Outcomes of Fibroid in Pregnancy: A Case Series

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ABSTRACT

Background: Uterine fibroids are the most common benign tumors of the female reproductive tract and are increasingly encountered during pregnancy due to delayed childbearing and routine use of early obstetric ultrasonography. While many fibroids remain asymptomatic, their presence during pregnancy may be associated with adverse obstetric and neonatal outcomes depending on size, number, and location. Even small fibroids may influence labor dynamics and delivery outcomes.

Objectives: To describe the maternal, intrapartum, and neonatal outcomes in pregnancies complicated by uterine fibroids and to assess the potential influence of fibroid characteristics on pregnancy outcome.

Materials and Methods: This case series includes five pregnant women with antenatally diagnosed uterine fibroids managed at a tertiary care obstetric unit. All women conceived spontaneously and were followed from early pregnancy until delivery. Fibroid size and location were documented on first-trimester ultrasonography. Maternal age, parity, gestational age at delivery, mode of delivery, indication for cesarean section, and neonatal outcomes including birth weight and need for neonatal intensive care unit admission were recorded and analyzed descriptively.

Results: All five women had intramural or subserosal fibroids ranging in size from 2.5 to 4.5 cm, located in the anterior, posterior, or fundal uterine wall. Deliveries occurred at term or near term. Emergency cesarean section was required in the majority of cases due to intrapartum complications such as fetal distress, cephalopelvic disproportion, or failure to progress, while one case underwent elective cesarean section. Neonatal outcomes were variable, with low birth weight and NICU admission observed in selected cases, whereas others had favorable neonatal outcomes. The findings indicate heterogeneity in obstetric and neonatal outcomes despite relatively small fibroid size.

Conclusion: Pregnancies complicated by uterine fibroids may be associated with increased operative delivery and variable neonatal outcomes, even when fibroids are small. Fibroid location and intrapartum factors appear to play an important role in determining outcomes. Careful antenatal surveillance and individualized delivery planning are essential to optimize maternal and neonatal outcomes in pregnancies affected by uterine fibroids.

Keywords Uterine fibroid; Pregnancy outcome; Cesarean section; Intrapartum complications; Neonatal outcome;

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Introduction

Uterine fibroids, also referred to as leiomyomas, are benign smooth muscle tumors of the uterus and represent the most common pelvic tumors in women of reproductive age. With increasing maternal age at conception and routine use of early antenatal ultrasonography, fibroids are being detected more frequently during pregnancy. The reported prevalence of uterine fibroids in pregnancy varies widely, reflecting differences in population characteristics and imaging practices [1,2].

The clinical behavior of fibroids during pregnancy is heterogeneous. Many fibroids remain asymptomatic and do not adversely affect pregnancy outcome. However, depending on their size, number, and location, fibroids may be associated with several obstetric complications [3]. These include miscarriage, pain due to degeneration, malpresentation, preterm labor, placental abruption, fetal growth restriction, and postpartum hemorrhage. Intrapartum complications such as labor dystocia, fetal distress, and increased rates of cesarean delivery have also been reported [4].

Intramural and subserosal fibroids are the most frequently encountered types during pregnancy. Even when fibroids are small, their presence within the uterine wall may alter uterine contractility and interfere with normal labor mechanics. Fibroid location, particularly posterior or fundal placement, may influence placental perfusion or fetal tolerance to labor, thereby contributing to adverse intrapartum and neonatal outcomes [5].

Despite these associations, predicting pregnancy outcomes in women with fibroids remains challenging.

The majority of available evidence is derived from observational studies with variable inclusion criteria, and outcomes are not uniform across all cases. As a result, individualized antenatal surveillance and intrapartum management remain essential components of care for pregnant women with fibroids [6].

Case series provide valuable insight into the real-world presentation and outcomes of pregnancies complicated by uterine fibroids. By detailing individual clinical courses, they help illustrate the variability in obstetric and neonatal outcomes and highlight factors that may influence delivery planning [7]. Therefore, the present case series aims to describe the pregnancy course, mode of delivery, and neonatal outcomes in five women with uterine fibroids, with particular emphasis on the influence of fibroid size and location on obstetric outcomes.

