**Table 7:** Associations between uterine fibroid and fetal outcome (N=50)

Fibroid and fetal out come	No of patients	Percentage
Intrauterine growth retardation (IUGR)	9	18.0
Intrauterine death (IUD)	4	8.0
Congenital anomalies <sup>a. b. c.</sup>	3	6.0

a. Anencephaly b. Dolicocephaly c. Talepes

Intrauterine growth retardation (IUGR) was found in 9(18.0%) cases, intrauterine death (IUD) in 4(8.0%) and congenital anomalies in 3(6.0%) cases.

Effect of PG on Fibroid (N=50)

**Table 8:** Effect on Fibroid (N=50)

Pregnancy affected Fibroid	No of patients	Percentage
Increases the size of Leiomyoma	50	100%
Degeneration of Leiomyoma	11	22%
Infection of Leiomyoma	3	6%

## DISCUSSION

Pregnancies in women with uterine fibroid are at increased risk for pregnancy loss i.e. abortion in first trimester<sup>18</sup>. Our study confirms that the spontaneous pregnancy loss rates are higher in women with fibroid documented during the first trimester. Study conducted by Benson et al. and Rasati et al. also showed the spontaneous pregnancy loss rates are higher in women with fibroid<sup>19,20</sup>. We also found that the spontaneous pregnancy loss rate is high in women with multiple fibroids. Our result also resembles with the study conducted by Benson et al.<sup>18</sup>. Furthermore this study quantified the risk to the pregnancy in relation to number of fibroids, assessed the risk of pregnancy loss in relation to number of fibroids, size of fibroid and location of fibroids (Table 2, 3 & 4).

At least two retrospective studies suggest that the location of the myomas is important<sup>21</sup>. Those located adjacent to placental site were associated with an increased risk of bleeding, abruption and premature rupture of membranes<sup>22, 23</sup>. It is often suggested that the high level of sex steroid associated with pregnancy commonly causes growth of uterine myomas with increased symptoms. However, one prospective study shows that growth is usually seen only in the first trimester and many uterine myomas particularly larger ones often get smaller late in pregnancy<sup>24</sup>.

Study conducted by Rice et al. and Davis et al.<sup>3</sup> suggested that the size and location of the uterine fibroid might predict the magnitude of the risk<sup>2, 7</sup>. In our study among the fifty cases we got same complication during 3<sup>rd</sup> trimester of pregnancy such as premature delivery in 7 cases 14.0%, breech presentation in 4 cases 8.0%, premature rupture of membranes (PROM) 10 cases 20.0%, oligohydramnios in 5 cases 10.0%, low lying placenta 2 cases 4.0, and abruption placenta one case 2.0%. Several studies that addressed breech presentation among women with uterine leiomyomas had significant positive association<sup>2, 7</sup>. Our finding of increased PROM and abruption placentae among women with uterine myoma is consistent with other study<sup>3</sup>.

Study conducted by Katz et al. and Vergani et al. found that cesarean delivery in women with uterine fibroids in 34.0% and in 23.4% cases respectively, which almost resemble with our study<sup>4, 9</sup>. In our study 38 cases (76%) were delivered by caesarian section and only 12 cases (24%) delivered normally (NVD).

The proportion of women who had cesarean section was higher among women with uterine leiomyoma compared with women without them<sup>25</sup>. Infant of women with uterine leiomyoma were of low birth weight. In our study birth weight ranges from 2.5 kg to 3.0 kg. We found 9

cases (18.0%) of infant with intrauterine growth retardation (IUGR).

Death of foetus (IUD) was also reported among 4 women. Three (3) cases 6.0% showed congenital anomalies like Anencephaly, Dolicocephaly & Telepes. Whether there is any relation of fibroid and congenital anomalies of fetus was not well established.

The biological basis for the association between pregnancy, labour or delivery complications and uterine leiomyomas is unclear<sup>3</sup>. Some research suggested that leiomyomas that are behind the placenta or in the lower uterine segment increase the likelihood of delivery complications<sup>1, 6, 7</sup>. Uterine myomas also decrease uterine dispensability and cause mechanical obstructions that restrict space and limit fetal movement uterine fibroids also interfere with uterine contractions.

In this study, we observed that uterine leiomyoma was strongly related to first trimester bleeding, abortion, premature rupture of membrane, premature delivery and low birth weight and degenerations. These results are consistent with hypotheses that uterine leiomyomas might interfere with normal labour and delivery by mechanical process. Future investigation should focus on how to minimize risk among pregnant women with uterine leiomyoma.

In summary, uterine fibroids are associated with an elevated risk of spontaneous pregnancy loss after a fetal heartbeat has been visualized by sonography in first trimester. The loss rate is higher in women with multiple fibroids and largest size of fibroid.

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