

DOI: 10.5281/zenodo.10570252**12****FETO-MATERNAL OUTCOMES OF PREGNANCY WITH FIBROID**

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ABSTRACT:

INTRODUCTION-Fibroids are benign, monoclonal tumors of the smooth muscle cells of the myometrium. Pain is the most common presentation during pregnancy. As fibroids are usually asymptomatic in pregnancy, they result in uneventful pregnancy and labor.

OBJECTIVES- to determine the correlation between pregnancy outcomes wrt the number, location, type and size of fibroid

RESULTS- 7 (20%) pregnancies underwent spontaneous abortions. 24 patients (68.6%) underwent cesarean. 5 (14.3%) was for non-progress of labor (NPOL), 7 patients (20%) for CPD (Cephalo-Pelvic Disproportion), 10 patients (28.6%) with malpresentation (breech or transverse), and 2 (5.7%) patients had elective LSCS for placenta previa. 10 patients (28.6%) had vaginal delivery. 10 fetuses (28.6%) required NICU admission, 9 (25.7%) were of Low Birth Weight, 7 (20%) had preterm birth owing to PPROM or preterm labour pain, 4 (11.4%) required resuscitation, 3 (8.6%) had low APGAR at 5 minutes.

Conclusion: Most fibroids are asymptomatic but may be associated with some complications leading to unwanted obstetric events. Hence, it is crucial to closely monitor these patients and the fetus and give special attention during the antenatal period and to arrive at a timely decision in case of any complication during the intrapartum period. Adequate modification of antenatal care should be taken in cases of large, multiple, submucosal or subserosal, pedunculated and lower segment fibroids as these pose the highest risk for antepartum and intrapartum complications. This would improve the maternal as well as fetal outcomes.

KEYWORDS- fibroid, degeneration, spontaneous abortion, malpresentation

Introduction:

Fibroids are benign, monoclonal tumors of the smooth muscle cells of the myometrium and contain large aggregations of extracellular matrix composed of collagen, elastin, fibronectin and proteoglycan. It is the most common intrauterine tumor in females belonging to the reproductive age group. They are usually asymptomatic, and the symptoms may present according to the size, type, location and the number of fibroids present.^[1]

Obstetricians should screen for leiomyoma in pregnancy, especially in black races as positive correlation has been found between the level of estrogen receptors ER- α PP genotype and leiomyoma. Adipose tissue is also a source of estrogen hence it is postulated that obese females are prone to fibroids.^[4]

Appearance on ultrasound: Appearance can be varied, but usually they are symmetrical, concentric, well-defined, hypo-echoic masses. It appears anechoic in cases of cystic degeneration, while it appears hyperechoic in cases of calcification and hemorrhage. [2][9]

Prevalence of fibroids in pregnancy: The estimated incidence in pregnancy varies from 20-40%. The lower prevalence of pregnancy can be explained from various studies done over decades suggesting increased risk of infertility and lower rates of implantation in fibroid uterus. [5]

Signs and Symptoms:

Pain is the most common presentation during pregnancy. Fibroid degeneration causes a very typical pelvic pain. With increase in the size of fibroid, it outgrows its own blood supply resulting in ischemia, anoxia and necrosis. Cell necrosis and damage are associated with increased prostaglandin release and subsequently localized pain. Pain from fibroid degeneration is often successfully treated with analgesics. Torsion of pedunculated subserosal uterine fibroids also has a similar effect, but it requires surgical intervention. [1][2]

Types of degeneration determined both grossly and microscopically include hyaline degeneration, calcification, cystic degeneration, and hemorrhagic degeneration. There is no correlation between the type of degeneration and clinical symptoms. [13]

Anterior cervical fibroids lead to complaints of frequent micturition due to its pressure effect on the urinary bladder. Or in cases where the fibroid is impinging on the bladder neck, it can lead to urinary retention. Other infrequent symptoms are pelvic pressure, vaginal bleeding and constipation. [11]

Effect of uterine fibroids on pregnancy:

As fibroids are usually asymptomatic in pregnancy, they result in uneventful pregnancy and labor. There is no increased incidence of PROM in cases of pregnancy with fibroids, however there is increased risk of preterm delivery, premature rupture of membranes, fetal growth restriction, placenta previa, placental abruption, postpartum hemorrhage, or retained placenta in such cases. Cesarean section was more common among women with fibroids. [3][12]

Fetal growth restriction is possible due to mechanical compression, but fetal injury due to the same is rare.

