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Original Research Article

Fetomaternal outcome in pregnancies complicated by fibroid

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ABSTRACT

Background: Fibromyoma (leiomyoma) is the most common benign tumour of the uterus. Approximately 10% to 30% of women with uterine fibroids developed complications during pregnancy. The aim of the study was planned to ascertain the fetomaternal outcome in pregnancies complicated by fibroid.

Methods: A hospital based cross-sectional study was conducted among pregnant women with documented uterine fibroid who was admitted for any complication or delivered in the department of obstetrics and gynaecology, RIMS, Imphal from September 2017 to August, 2019 in the department of obstetrics and gynaecology in collaboration with department of paediatrics, Regional institute of Medical Sciences, Imphal. Detailed clinical history and socio-demographic profile were recorded in pre-designed proforma. General physical examination and systemic examination and obstetrical examination was carried out for the participants.

Results: Major proportions was in the age group of 30-39 years (73.9%). Fibroids were more frequent in primigravida (76.1%) followed by P1 (15.2%) and \geq P2 (8.7%). Out of 46 patients 43 (93.5%) delivered by CS (69.76%), NVD (25.58%) and instrumental delivery (4.65%) while 3 patients (6.5%) undergo spontaneous abortions. Most common myoma found in this study was intramural (47.8%) followed by submucous (34.8%) and subserosal (17.4%). Out of 43 deliveries most common complications found was atonic PPH (6.97%) and placenta previa (6.97%) followed by degenerations (2.32%), abruptio placentae (2.32%), malpresentations (2.32%). Out of 43 deliveries 6.9% baby born with low birth weight, IUGR (6.9%), IUFD (4.6%), NICU admission (4.65%) and early neonatal death (2.32%).

Conclusions: Pregnancies with fibroids are considered as high-risk pregnancy associated with complications during the antepartum, intrapartum, postpartum period. Pregnant women with myoma can be advised for regular ANC along with TAS for early diagnosis and management of complication.

Keywords: Fibroid, Myoma, Myomectomy, Cross sectional study, Fetomaternal outcome

INTRODUCTION

Fibromyoma (leiomyoma) is the most common benign tumour of the uterus. Uterine myoma or fibroid or uterine fibromyoma or leiomyomata uteri is the most common monoclonal neoplasm of female genital tract.¹ Fibroids are characteristically firm in consistency, but as a result of degeneration, may be soft and cystic or rock hard due to calcification.² Vascularisation of fibroids shows rich blood supply consisting of 'blood lake' within the tumour with more than one nutrient vessel per fibroid. Venous channels

are predominantly peripheral, whereas the arterial supply are both internal and peripheral. Centre of the tumour is less vascular and likely to degenerate. It is Rokitansky who gave it the proper name fibroid.

The highest incidence of myoma is found in the reproductive age group, occurring in every four out of five women. The trend in the age incidence have remained the same, the occurrence of fibroid is rare before 20 years of age, and they cease to grow after menopause. At least 20% of all the reproductive age are incidentally noted to have

myomas during routine examination, of which majority are asymptomatic (>50%) and occur in 20-25% of women over the age of 30 years.³ The prevalence of myoma in pregnancy ranges from 0.09-3.9% and myomas in pregnancy are associated with an antepartum complication of 10-40%.⁴ However pathological examination of removed uterus showed that the prevalence of uterine fibroid tumour may be as high as 80%.⁵

All myomas are interstitial to start with. As they enlarge, they remain as intramural, but growth often extends in the internal or external direction, becoming a submucous or subserous myoma.¹ Submucous myoma may extend towards the cervix as a polyp or may extend to the surrounding structures, forming a round ligament or broad ligament myomas. Visualisation of fibroid in pregnancy can be problematic partly because of the difficulty of ultrasonography in differentiating fibroids from physiological thickening of the myometrium.¹ During pregnancy 15-30% of myomas get enlarged due to increased estrogen and progesterone level but most of them shrink during puerperium.¹ Pregnancies associated with fibroid are usually asymptomatic and with minimal complications but sometimes adversely affect the course of pregnancy. Intramural and subserous fibroid of less than 3 cm are not clinically significant.⁶ Fibroid less than 5 cm in diameter tend to remain stable or decrease in size and larger fibroid (5 cm) tend to grow during the pregnancy.⁷