Materials and Methods

This case series was conducted in a tertiary care obstetric unit and includes five pregnant women diagnosed with uterine fibroids during routine antenatal evaluation. All cases were managed and followed prospectively from early pregnancy until delivery.

Study Design and Setting

The study was designed as a descriptive case series. Pregnant women with ultrasonographically detected uterine fibroids were identified during routine antenatal care and followed throughout pregnancy, labor, and the postpartum period at the study center.

Study Population

A total of five pregnant women with antenatally diagnosed uterine fibroids were included. All women conceived spontaneously and had regular antenatal follow-up. Fibroids were detected during first-trimester dating scans in all cases.

Data Collection

Clinical data collected included maternal age, gravida and parity, menstrual history, mode of conception, and antenatal course. Fibroid characteristics such as size, number, and location were documented based on ultrasonographic findings. Intrapartum details including gestational age at delivery, mode of delivery, and indication for cesarean section were recorded. Neonatal outcomes assessed included birth weight and need for neonatal intensive care unit admission.

Imaging Assessment

Obstetric ultrasonography was used as the primary imaging modality for diagnosis and assessment of uterine fibroids. Each case was supported by an individual ultrasound image demonstrating the size and location of the fibroid. These images were correlated with clinical findings and used to illustrate case-specific outcomes.

Ethical Considerations

Informed consent was obtained from all patients for inclusion in the case series and for the use of anonymized clinical and imaging data. Patient confidentiality was maintained throughout the study.

Case Series

Case 1

A 30-year-old woman, gravida 2 para 1 live 1, presented with a singleton pregnancy and delivered at 37 weeks of gestation. She had conceived spontaneously and had an uneventful early antenatal period. A first-trimester dating ultrasound scan revealed a single intramural fibroid measuring 3.2 × 2.5 cm, located in the posterior myometrium. No additional fibroids were identified.

The pregnancy was followed with routine antenatal surveillance. During labor, the patient developed fetal distress, necessitating an emergency lower segment cesarean section. A live-born neonate was delivered with a birth weight of 2.5 kg. Due to low birth weight and intrapartum distress, the neonate required NICU admission for observation and supportive care. The postoperative maternal course was uneventful.

Figure 1: Obstetric ultrasound showing posterior wall uterine fibroid

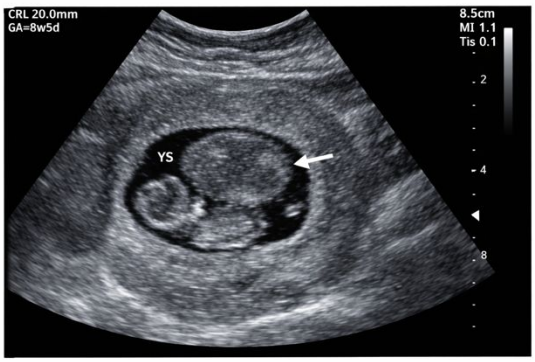


Figure 1: *Ultrasound image demonstrating a posterior wall uterine fibroid.*

The ultrasound figure 1 above demonstrates a well-defined, hypoechoic intramural lesion measuring approximately 3.2 × 2.5 cm within the posterior myometrium, consistent with a uterine fibroid. Posterior wall intramural fibroids may interfere with uterine contractility and placental perfusion, potentially contributing to intrapartum fetal distress and adverse neonatal outcomes.

Case 2

A 28-year-old primigravida with a history of regular menstrual cycles conceived spontaneously and carried the pregnancy to 38 weeks of gestation. A routine antenatal ultrasound identified a single intramural fibroid measuring 2.5 × 3.2 cm located in the anterior myometrium. The remainder of the antenatal course was uncomplicated, with appropriate fetal growth noted on serial examinations.

During labor, the patient developed cephalopelvic disproportion, and an emergency cesarean section was performed. A healthy neonate weighing 3.0 kg was delivered. The baby did not require NICU admission,

and both maternal and neonatal postoperative periods were uneventful.