Any decision to perform a myomectomy in order to prevent problems during pregnancy should take into account the risks of surgery, anesthesia, postoperative adhesions, and an increased likelihood of subsequent cesarean delivery, along with concerns about discomfort, expense, and time away from work or family. Myomectomies during cesarean deliveries are usually not preferred owing to risk of hemorrhage. [6]

The increase in size due to compromised blood supply leading to release of prostaglandins due to degeneration of tissue leads to pain. But this release of prostaglandins can also increase uterine contractions. [8]

Sub serosal fibroids are at risk for torsion and red degeneration irrespective of pregnancy. Fibroid torsion is common in the first trimester when there is an adequate space available. Submucosal fibroids are associated with higher miscarriage rates. Large-sized fibroids are associated with uterine cavity distortion, abnormal fetal position and presentation. Breech presentation and oblique lie are usually encountered with large low lying fibroids. [2]

Effect of pregnancy on uterine fibroids:

Pregnancy has a variable, and unpredictable effect on fibroid growth, likely dependent on genetic and surrounding environmental factors. Most fibroids do not increase in size during pregnancy. If increase in size is noted, it is usually noted before 10 weeks of gestation. However, a reduction in fibroid size might be observed 4-6 weeks after delivery, but this is believed to be incidental but the data suggesting this is not significant statistically.^{[1][2]}

Methodology:

- A prospective, analytical study was conducted in the Obstetrics and Gynaecology Department at our tertiary care center (SVP hospital) from February, 2022 to October, 2022.
- This study included 35 pregnant patients.
- Maternal age, parity, size, type and location of the fibroid, complications during pregnancy, mode of delivery and gestational age at termination were noted.
- Fetal outcomes were noted in the form of- LBW, low APGAR, requiring resuscitation, requiring NICU admission, or neonatal death.
- In our study, the FIGO Classification system^[12] was used.

Inclusion criteria

The study included pregnant females presenting to the OPD of SVP hospital, with an intra-uterine fibroid of >1 cm size. Females with only singleton intrauterine pregnancy were included. Only USG documented uterine fibroid diagnosed prenatally or antenatally were included.

Exclusion criteria

Patients with operative history over the uterus i.e. myomectomy, cesarean section, congenital malformations of the uterus were excluded.

Patients whose pregnancy was terminated before term due to any other comorbidity were also excluded from this study.

Detailed history was taken including complete antenatal history, symptoms of fibroid, infertility treatment taken if any, and for any surgical history. All patients underwent complete clinical examination and were subjected to laboratory and radiological investigations. Females underwent serial clinical examination and radiological investigations. Any change noted in the antenatal period was an incidental change or was attributable to fibroid was confirmed, and vice-versa, any change in fibroid was also noted and its correlation with pregnancy confirmed.

Ultrasonography was done during each visit for fetal assessment and to monitor the size of the fibroid.

These patients were followed for 6 weeks postpartum and a last scan was done in postnatal period at 6 weeks

Results:

TABLE 1		TABLE 2	
Number of fibroids	Number of patients (%)	Size (largest dimension)	Number of patients (%)
1	11 (31.43)	<4cm	5 (14.3)

2-3	8 (22.86)	4-7cm	20 (57.1)
>3 (multiple)	16 (45.71)	8-10cm	9 (25.7)
		>11cm	1 (2.9)

In our study, out of a total of 35 patients, 11 patients (31.43%) had single fibroid, 8 patients (22.86%) had <3 fibroids while 16 patients (45.71%) had (>3 multiple) fibroids. The largest fibroid measured 13.5cm (maximum dimension). 5 patients (14.3%) had small (<4cm) fibroid, while most patients i.e. 20 patients (57.1%) had fibroid of 4-7 cm in size.