Effect of myoma on pregnancy depend on size, number and location of myoma.⁸ It increases uterine irritability and contractility, either because of rapid growth and degeneration of myomas or because of altered secretion in oxytocin activity, may interfere with normal pregnancy maintenance. The compressive effect of myomas may alter the endometrium directly and may disrupt the normal growth process of the conceptus mechanically. Compromised endometrial vascular supply and reduction in uterine blood supply may affect the placenta and fetus adversely and ultimately may result in spontaneous abortion.⁹

Fibroid located in uterine cavity may increase chance of miscarriage, pre-labour rupture of membranes and preterm labour. During pregnancy fibroid may undergo red degeneration causing severe lower abdominal pain.¹⁰ Fibroid may also increase risk of malpresentation, intrauterine growth restriction, abnormal implantation of placenta, placental abruption, preterm labour, obstructed labour, dysfunctional labour and increased caesarian section rate.^{8,11}

They distort the overlying endometrium and become extruded or pedunculated in the endometrial canal.¹² These complications are more commonly seen with large submucosal and retroplacental fibroids.¹³ Even though there is higher caesarian section rate in women with fibroids, the presence of uterine fibroids should not be regarded as a contraindication to trial of labour.¹⁰ Women with fibroid have increase caesarian section rate due to

distortion of birth canal or other obstetrics reason.¹⁴ The blood flow is reduced significantly in myomas and in myometrium adjacent to them. Thus, implantation in the endometrium overlying a myoma may lead to placental ischemia and decidual necrosis, making it more susceptible to abruption.¹⁸ Submucous myomas and retroplacentally located ones and myomas with volume greater than 200 ml (corresponding to 7-8 cm diameter) have a greatest risk of abruption.¹⁹ An increased rate of PPH has been found in pregnancies complicated by myoma, especially if myoma is >3 cm and located behind the placenta.¹⁶ The risk may be increased further by caesarian delivery.

Myoma, because of its prevalence in the reproductive years, and association with many complications, has a great significance in the obstetrical outcome of a pregnant woman. A detailed study about myoma in pregnancy and its associated complication is very much needed. Therefore, it was planned to study the obstetric outcome of pregnancy with myoma in RIMS, Imphal.

METHODS

A hospital based cross-sectional study was conducted among pregnant women with documented uterine fibroid who was admitted for any complication or delivered in the department of obstetrics and gynaecology, RIMS, Imphal from September 2017 to August, 2019 in the department of obstetrics and gynaecology in collaboration with department of paediatrics, RIMS, Imphal. Patients with twin pregnancy, polyhydramnios or with any systemic diseases like diabetes, hypertensive disorder in pregnancy or any chronic illness, patients who refused to give written informed consent were excluded. The study was conducted after obtaining permission from the Research Ethics Board, RIMS, Imphal.

Sample size and sampling

Assuming the prevalence of fibroid of pregnancy in India as 13%, the sample size was estimated to be 45.24 at 95% confidence interval and precision of 10%, using the formula for diagnostic tests. All the Pregnant women with documented uterine fibroid who was admitted for any complication or delivered in the department of obstetrics and gynaecology, RIMS, Imphal included in this study until the sample size was reached.

Study procedure

After obtaining informed consent from the participants, the detailed clinical history including spontaneous abortion, preterm labour, premature rupture of membranes, placenta previa, abruptio Placentae, malpresentation, dysfunctional labour, degeneration, maternal weight and sociodemographic profile were then recorded. Following the socio demographic and clinical characteristics, general physical examination (pallor, oedema, neck glands, thyroid) and systemic examination and obstetrical

examination was carried out for the participants. Fetal outcome was recorded in terms of: (a) gestational age, (b) viability- live born/still born, (c) birth weight, (d) Apgar score, (e) admission in NICU- admitted/not admitted, (f) congenital anomaly, (g) any neonatal death, (e) mode of delivery: vaginal/assisted vaginal delivery/caesarean section, and (f) complications if any. All the routine investigations including complete haemogram, urine routine examination, liver and kidney function tests, ABO grouping and Rh typing, blood sugar estimation, thyroid profile along with necessary investigations like ultrasonography (trans-abdominal) were also performed. Data was recorded in a pre-designed proforma.

Statistical analysis

Data were checked for completeness and consistency. Data was analysed using SPSS for windows version 21(IBM. Corp 1995, 2012). Descriptive statistical tools like mean, percentage and proportion were used. Association between preterm labor and fetomaternal outcome were analysed using Chi square test. P value<0.05 was considered as significant.