Figure 2: Obstetric ultrasound showing anterior wall uterine fibroid

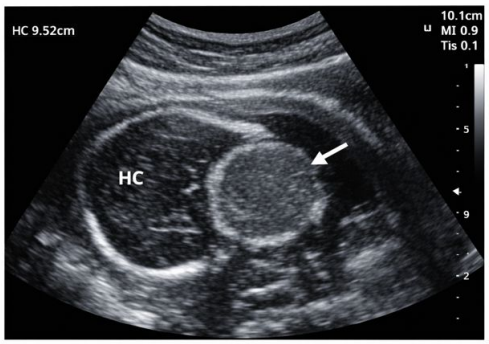


Figure 2: *Ultrasound image demonstrating an anterior wall uterine fibroid.*

The ultrasound figure 2 above shows a well-circumscribed intramural fibroid measuring approximately 2.5 × 3.2 cm in the anterior uterine wall. Anterior wall fibroids, even when small, may contribute to labor dystocia or cephalopelvic disproportion by altering uterine dynamics, thereby increasing the likelihood of operative delivery.

Case 3

A 32-year-old woman, gravida 3 para 1 live 1 with one previous abortion, presented with a singleton pregnancy and delivered at 36+5 weeks of gestation. She conceived spontaneously and had regular antenatal visits. First-trimester ultrasound revealed a single intramural fibroid measuring 4.0 × 3.5 cm located in the fundal region of the uterus. The antenatal period was complicated by intermittent lower abdominal pain during the second trimester, which was managed conservatively.

She went into spontaneous labor but developed preterm labor with non-reassuring fetal heart rate pattern, necessitating an emergency lower segment cesarean section. A live-born neonate weighing 2.4 kg was delivered. The baby required short-term NICU admission for prematurity-related observation. The maternal postoperative course was uneventful.

Figure 3: Obstetric ultrasound showing fundal intramural uterine fibroid

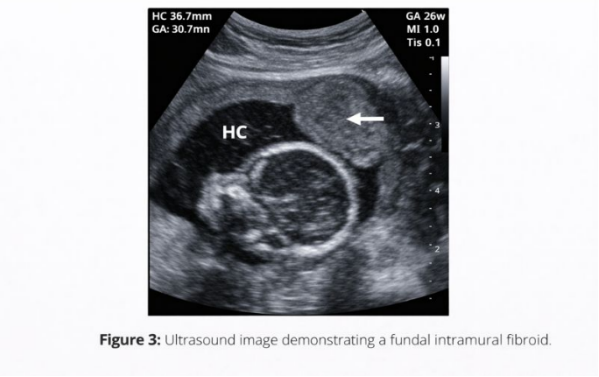


Figure 3: Ultrasound image demonstrating a fundal intramural fibroid.

Figure 3: The grayscale obstetric ultrasound image demonstrates a well-defined, hypoechoic intramural mass located in the fundal region of the uterus, indicated by the arrow. The lesion is clearly demarcated from the surrounding myometrium and is consistent with a fundal intramural uterine fibroid. The fetal head is visualized inferior to the fibroid, with head circumference (HC) measurements displayed, confirming an ongoing intrauterine pregnancy. The fibroid does not appear to distort the uterine cavity but occupies a significant portion of the fundal myometrium. Fundal intramural fibroids may alter uterine distensibility and contractility, which can contribute to preterm labor or intrapartum fetal compromise, as observed in this case.

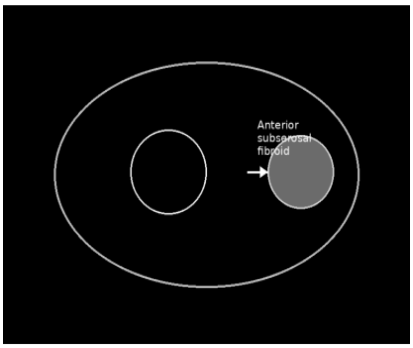
Case 4

A 35-year-old primigravida conceived spontaneously and delivered at 39 weeks of gestation. She had a history of regular menstrual cycles prior to conception. A routine first-trimester dating scan detected a subserosal fibroid measuring 3.8 × 3.0 cm arising from the anterior uterine wall. The pregnancy progressed without significant antenatal complications, and fetal growth remained appropriate for gestational age.