TABLE 3		TABLE 4	
Site (not mutually exclusive)	Number of patients (%)	FIGO classification	Number of patients (%)
Fundal	10 (28.6)	Submucosal (0, 1, 2)	16 (45.7)
Body	25 (71.4)	Intramural (3, 4)	25 (71.4)
Lower segment	9 (25.7)	Subserosal (5, 6, 7)	8 (22.8)
Cervical	1 (2.8)		
Pedunculated	2 (5.7)		

As shown in the Table 3, 25 patients (71.4%) had fibroid in the body of the uterus, of which 16 patients had fibroid in posterior wall while 7 patients had fibroid in anterior wall and 2 patients had lateral wall fibroids. 10 patients (28.6%) had fundal fibroids while 9 patients (25.7%) had lower segment fibroids. 1 patient had a cervical fibroid and 2 patients had pedunculated fibroid.

25 patients (71.4%) had intramural fibroids and 16 patients (45.7%) patients had submucosal fibroids. 8 patients (22.8%) had subserosal fibroids, out of which 1 had pedunculated subserosal fibroid and 2 underwent red degeneration.

TABLE 5		TABLE 6	
Age	Number of patients (%)	Parity	Number of patients (%)
19-25	1 (2.8)	Primi	16 (45.7)
26-30	6 (17.1)	2nd, 3rd gravida	14 (40)
31-35	15 (42.9)	>= 4th gravida	5 (14.3)
36-40	8 (22.9)		
>41	5 (14.3)		

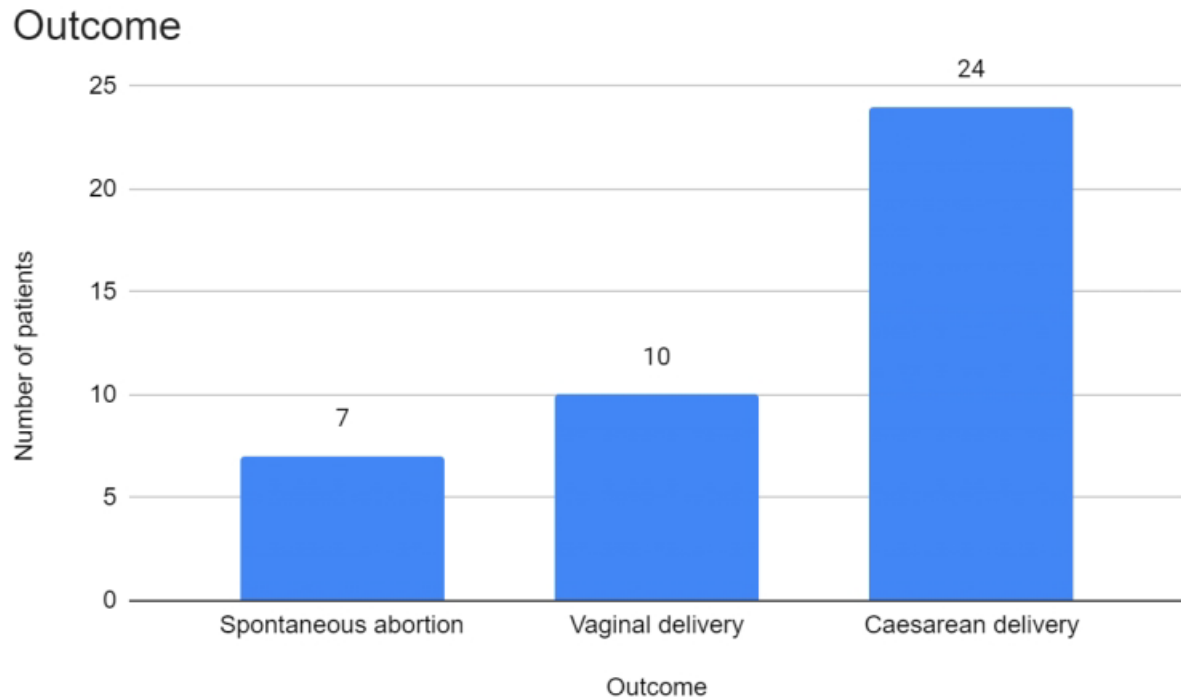
Maximum patients in our study belonged to the age group of 31-35 years. The chances of fibroid were almost similar in primi and 2nd or 3rd gravida as 16 patients (45.7%) were primi and 14 patients (40%) were 2nd and 3rd gravida.

