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Original Research Article

An Observational Study to Evaluate Obstetric Outcomes of Pregnancy with Uterine Fibroids

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Abstract

Aim: The aim of the present study was to assess the obstetrics outcomes of uterine fibroids and their consequences in a tertiary hospital.

Methods: The present study was an observational study was undertaken in the Department of Obstetrics and Gynaecology. The study was conducted over a period of 20 months. One hundred pregnant women who had USG findings of fibroid were enrolled in this study.

Results: The mean age of patients in study was 32 years with standard deviation of 4.86, but majority of patients (43%) were in the 26-30 years age group, and then in the 31-35 years age group (31%). 8% of patients were less than 25 years and 2% of patients were more than 40 years of age. 41% of patients were primigravida and 39% of patients were of second or third gravida and 20% of patients were of fourth gravida. The majority of patients had subserous fibroids (69%) and 7% of patients had submucous fibroids. The rest were intramural fibroid 24%. The most common location of fibroid was the fundus region (75%) and 14% of patients had pedunculated fibroid. 48% of patients had two to three fibroids. In this study, the majority of cases were delivered at term (80%). The most common mode of delivery was cesarean section (62%), followed by vaginal delivery (25%), including instrumental and assisted breech delivery. Neonatal outcomes in our study were low birth weight (17%), low APGAR score at five minutes (11%), required neonatal resuscitation (15%) and required NICU hospitalization (21%), and neonatal mortality occurred in 2% of cases.

Conclusion: Pregnancies with uterine fibroid are many times asymptomatic and are an incidental finding. Fibroid in pregnancy can be associated with abortion in early gestation and PROM in term gestation and PPH in the postpartum period. There is also an increased risk of malpresentation. The rate of cesarean section is high in pregnant patients with uterine fibroid. Thus, uterine fibroids in pregnancy make a normal pregnancy into a high-risk one.

Keywords: neonatal outcome, postpartum hemorrhage, maternal complications, pregnancy complications, uterine fibroids

Introduction

Uterine fibroids are one of the most commonly encountered benign tumours of the female reproductive tract. [1] The prevalence of uterine fibroids are underestimated as most of them are asymptomatic. [2] The prevalence of uterine fibroids in pregnant woman ranges from 1% to 10.7%. [3,4] The prevalence of uterine fibroids during pregnancy is increasing as more and more women delay child bearing to later in life and incidence of uterine fibroids increases with age. [5] Despite increasing incidence, the relationship between uterine fibroids and adverse obstetrics outcomes is not clearly understood. Many studies have shown that uterine fibroids can be related to lot of pregnancy complications like spontaneous abortion, placental abruption, antepartum haemorrhage, fetal malpresentation, preterm birth, premature rupture of membranes, dysfunctional labor, puerperal infection, increased need of caesarean section and postpartum haemorrhage. [6-8]

Prevalence of uterine fibroids during pregnancy reported in some studies ranges from 1.6 to 10.7%. [9-11] Only less than half of the large fibroids (>5 cm) can be revealed on physical examination. [12] Smaller fibroids (3-5 cm) have only a 12.5% chance to be detected by physical examination. [13]

Appearance on USG: appearance can be variable but usually are symmetrical, well defined, hypo echoic and heterogeneous masses. Areas of calcification or hemorrhage may appear hyper echoic, while cystic degeneration appears anechoic. [14] Pain is the most common presentation during pregnancy. [15,16] When uterine fibroids expand in size, they exert a mass effect on their blood vessels, leading to a mismatch between the vascular demand of the tissue and the available blood supply hence causing ischemia, anoxia, and necrosis. [16] Torsion of pedunculated sub-serosal uterine fibroids also has similar effect. [13] Cell necrosis and damage are associated with increased prostaglandin release and subsequently localized pain. Anterior cervical fibroids compress the urinary bladder leading to frequent micturition. Sometimes, partial obstruction may result if compression occurred on bladder neck leading to urine retention. Other less common symptoms include pelvic pressure, vaginal bleeding and constipation. [9,15] The pregnancy causes change in size of uterine fibroids is largely attribute to the hormonal changes occurring during pregnancy. Estrogen being the principal hormone involved. [17]

The aim of the present study was to assess the obstetrics outcomes of uterine fibroids and their consequences in a tertiary hospital.

Materials and Methods

The present study was an observational study was undertaken in the Department of Obstetrics and Gynaecology, Netaji Subhas Medical College and Hospital, Bihta, Patna, Bihar, India. The study was conducted over a period of 20 months. One hundred pregnant women who had USG findings of fibroid were enrolled in this study.