RESULTS

In this study, over a period of one and half years (i.e.; September 2017-March 2019) there were 13,810 deliveries and 46 cases with fibroid uterus with pregnancy were included in the study.

Table 1 shows majority of the patient were in the reproductive age range of 30-39 years (73.9%) and 20-29 years (23.9%).

Table 1: Age of study population (N=46).

Age group (years)	No. of patients and percentage (%)
20-29	11 (23.9)
30-39	34 (73.9)
≥40	1 (2.2)

Table 2 shows fibroid are found to be more common in primi. Out of 46 patients, 35 (76.1%) were primi followed by P1 (15.2%) and ≥P2 (8.7%).

Table 2: Parity wise distribution (N=46).

Parity	No. of patients and percentage (%)
Primi	35 (76.1)
P1	7 (15.2)
≥P2	4 (8.7)

Table 3 shows out of 46 patients, 36 (78.3%) patients were admitted at term pregnancy followed by 7(15.2%) patient were between 28-36 weeks and 3(6.5%) patient were <28 weeks.

Table 3: Duration of gestation at diagnosis (N=46).

Gestational age (weeks)	No. of patients and percentage (%)
<28	3 (6.5)
28-37	7 (15.2)
>37	36 (78.3)

Table 4 shows out of 46 patients, 43 (93.5%) patients delivered while 3 patients (6.5%) undergo spontaneous abortion.

Table 4: Pregnancy outcome (N=46).

Pregnancy outcome	No. of patients and percentage (%)
Abortion	3 (6.5)
Delivery	43 (93.5)

Table 5 shows intramural myoma was the commonest type of myoma accounting to 47.8% followed by submucous in 34.8%, subserosal in 17.4%.

Table 5: Type of myoma.

Types	No. of patients and percentage (%)
Intramural	22 (47.8)
Submucosal	16 (34.8)
Subserosal	8 (17.4)

Table 6 shows 69.76% of the pregnant women underwent CS, followed by 25.58% NVD, and 4.65% by instrumental delivery.

Table 6: Mode of delivery (N=46).

Modes of delivery	No. of patients and percentage (%)
Cesarean section	30 (69.76)
NVD	11 (25.58)
Instrumental	2 (4.65)

Table 7 shows birth weight less than 2.5 kg were observed in 6.9%, IUGR was seen in 6.9%, IUFD and NICU admission was seen in 4.6%.

Table 7: Neonatal outcome.

Neonatal outcome	No. of patients and percentage (%)
Birth weight (kg)	
<2.5	3 (6.9)
≥2.5	40 (93.02)
IUGR	3 (6.97)
IUFD	2 (4.6)
NICU admission	2 (4.6)
Early neonatal death	1 (2.32)

Table 8 shows complications were observed in 20.9%. Atonic PPH occurred in 6.97%; placenta previa was associated with 6.97%, degeneration was seen in 2.32%; abruptio placentae in 2.32%, malpresentation in 2.32%. No maternal death was observed in this study.

Table 8: Complication during pregnancy and delivery (N=43).

Complications	No. of patients and percentage (%)
Degeneration	1 (2.32)
Abruptio placentae	1 (2.32)
Malpresentation	1 (2.32)
Atonic PPH	3 (6.97)
Placenta previa	3 (6.97)
Nil	

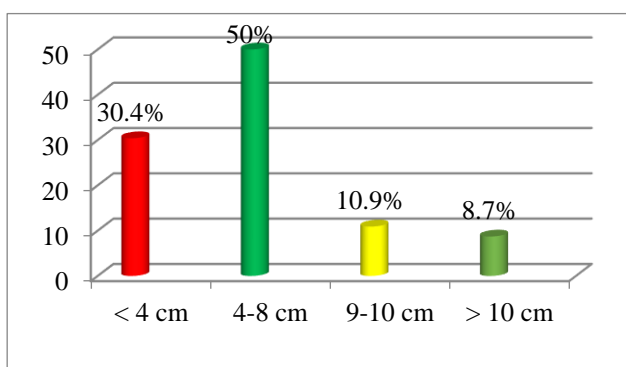


Figure 1: Most of the myomas were of the size range 4-8 cm (50%).