TABLE 7	
Gestational age at termination	Number of patients (%)
<20	4 (11.4)
21-32	2 (5.7)
33-37	5 (14.3)
37-40	23 (65.7)
>40	1 (2.9)

23 patients (65.7%) delivered via vaginal route or via cesarean at 37-40 weeks. While 5 patients (14.3%) delivered at 33-37 weeks, 4 patients (11.4%) aborted at <20 weeks. 2 patients delivered at the gestational age of 21-32 weeks, out of these, one of which one delivered at 30 weeks and other at 31 weeks, which might be a possible reason for no neonatal deaths noted in our study.

TABLE 8				
Outcome	Number of patients (%)	Type of fibroid	Site of fibroid	Number of fibroid
Spontaneous abortion	7 (20)	100% had submucosal or intramural fibroid	85.7% on body 14.3% on fundus	57.1% had single 42.9% had multiple
Vaginal delivery	10 (28.6)	70% had subserosal 50% had submucosal	80% on fundus 20% on lower segment	60% had single 40% had multiple
Cesarean delivery	24 (68.6)	54.2% had submucosal 41.7% had intramural 25% had subserosal	21% on body 79% on lower segment	50% had single 50% had multiple

CHART 1:



In our study, looking at the pregnancy outcomes, 7 (20%) pregnancies underwent spontaneous abortions. All the patients that underwent Spontaneous abortions either had submucosal or intramural fibroids, or a combination and the location of fibroid in 85.7% of these cases were in the body of the uterus.

24 patients (68.6%) underwent cesarean but as per our exclusion criteria, all the cesareans were taken purely for obstetrical reasons.

5 (14.3%) was for non-progress of labor (NPOL), 7 patients (20%) for CPD (Cephalo-Pelvic Disproportion), 10 patients (28.6%) with malpresentation (breech or transverse), and 2 (5.7%) patients had elective LSCS for placenta previa. 10 patients (28.6%) had vaginal delivery out of which 20% patients had lower segment fibroid, and 80% had fundal fibroid. i.e., out of the 9 patients who had fibroid. In the lower uterine segment, 7 underwent cesarean and 2 had normal vaginal delivery.

7 patients (20%) developed pre-eclampsia. 10 patients (28.6%) had malpresentation out of which, 7 (20%) were breech and 3 (8.6%) were transverse lie (6%) all were associated with lower segment fibroid and were delivered with cesarean.

1 patient underwent red degeneration, who was managed conservatively.

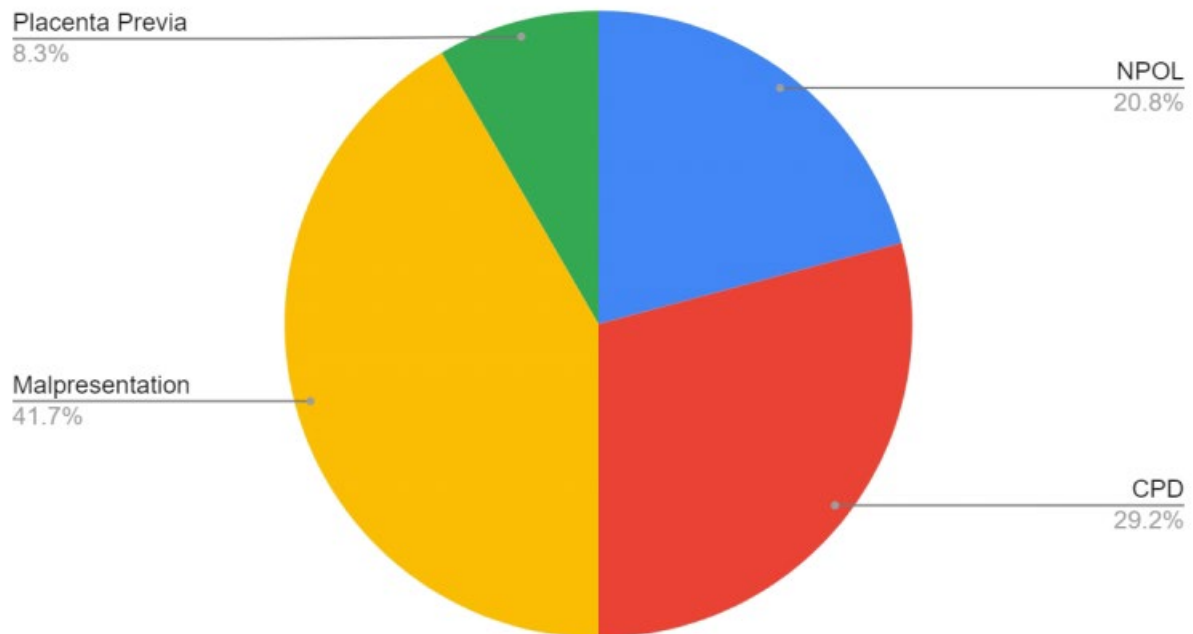
TABLE 9

Indications for Cesarean	Number of patients (%) [total N=24]
NPOL	5 (14.3)
CPD	7 (20)