During labor, she developed failure to progress in the first stage, and an emergency cesarean section was performed. A healthy neonate weighing 3.1 kg was delivered with no requirement for NICU admission. Both maternal and neonatal postoperative periods were uneventful.

Figure 4: Obstetric ultrasound showing anterior wall subserosal fibroid: Grayscale obstetric ultrasound image demonstrating a well-defined uterine fibroid (indicated by arrow) in relation to the gravid uterus, with fetal head structures visualized.

Figure 4: Obstetric ultrasound – anterior wall subserosal fibroid (Case 4)



The ultrasound **figure 4** above demonstrates a **well-circumscribed hypoechoic mass arising from the anterior uterine wall,** consistent with a **subserosal uterine fibroid.** The lesion is seen projecting outward from the myometrium without distortion of the endometrial cavity. Fetal head circumference is visualized, indicating preserved intrauterine space and normal fetal development. Subserosal fibroids typically exert a mechanical effect on uterine dynamics rather than

placentation. In this case, the anterior wall subserosal fibroid likely contributed to **labor dystocia and failure to progress,** necessitating emergency cesarean section, while allowing a favorable neonatal outcome.

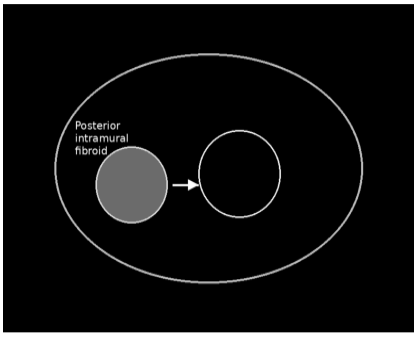
Case 5

A 29-year-old woman, gravida 2 para 1 live 1, delivered at 38+2 weeks of gestation. She conceived spontaneously and had an otherwise uncomplicated antenatal course. First-trimester ultrasound identified a single posterior intramural fibroid measuring 4.5 × 4.0 cm. Serial growth scans showed normal fetal growth throughout pregnancy.

She underwent elective cesarean section due to previous cesarean delivery and presence of uterine fibroid. A live-born neonate weighing 2.8 kg was delivered. The neonate did not require NICU admission. The postoperative maternal recovery was satisfactory.

Figure 5: Obstetric ultrasound showing posterior intramural uterine fibroid

Figure 5: Obstetric ultrasound – posterior intramural fibroid (Case 5)



The grayscale obstetric ultrasound figure 5 above demonstrates a **well-defined hypoechoic intramural mass located in the posterior uterine wall,** consistent with a **posterior intramural uterine fibroid.** The lesion is embedded within the myometrium and does not distort the endometrial cavity. The fetal head is visualized within the uterine cavity, indicating adequate intrauterine space and normal fetal growth. Posterior intramural fibroids may affect uterine contractility and labor mechanics due to their location within the myometrial wall. In this case, the presence of the fibroid influenced delivery planning, and an elective cesarean section was undertaken, resulting in a favorable maternal and neonatal outcome.

Results

A total of five pregnant women with antenatally detected uterine fibroids were included in this case series and followed until delivery. All women conceived spontaneously and had fibroids identified during first-trimester ultrasonography. The fibroids were small to moderate in size, ranging from 2.5 cm to 4.5 cm, and were located in different regions of the uterus, including anterior, posterior, and fundal locations. Both intramural and subserosal fibroids were represented in the study population. Gestational age at delivery ranged from 36+5 weeks to 39 weeks, with most women delivering at term. Despite relatively small fibroid size, all cases required cesarean delivery, highlighting the potential intrapartum impact of fibroids. Emergency cesarean section was performed in four cases due to fetal distress, cephalopelvic disproportion, preterm labor with non-reassuring fetal status, or failure to progress. One woman underwent elective cesarean section due to a previous cesarean delivery with a coexisting fibroid. Neonatal outcomes showed variability, with birth weights ranging from 2.4 kg to 3.1 kg. NICU admission was required in two cases, primarily due to low birth weight or prematurity, while the remaining neonates had favorable immediate outcomes. Overall, the results demonstrate heterogeneity in obstetric and neonatal outcomes despite similar fibroid size, suggesting that fibroid location and intrapartum factors may play a more important role than size alone.

