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Original Research Article

High-risk pregnancy: fibroids and their impact on maternal and foetal health-insights from a prospective study

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ABSTRACT

Background: Uterine fibroids are common benign tumors affecting women of reproductive age, with significant implications during pregnancy. This study aimed to evaluate the maternal and fetal outcomes in pregnancies complicated by uterine fibroids.
Methods: A prospective observational study was conducted on 38 pregnant women with fibroids >2 cm diagnosed by ultrasonography. Patients were followed throughout pregnancy and postpartum period. Maternal characteristics, fibroid features, pregnancy complications, and fetal outcomes were analyzed.
Results: The mean age was 32.4 years, with 60.5% being primigravida. Intramural fibroids were most common (65.8%), followed by subserosal (28.9%) and submucosal (15.7%) including some patients with multiple fibroids. Common complications included preterm labor (26.3%), spontaneous abortion (15.8%), placental abnormalities (13.2%), and postpartum hemorrhage (21.1%). Caesarean section rate was 55.3%. Adverse fetal outcomes included small for gestational age (31.6%), preterm birth (26.3%), and NICU admission (23.7%).
Conclusions: Pregnancy with fibroids carries significant risks for both mother and fetus. Close antenatal surveillance and appropriate management strategies are essential for optimizing outcomes.

Keywords: Fibroids, pregnancy, Preterm labor, Premature rupture of membranes, Intrauterine growth restriction

INTRODUCTION

Uterine fibroids (leiomyomas) represent the most common benign tumors of the female reproductive tract, affecting 40-60% of women by age 35 years and up to 80% by age 50 years.[1,2] The prevalence of fibroids during pregnancy ranges from 1.6% to 10.7%, though the true prevalence may be higher as many cases remain asymptomatic and undiagnosed.[3]

Fibroids can significantly impact fertility and pregnancy outcomes through various mechanisms. They may affect implantation, placentation, and fetal growth through mechanical effects and alterations in uterine blood flow.[4] During pregnancy, fibroids may undergo various changes influenced by hormonal factors, potentially leading to complications such as degeneration, torsion, and altered uterine contractility.[5]

The relationship between pregnancy and fibroid growth is complex with some reporting significant growth in the first trimester followed by stability or regression in later trimesters.[6,7] This growth pattern has been attributed to the effects of reproductive hormones and human chorionic gonadotropin (hCG).[8]

ongoing to the increased prevalence and detection of fibroid during pregnancy, for late marriage and childbirth. The present study was undertaken to evaluate the impact of uterine fibroids on pregnancy outcomes and to identify specific risk factors associated with adverse maternal and fetal outcomes in study population.

METHODS

A prospective observational study was conducted from March 2023-March 2024 at Institute of medical sciences and research centre, JNU Jaipur. The study included 38 pregnant women with ultrasonographically diagnosed uterine fibroids measuring >2 cm in any dimension.

Inclusion criteria

Singleton pregnancy, fibroid size >2 cm, first trimester registration and regular follow-up were included.

Exclusion criteria

Multiple pregnancy, previous myomectomy, major medical comorbidities and unwillingness for regular follow-up were excluded.

Data collection

Detailed history and examination were performed at registration. Ultrasonographic assessment included: Number, size, and location of fibroids, changes in fibroid size during pregnancy, placental location and fetal growth parameters

Patients were followed up monthly until 28 weeks then fortnightly until 36 weeks, and weekly thereafter. Additional visits were scheduled based on complications.

Primary outcomes were antenatal complications, mode of delivery and postpartum complications.

Secondary outcomes were gestational age at delivery, baby birth weight, APGAR scores and NICU admission.

Statistical analysis

Data was analyzed using SPSS version 23.0. Categorical variables were expressed as frequencies and percentages, continuous variables as mean±SD. Chi-square test was used for categorical variables, with $p<0.05$ considered significant.