Malpresentation(Breech/ Transverse)	10 (28.6)
Placenta Previa	2 (5.7)
	N=24

CHART 2:

Indications for Caesarean

**TABLE 10**

Complication	Number of patients (%)	Type of fibroid
Pre-eclampsia	7 (20)	
Postpartum hemorrhage	7 (20)	100% submucosal
Abruption	0	
Degenerative changes	1 (2.8)	100% subserosal

TABLE 11

Neonatal Outcome	Number of patients (%)
Abortion	7 (20)
Preterm Birth	7 (20)

Low Birth Weight	9 (25.7)
Low APGAR at 5 minutes	3 (8.6)
Required resuscitation	4 (11.4)
Required NICU admission	10 (28.6)
Neonatal death	0 (0)

10 fetuses (28.6%) required NICU admission, 9 (25.7%) were of Low Birth Weight, 7 (20%) had preterm birth owing to PPROM or preterm labor pain, 4 (11.4%) required resuscitation, 3 (8.6%) had low APGAR at 5 minutes.

Discussion:

In our study we found that most common types of fibroid were intramural located on the body of the uterus (posterior wall mainly). This is in contrast with a study done by Wise et al in which most common leiomyoma was of submucosal type.^[13] Almost 40% of women can develop complications.

Incidence of spontaneous miscarriage in pregnant females in our study is 20%, which is found to be higher than in pregnant females without fibroid uterus according to a study by Patki et al.^[16] Probable explanation for this might be compression of vascular supply to the endometrium which affects the fetus ultimately resulting in abortion.

Evidence based literature has suggested that the size of the fibroid may not affect the abortion rate but the number of it could affect it. It has been seen that multiple fibroids, single fibroids in the body of the uterus and submucosal and intramural fibroid are more associated with pregnancy losses which is consistent with many studies.

Red degeneration was noted in one case, which is believed to be the effect of progesterone and hence more common in pregnancy.

Malpresentations are common with large fibroids or multiple submucosal fibroids present in the lower uterine segment. 28% females have malpresentation in our study, which is more in comparison to other studies.^[10]

In our study 20% patients developed pre-eclampsia and 2.7% patients had placenta previa and low-lying placenta. Fibroids can lead to ineffective placentation and placentation in lower uterine segment leading to pre-eclampsia and placenta previa as seen in study by Singh et al.^[17]

Premature uterine contractions may lead to placental abruption. However, no abruption case was noted in our study.

PPH is a common finding in pregnancies complicated with fibroids. It is due to the inability of the uterus to contract properly owing to the location of the fibroid. Another reason for it might be the increased surface area in case of large fibroids. Fibroids can sometimes lead to retained bits of placenta. In our study 20% of patients had PPH.

There were no neonatal deaths recorded in our study.

10 fetuses (28.6%) required NICU admission, 9 (25.7%) were of Low Birth Weight, 7 (20%) had preterm birth owing to PPROM or preterm labor pain. None of these adverse neonatal

outcomes is statistically significant and hence cannot be attributed directly to uterine fibroid, which can be taken in positive light.

Only 1 patient showed an increase in size but by no more than 30%. At 6 weeks postpartum the size of the fibroids did not differ significantly from the size during pregnancy.^[7]

Conclusion:

Most fibroids are asymptomatic but may be associated with some complications leading to unwanted obstetric events. Hence, it is crucial to closely monitor these patients and the fetus and give special attention during the antenatal period and to arrive at a timely decision in case of any complication during the intrapartum period. Adequate modification of antenatal care should be taken in cases of large, multiple, submucosal or subserosal, pedunculated and lower segment fibroids as these pose the highest risk for antepartum and intrapartum complications. This would improve the maternal as well as fetal outcomes.

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Nil

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