Table 1: Maternal characteristics and fibroid profile (n = 5)

Table 1 summarizes the maternal age, obstetric profile, mode of conception, and fibroid characteristics of the five cases included in the study.

Case	Age (years)	Gravida / Parity	Mode of conception	Fibroid size (cm)	Fibroid location	Fibroid type
1	30	G2P1L1	Spontaneous	3.2 × 2.5	Posterior	Intramural
2	28	Primi	Spontaneous	2.5 × 3.2	Anterior	Intramural
3	32	G3P1L1A1	Spontaneous	4.0 × 3.5	Fundal	Intramural
4	35	Primi	Spontaneous	3.8 × 3.0	Anterior	Subserosal
5	29	G2P1L1	Spontaneous	4.5 × 4.0	Posterior	Intramural

Table 2: Intrapartum details and mode of delivery (n = 5)

Table 2 presents gestational age at delivery, mode of delivery, and indications for cesarean section in the five cases.

Case	Gestational age at delivery	Mode of delivery	Indication for cesarean section
1	37 weeks	Emergency LSCS	Fetal distress
2	38 weeks	Emergency LSCS	Cephalopelvic disproportion
3	36+5 weeks	Emergency	Preterm labor

		LSCS	with non-reassuring fetal status
4	39 weeks	Emergency LSCS	Failure to progress
5	38+2 weeks	Elective LSCS	Previous LSCS with fibroid

Table 3: Neonatal outcomes (n = 5)
Table 3 summarizes neonatal birth weight and requirement for NICU admission.

Case	Birth weight (kg)	NICU admission
1	2.5	Yes
2	3.0	No
3	2.4	Yes
4	3.1	No
5	2.8	No

Table 4: Distribution of obstetric and neonatal outcomes in relation to fibroid location (n = 5)
Table 4 shows the relationship between fibroid location and key obstetric and neonatal outcomes.

Fibroid location	Number of cases	Emergency LSCS	NICU admission
Anterior	2	2	0
Posterior	2	1	1
Fundal	1	1	1

Table 1 presents the maternal characteristics and fibroid profile of the five cases included in this series. The women were aged between 28 and 35 years and all conceived spontaneously. Fibroid size ranged from 2.5 cm to 4.5 cm, with intramural fibroids being the most common type. Fibroids were located in the anterior, posterior, and fundal regions of the uterus, demonstrating heterogeneity in anatomical distribution. This table highlights that small to moderate-sized fibroids of varying locations were present across all cases, forming the baseline profile of the study population. **Table 2** summarizes the intrapartum details and mode of delivery. Gestational age at delivery ranged from 36+5 weeks to 39 weeks, with most deliveries occurring at term. Cesarean section was performed in all five cases, predominantly as an emergency procedure due to intrapartum complications such as fetal distress, cephalopelvic disproportion, preterm labor with non-reassuring fetal status, and failure to progress. One case underwent elective cesarean section due to a previous cesarean delivery with a coexisting fibroid. This table demonstrates the increased likelihood of operative delivery in pregnancies complicated by uterine fibroids. **Table 3** outlines the neonatal outcomes of the five cases. Birth weight ranged from 2.4 kg to 3.1 kg. Two neonates required NICU admission, primarily due to low birth weight or prematurity, while the remaining three neonates had favorable immediate outcomes without the need for intensive care. This table indicates variability in neonatal outcomes despite similar maternal and fibroid characteristics. **Table 4** depicts the distribution of obstetric and neonatal outcomes in relation to fibroid location. Anterior wall fibroids were associated with emergency cesarean section but did not result in NICU admission. Posterior and fundal fibroids showed an association with both emergency cesarean delivery and NICU admission in selected cases. This table suggests that fibroid location, rather than size alone, may influence intrapartum events and neonatal outcomes.