RESULTS

The maternal characteristics (Table 1) showed that the majority of patients were in their early to mid-thirties, with 47.4% between 30-35 years and 31.6% between 20-29 years. Only 21% were above 35 years. Most women (60.5%) were primigravida, while 34.2% were multigravida. A significant portion (5.6%) had experienced previous pregnancy losses, indicating the potential impact of fibroids on pregnancy outcomes.

Regarding fibroid characteristics (Table 2), intramural fibroids were predominant, affecting 65.8% of patients, followed by subserosal (28.9%) and submucosal (15.7%) types including multiple fibroids in some patients. Most fibroids (57.9%) measured between 2-5 cm, while 42.1% were larger than 5 cm. The distribution between single and multiple fibroids was relatively even, with 52.6% having single fibroids. Location-wise, most fibroids were found in the body of the uterus (44.7%), followed by fundal region (36.8%), with fewer in the lower segment (18.4%).

Table 1: Maternal characteristics.

Characteristics	N (%)
Age (in years)	
20-29	12 (31.6)
30-35	18 (47.4)
>35	8 (21.0)
Parity	
Primigravida	23 (60.5)
Multigravida	13 (34.2)
Previous pregnancy loss	2 (5.26)

Table 2: Fibroid characteristics.

Parameters	N (%)
Type	
Intramural	25 (65.8)
Subserosal	11 (28.9)
Submucosal	6 (15.7)
Size	
2-5 cm	22 (57.9)
>5 cm	16 (42.1)
Number	
Single	20 (52.6)
Multiple	18 (47.4)
Location	
Fundal	14 (36.8)
Body	17 (44.7)
Lower segment	7 (18.4)

Maternal complications (Table 3) were significant, with preterm labor being the most common complication (26.3%). Threatened abortion and postpartum hemorrhage each affected 21.1% of cases, while spontaneous abortion occurred in 15.8%. Placental complications were also noted, with placenta previa in 7.9% and placental abruption in 5.3% of cases. Red degeneration affected 5.3% of patients, representing a significant complication specific to fibroid pregnancies.

Table 3: Maternal complications.

Complication	N (%)
Threatened abortion	8 (21.1)
Spontaneous abortion	6 (15.8)
Preterm labor	10 (26.3)
Placenta previa	3 (7.9)
Placental abruption	2 (5.3)
Red degeneration	2 (5.3)
Postpartum hemorrhage	8 (21.1)

Delivery characteristics (Table 4) revealed a high caesarean section rate of 55.3%, while 28.9% achieved vaginal delivery, and 15.8% ended in spontaneous abortion. Among caesarean deliveries, the main indications were malpresentation (28.3%), non-progress of labor (23.8%), and fetal distress (19.4%). Placental causes necessitated caesarean in 14.3% of cases, with an equal proportion requiring caesarean for other reasons.

Table 4: Delivery characteristics.

Parameters	N (%)
Mode of delivery	
Vaginal delivery	11 (28.9)
Caesarean section	21 (55.3)
Spontaneous abortion	6 (15.8)
Indication for cesarean	
Malpresentation	6 (28.6)
Non-progress of labor	5 (23.8)
Fetal distress	4 (19.04)
Placental causes	3 (14.3)
Others	3 (14.3)

Fetal outcomes (Table 5) showed that while the majority (63.2%) reached term gestation, a significant 26.3% delivered preterm. Birth weight distribution showed 68.4% weighing more than 2.5 kg, while 21.1% were between 2-2.5 kg, and 10.5% were below 2 kg. A considerable proportion (31.6%) were small for gestational age. NICU admission was required for 23.7% of the newborns, indicating significant neonatal morbidity associated with fibroid pregnancies.

Table 5: Fetal outcomes.

Outcomes	N (%)
Gestational age at delivery	
Term (≥37 weeks)	23 (71.8)
Preterm (<37 weeks)	9 (28.12)
Birth weight	
>2.5 kg	22 (68.75)
2-2.5 kg	8 (21.1)
<2 kg	2 (6.25)
Small for gestational age	12 (31.6)
NICU admission	9 (23.7)

DISCUSSION

Our study provides important insights into the impact of uterine fibroids on pregnancy outcomes. The findings demonstrate significant maternal and fetal complications associated with fibroid-complicated pregnancies.