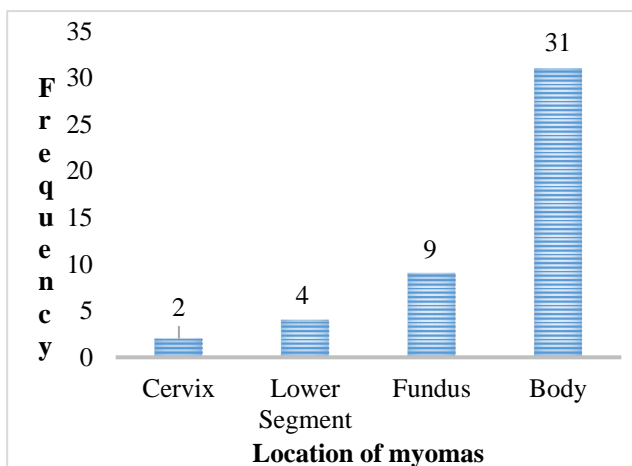


Figure 2: Shows most of the myomas (67.4%) were present on the body of uterus.

DISCUSSION

Presence of myoma during pregnancy is potentially a serious problem. Uterine fibroid has been implicated as a cause of adverse pregnancy events. Though in some cases, it does not affect pregnancy outcome, in many cases depending upon its size, location and site of placental

attachment, it can result in miscarriage, premature pre labour rupture of membranes, preterm labour, antepartum haemorrhage (APH), postpartum haemorrhage (PPH), caesarean birth and uterine inversion. Our study was conducted to find out the obstetrical complications of pregnancy and fetomaternal outcome among pregnant women with uterine myoma admitted in department of obstetrics and gynaecology, RIMS during the period of two years from September 2017-March 2019. In the present study, myoma was present in 34 (73.9%) in the age group of 30-39 years. Most of the women were primipara-35(76.1%). According to Novak’s et al, the highest incidence of myoma was found in the reproductive age group, usually over the age of 30 years, and in nulliparas.¹ Coronado et al observed that leiomyomas were more commonly found over the age of 35 years and in nullipara.²⁷ Saha et al observed that the highest incidence of pregnancy with myoma was found in more than 30 years.²⁹

Shahida et al observed that 64% of fibroid patient with myoma belonged to the age group of 30-34 years.³⁹ 55% of patient were primiparous. Aktar et al observed that pregnant women with myoma ranged from 24 to 40 years and median age was 30 years.³⁰ Saha et al also found that the highest incidence was found in those patient with more than 30 years age group.²⁹ Hini et al also found that majority of the pregnant women with myoma belonged to the age group between 25-35 years.³⁶ They also found that women in the study group were mostly nulliparous than controls (56.25% vs 12%). Ramalingam et al found that fibroid were more frequent in multigravida 73.3% compared to primigravida 26.6%.²¹ Radhika et al found that fibroid were more frequent in multigravida compared to primi.²² Majeed et al observed that pregnant women with myoma belong to the age group 25 to 35 years.³⁸

Ramalingam et al observed that 90% of the pregnant women with myoma crossed 37 completed weeks.¹⁷ Radika et al found that 73.3% of the patient had continued their pregnancy till term.²² Noor et al observed 90% of the pregnant women with myoma reach upto term.³¹ In the present study 78.3% of the pregnant women with myoma crossed 37 completed weeks. In the present study women were having 22 (47.8%) intramural, 16 (34.8%) submucosal, 8 (17.4%) subserous type of uterine myoma. Saha et al also observed that the women were having 10% submucous, 74% intramural and 16% subserous.²⁶ In the present study, there are 3 (6.5%) abortion. Sailesh et al observed 11.1% spontaneous abortion in their study.³⁴ Ramalingam et al observed abortion in 10% of the pregnant women with myoma.²¹ Toshimitsu et al found abortion in 16%.²⁴ Saha et al found abortion in 16%.²⁹ Tchente et al found abortion in 11.3%.³² In the present study, pre-term labour was observed in 7 (15.2%). Shella et al observed preterm labour in 10% of the patient.³¹ Rice et al observed preterm labour in 21.5%.¹⁹ Tasleem et al observed preterm labour in 10% of the patient.²³ Totshimitsu et al found preterm labour in 24%.²⁴ Rice et al observed preterm labour in 21.5%.¹⁹ Saha et al observed

preterm labour in 18%.²⁹ Tchente et al observed preterm labour in 22.5%.³² In the present study abruptio placentae was observed in one (2.2%) pregnant woman with myoma. Aydeniz et al observed that retro placental submucous myomas increased the risk of abruptio placentae (3.2%).³⁵ Rice et al observed that abruptio placentae occurred in 2 (2.5%) patient.¹⁹ Saha et al observed abruptio placenta in 8% of the pregnant women with myoma.²⁹ In the present study placenta praevia was found in four cases (6.5%). Ramalingam et al observed placenta praevia in 3 (10%) pregnant women with myoma.²¹