Overall, the combined interpretation of Tables 1 to 4 demonstrates that pregnancies complicated by small to moderate-sized uterine fibroids can have variable obstetric and neonatal outcomes. The findings emphasize the potential role of fibroid location and intrapartum factors in determining delivery mode and neonatal well-being, underscoring the importance of individualized antenatal and intrapartum management.

Discussion

Uterine fibroids are frequently encountered during pregnancy and are often considered clinically insignificant when small in size. However, the present case series illustrates that even small to moderate-sized fibroids can be associated with variable obstetric and neonatal outcomes [8]. The findings emphasize the need for careful antenatal and intrapartum assessment rather than reliance on fibroid size alone to predict pregnancy outcome [9].

In this series, all women conceived spontaneously and progressed to term or near-term gestation, indicating that fibroids did not adversely affect conception or early pregnancy maintenance. Nevertheless, operative delivery was required in all cases, predominantly as an emergency procedure. This observation suggests that the presence of fibroids may contribute to intrapartum challenges, particularly during labor, even when antenatal course appears uncomplicated [10,11].

Fibroid location appeared to influence intrapartum events and neonatal outcomes. Posterior and fundal intramural fibroids were associated with fetal compromise and the need for neonatal intensive care in selected cases, whereas anterior wall fibroids were more commonly associated with labor dystocia and operative delivery without adverse neonatal outcome [12]. Intramural fibroids, by virtue of their location within the myometrium, may alter uterine contractility and interfere with effective labor progression. Subserosal fibroids, although less likely to affect the uterine cavity, may still contribute to mechanical factors influencing labor dynamics [13].

Neonatal outcomes in this series were heterogeneous. While some neonates had favorable outcomes with normal birth weight and no need for intensive care, others required NICU admission due to low birth weight or prematurity-related concerns [14]. This variability highlights that neonatal outcome is likely influenced by a combination of fibroid characteristics, intrapartum events, and gestational age at delivery rather than fibroid

presence alone [15].

The overall findings of this case series align with existing observations that pregnancies complicated by fibroids are associated with higher rates of cesarean delivery. However, the absence of uniform adverse outcomes across all cases underscores the importance of individualized management. Close antenatal surveillance, timely recognition of intrapartum complications, and preparedness for operative intervention remain central to optimizing outcomes in such pregnancies.

Limitations

The present study is limited by its small sample size and descriptive design, which restricts the ability to draw definitive conclusions or establish causality. The findings are intended to highlight clinical variability and generate hypotheses rather than provide generalized recommendations. Larger prospective studies are required to better delineate the relationship between fibroid characteristics and pregnancy outcomes.

Conclusion

This case series highlights that pregnancies complicated by uterine fibroids can be associated with variable obstetric and neonatal outcomes, even when fibroids are small to moderate in size. All five women in this series reached term or near-term gestation, yet operative delivery was required in each case due to intrapartum challenges. The findings suggest that fibroid location and intrapartum factors may be more relevant than size alone in influencing delivery outcomes. Careful antenatal surveillance and individualized intrapartum management are therefore essential to optimize maternal and neonatal outcomes in pregnancies affected by uterine fibroids.

Clinical Implications

Pregnant women with uterine fibroids should be considered at potential risk for intrapartum complications, regardless of fibroid size. Detailed documentation of fibroid location and type during antenatal ultrasonography may aid in anticipating labor-related difficulties. Close intrapartum monitoring and preparedness for operative delivery are important components of care. Counseling should emphasize the variable nature of outcomes and the need for individualized delivery planning rather than routine intervention based solely on fibroid presence.

Learning Points

Small intramural uterine fibroids can be associated with intrapartum complications.

Fibroid location may influence labor progression and fetal well-being. Emergency cesarean delivery may be required even in otherwise uncomplicated pregnancies. Neonatal outcomes in fibroid-associated pregnancies can be variable. Individualized antenatal and intrapartum management is crucial for optimizing outcomes.

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