In this study, we enrolled pregnant women who had an ultrasonography (USG)-documented uterine fibroid diagnosed prenatally or antenatally. All the data, including demography, antenatal and postdelivery details were collected retrospectively from their case files, without breaching the confidentiality of the patient. Pregnant women who had a previous cesarean section, surgery, uterine deformity, or chronic conditions such as hypertension and diabetes were excluded. The case record proforma included demographic information, antenatal/ intrapartum/postpartum history (maternal age, parity, gravida, gestational age at enrollment and at delivery, number and size of fibroids), clinical examination findings, laboratory investigations, USG findings (fetal parameters, liquor, placental location and change in fibroid size or any complication), and the outcome. Obstetric issues if any, like preterm birth, premature rupture of membranes (PROM), malpresentation, placenta previa, placental abruption, low birth weight), mode of delivery, morbidity, and mortality related to the management of pregnancy with fibroids were documented. Neonatal outcomes like birth weight, APGAR score, neonatal resuscitation, and neonatal intensive care unit (NICU) admission were documented. Descriptive statistics were used in the statistical analysis. For discrete variables, data was imported into Microsoft Excel (Redmond, WA, USA) and presented as numbers and percentages and mean and standard deviation were given for quantitative data and multiple logistics regression analysis was done to show any association of perinatal outcome with characteristics of fibroid.

Results

Table 1: Demographic data

Age (in years)	N	%
19 – 25	8	8
26 – 30	43	43
31 – 35	31	31
36 – 40	16	16
≥ 41	2	2
Gravida status		
Primigravida	41	41
Gravida 2-3	39	39
Gravida ≥ 4	20	20

The mean age of patients in study was 32 years with standard deviation of 4.86, but majority of patients (43%) were in the 26-30 years age group, and then in the 31-35 years age group (31%). 8% of patients were less than 25 years and 2% of patients were more than 40 years of age. 41% of patients were primigravida and 39% of patients were of second or third gravida and 20% of patients were of fourth gravida

Table 2: Features of uterine fibroid

Features of uterine fibroids	Number of cases	Percentage
Type of fibroid		
Intramural	24	24
Submucous	7	7
Subserous	69	69
Location of fibroid		
Cervix	5	5
Fundus	75	75
Tubes (cornual)	6	6
Pedunculated	14	14
Number of fibroids		
1	29	29
2–3	48	48
>=4	23	23

The majority of patients had subserous fibroids (69%) and 7% of patients had submucous fibroids. The rest were intramural fibroid 24%. The most common location of fibroid was the fundus region (75%) and 14% of patients had pedunculated fibroid. 48% of patients had two to three fibroids.

Table 3: Pregnancy outcomes

Pregnancy outcome	Number of cases	Percentage
Gestational age at termination of pregnancy		
≤ 20 weeks	4	4
21-32 weeks	3	3
33-37 weeks	13	13
37-40 weeks	74	74
≥ 40 weeks	6	6
Delivery mode		
Cesarean section	62	62
vaginal normal delivery	25	25
Instrumental delivery	4	4
Assisted Breech delivery	2	2
Hysterotomy	4	4
Suction and evacuation	3	3

In this study, the majority of cases were delivered at term (80%). The most common mode of delivery was cesarean section (62%), followed by vaginal delivery (25%), including instrumental and assisted breech delivery.

Table 4: Complications

Complications	Number of cases	Percentage
Threatened preterm labour	22	22
Blood transfusion	21	21
Postpartum hemorrhage	10	10
Antepartum bleeding	11	11
Threatened miscarriage	17	17
Admission for pain in abdomen	6	6
Laparotomy for abdominal pain	0	0

Major complications during pregnancy were threatened preterm labor (22%) and threatened abortion (17%), whereas PPH occurred in 10% of cases, and blood transfusion was required in 21% of cases.

Table 5: Fetal outcome

Fetal Outcome	Number of cases	Percentage
Abortion	6	6
Low birth weight	17	17
Low APGAR Score at 5 minutes	11	11
Required neonatal resuscitation	15	15
Required NICU admission	21	21
Neonatal death	2	2

Neonatal outcomes in our study were low birth weight (17%), low APGAR score at five minutes (11%), required neonatal resuscitation (15%) and required NICU hospitalization (21%), and neonatal mortality occurred in 2% of cases.