In the present study malpresentation breech was observed in 3 (6.6%) pregnant women with myoma. Hina et al found an increased association of breech presentation with myoma (38.46%).⁴⁰ Tasleem et al observed malpresentation in 12% of the patient.²³ Saha et al found malpresentation in 14% of the pregnant women with myoma.²⁹ Aktar et al observed malpresentation in 5.4%.²⁶ In the present study, degeneration of myoma was observed in 1 (2.2%) pregnant woman. Tasleem et al observed red degeneration in 4%.²³ Sailesh et al in their study observed an increase in size of myoma and in echo texture on sonography and had acute pain due to degeneration in 11%.³³ Aktar et al found degeneration in 14.5%.²⁶

Adeniz et al in their study showed that retro placental submucous myomas increased the risk of fetal growth restriction (14% versus 6.6%).³⁵ In the present study fetal growth restriction was observed in 4 (8.7%) pregnant women with myomas. Noor et al observed IUGR in 6.66%.³¹ Saha et al found fetal growth restriction in 14% of the pregnant with myoma.²⁹ Aktar et al observed IUGR in 3%.²⁶ In the present study 31 (67.4%) pregnant women underwent CS. In the present study, the rate of CS was markedly increased. Misbah et al also found a similar increase in CS rate in women with myoma 63.5%.²⁰ Shella et al observed 70% of the pregnant women with myoma were delivered by CS.³¹ Ramalingam et al observed that CS was performed in 16 (59.2%) pregnant women with myoma.²¹ Akhtar et al also found increase in CS in the pregnant patient with myoma 31 (56.36%).³⁰

Tasleem et al observed caesarean section was performed in 46.1%.²³ Toshimitsu et al observed CS in 51%.²⁴ In the present study atonic PPH occurred in 6 patients (9.7%). Sailesh et al observed an 11% association of severe PPH in women with myoma.³³ The study conducted by Akhtar et al observed that 3 (5.4%) pregnant women with myoma had PPH.⁷ Andreani et al showed that the presence of multiple myomas was the only parameter.³⁷ Sarwar et al observed PPH in 26.67% in the pregnant patient with myoma.²⁵ Akhtar et al also observed PPH in 5.4%.³⁰ Noor et al found PPH in 33.33%.³¹ Radhika et al observed PPH in 33.3%.²² Saha et al observed intrauterine fetal death in 8% of the cases.²⁹ In the present study, there was 2 fetal death (4.3%). Sarwar et al observed 13.33% intrauterine deaths and one neonatal death.²⁵

Limitations

The major limitations of this study were the small sample size and restriction of the study population to a state referral hospital. So, the results of this study may not reflect the actual scenario in the general population. Hence, we should analyse the results of this study with caution. Beside the limitations, this study has provided the basic information on fetomaternal outcome in pregnancies complicated by fibroid in our set up and also guides to conduct further studies on this topic be carried out in different settings.

CONCLUSION

Pregnancy with uterine fibroid is considered as high-risk pregnancy. Most of them are asymptomatic but may adversely affect course of pregnancy and labour depending upon their location and size. Myoma is the most common benign tumour of the pelvis associated with the woman in reproductive age group, mostly after 30 years of age. Fibroids during pregnancy lead to increase in rate of CS due to high incidence of dysfunctional labour and malpresentation. Pregnancy with myoma is often considered a high-risk pregnancy as it is associated with many complications like abortion, preterm labour, premature rupture of membrane, abruptio placentae, placenta praevia, pain due to degeneration, intrauterine growth restriction, malpresentation, dysfunctional labour, PPH, decreased Apgar score, fetal anomalies, fetal death, etc. Pregnant women with myoma can be advised for regular ANC along with TAS for early diagnosis and management of complication. Casearean myomectomy in selected cases may be beneficial.

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