The mean age of patients in our study was 32.4 years, with 47.4% in the 30-35 years age group. This is consistent with previous studies showing increased prevalence of fibroids in advanced maternal age. Primigravidae constituted 60.5% of cases, higher than the 52% reported by Pandit et al possibly reflecting delayed childbearing in our urban population.[9]

Intramural fibroids were most common (59.5%), followed by subserosal (28.9%) and submucosal (15.7%). This distribution pattern aligns with previous literature.[10] The size distribution showed 57.9% of fibroids measuring 2-5 cm and 42.1% >5 cm, comparable to findings by Handa et al.[11]

Preterm labor was the most frequent complication (26.3%), and in which intramural or fundal fibroid were commonest of all, similar to the 30% reported in recent by Anjali et al.[11] The spontaneous abortion rate of 15.8% was most commonly in association with submucosal fibroids location.[9]

Placental complications occurred in 13.2% cases, with placenta previa (7.9%) and abruption (5.3%). These rates are comparable to previous study showing 10-16% incidence of placental complications in fibroid pregnancies by Klatsky.[12]

Red degeneration occurred in 7.9% cases, which in turn lead to patient present with most commonly complain of pain abdomen, higher than the 4% reported in some studies, possibly due to larger fibroid sizes in our study.[11]

The caesarean section rate was 55.3%, lower than the 60% reported by Handa et al.[11] Common indications included malpresentation (28.6%) and non-progress of labor (23.8%) due to the obstructing pathway in subserosal fibroid. The high caesarean rate reflects both direct mechanical effects of fibroids and associated complications.

Postpartum hemorrhage occurred in 21.1% cases, with intramural fibroid of Figo classification number 2,3,4 comparable to the 24% reported in recent literature by Handa et al.[11] This high rate emphasizes the need for preparedness for blood transfusion and surgical intervention.

Preterm birth occurred in 28.12% cases, consistent with previous studies showing 20-30% preterm delivery rates.[13] Small for gestational age babies constituted 31.6%, higher than report given by Noor et al in year possibly due to larger fibroid sizes and associated placental issues.[14]

NICU admission was required in 23.7% cases, primarily for prematurity and growth restriction. This rate is comparable to previous study by sarwar et al in showing 20-30% NICU admission rates in fibroid-complicated pregnancies.[15]

Importance of availability of resources like NICU , blood bank, 24 hour availability of experts under a roof have direct impact. Overall maternal and fetal outcome were affected significantly with relation to regular follow-up, correction of anemia, timely diagnosis and intervention.

CONCLUSION

Pregnancy complicated by fibroids poses considerable risks for both the mother and the fetus. Our study identified several key challenges. There is an elevated incidence of preterm labor, often necessitating caesarean delivery. Additionally, fibroids significantly increase the risk of placental complications, such as placenta previa or abruption, and contribute to a higher likelihood of fetal growth restriction. Postpartum hemorrhage also emerges as a substantial concern in these pregnancies, requiring careful management.

Recommendations

Early registration and regular monitoring are essential for pregnancies affected by fibroids to ensure timely identification and management of potential complications. Serial ultrasounds should be performed throughout pregnancy to monitor fibroid size, location, and fetal growth. Given the high likelihood of preterm labor and malpresentation, healthcare providers must be prepared for emergency caesarean delivery if necessary. Blood bank support should also be arranged in advance to address the substantial risk of postpartum hemorrhage. Furthermore, access to NICU facilities is vital for managing preterm or growth-restricted newborns, helping to improve neonatal outcomes and reduce morbidity. These proactive measures are crucial for minimizing risks and optimizing maternal and fetal health in pregnancies complicated by fibroids.

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