Discussion

Uterine leiomyoma is one of the most frequent benign tumors of the female reproductive system. It develops from the smooth muscle of the uterus. It affects 20-40% of women, although the estimated incidence during pregnancy is 0.1-3.9%. [18,19] The fact that uterine fibroid is linked to infertility and low implantation rates following in vitro fertilization (IVF) could explain the significantly lower prevalence in pregnancy. [20] The physical examination can only diagnose 42% of large fibroids (>5 cm) and 12.5% of smaller fibroids (3-5 cm). [20,21] Ultrasound's ability to detect fibroids in pregnancy is much lower (1.4-2.7%), owing to the difficulties in distinguishing fibroids from normal myometrial thickness. [22] Pregnancy with fibroid is associated with complications like antepartum hemorrhage (APH), acute abdomen, red degeneration of fibroid, laparotomy, preterm labor, malpresentation, and malposition of fetus, postpartum hemorrhage (PPH), retention of the placenta, dysfunctional labor and, intrauterine growth restriction (IUGR). [22-24]

The mean age of patients in study was 32 years with standard deviation of 4.86 was similar to other studies like Saleh et al [25] and Egbe et al. [26] This shows that uterine fibroids are more associated with advancing maternal age. But majority of patients (43%) were in the 26-30 years age group, and then in the 31-35 years age group (31%). 8% of patients were less than 25 years and 2% of patients were more than 40 years of age. 41% of patients were primigravida and 39% of patients were of second or third gravida and 20% of patients were of fourth gravida. The majority of patients had subserous fibroids (69%) and 7% of patients had submucous fibroids. The rest were intramural fibroid 24%. The most common location of fibroid was the fundus region (75%) and 14% of patients had pedunculated fibroid. 48% of patients had two to three fibroids. In this study, the majority of cases were delivered at term (80%). The most common mode of delivery was cesarean section (62%), followed by vaginal delivery (25%), including instrumental and assisted breech delivery. Caesarean delivery was seen more commonly in intramural group which was similar to the study done by Zhao et al. [27] However other studies like Saleh et al [25] showed no difference in rate of caesarean delivery between intramural and subserosal group. However, no difference was found in other obstetrics outcomes between the intramural and subserosal group.

The impact of USG-diagnosed multiple or big (>=5 cm) fibroids on obstetric outcomes was investigated by Ciavattini et al. [13] The study included 219 women who had uterine fibroids. Women with numerous fibroids (n=34) had a significantly greater rate of preterm delivery, cesarean section, and breech presentation when compared to women without fibroids. Preterm birth and preterm premature rupture of membranes (PPROM) were more common in women with big fibroids (n=48). Multiple fibroids are linked to a higher risk of preterm birth and cesarean delivery, while large fibroids are linked to a higher risk of PPROM, according to their findings. In most cases, fibroids in pregnancy are treated conservatively. Pullemalla et al [28] studied 50 patients and observed that pregnant women with fibroid were at a higher risk of complications antenatally, intranatally, and also in the postpartum period. Pregnancy outcomes were abortion in two cases, delivery by cesarean section in 44 cases and four had normal deliveries. Thirty percent of patients had threatened miscarriage, and one case had PPH and needed a blood transfusion.

Neonatal outcomes in our study were low birth weight (17%), low APGAR score at five minutes (11%), required neonatal resuscitation (15%) and required NICU hospitalization (21%), and neonatal mortality occurred in 2% of cases. Zhao et al [29] conducted a multicenter investigation. In a study of 112,403 women, 3,012 (2.68%) were found to have at least one fibroid. Furthermore, the fibroid's location either intramural, submucosal or subserosal has a statistically significant impact on the probability of PPH (5.6% subserosal vs 4.7% submucosal vs 8.6% intramural). In a study by Sundermann et al [30], 4,622 pregnant women with a singleton pregnancy were evaluated and 475 of them had at least a single fibroid (10.3%). 352 pregnant women resulted in preterm birth (7.6%). On comparing the incidence of preterm and term birth, the prevalence of fibroid was similar in both groups (10.2% vs.10.3%). After considering the

confounding factors, it was observed that preterm birth was not associated with uterine fibroid in pregnancy.

Conclusion

Pregnancies with uterine fibroid are many times asymptomatic and are an incidental finding. Fibroid in pregnancy can be associated with abortion in early gestation and PROM in term gestation and PPH in the postpartum period. There is also an increased risk of malpresentation. The rate of cesarean section is high in pregnant patients with uterine fibroid. Thus, uterine fibroids in pregnancy make a normal pregnancy into a high-risk one. However, we did not find any significant association between type, location and number of fibroid with particular maternal complications. Thus, uterine fibroid in pregnancy should be followed up very frequently and need special attention in form of close monitoring of patients as well as the fetus.

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