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Preferred mode of delivery in pregnancies co-existing with uterine fibroids

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Abstract

Background: Uterine fibroids are benign tumours of the Uterus, affecting women in the reproductive age group. Uterine fibroids can co-exist with pregnancy and may cause adverse effects in pregnancy. The mode of delivery of pregnancies co-existing with fibroids contributes significantly to the outcome of these pregnancies. Available data in literature is inconsistent on the preferred mode of delivery in pregnancies with co-existing uterine fibroids. There is the need to know the preferred mode of delivery in pregnant women with co-existing fibroid in our region. This will aid counselling of these patients regarding the mode of delivery.

Objective: This study aimed to determine the effect of mode of delivery of pregnancies co-existing with uterine fibroids on pregnancy outcomes. It also assessed if elective (Planned) caesarean section improves foeto-maternal outcome in pregnancies with co-existing uterine fibroids.

Materials and Method: This was a retrospective cross-sectional study that reviewed the mode of delivery in 1,337 pregnant women with co-existing uterine fibroids at the Rivers State University Teaching Hospital between January 2017 and December 2021. Antenatal ultrasound scan detected uterine fibroids co-existing with pregnancy in these women. Data was extracted from the hospital records of these patients using a proforma. Data obtained was analysed using IBM SPSS version 25.0 for Windows®, and presented using frequency tables as number and percentages.

Results: Out of 9,538 pregnant women who delivered in our facility over the study period, 1,337 of them had co-existing uterine fibroids, giving a prevalence of 14%. The mean age of the parturients was 31.68 ± 5.44 years with their ages ranging from 23 to 47 years. Most of the parturients (67.96%) were nulliparous. Two hundred and five of the women studied (15.73%) had elective caesarean section (C/S), three hundred and fifty-six (26.63%) of the women had emergency caesarean section, while seven hundred and seventy-five (57.97%) of them had vaginal delivery. The total number of women who underwent caesarean delivery was five hundred and sixty-one (42.36%). One hundred and ninety-five (95.12%) of the women who underwent elective caesarean delivery had satisfactory foeto-maternal outcomes, while two hundred and twenty (61.8%) who had emergency caesarean delivery had satisfactory outcome. Four hundred women who had vaginal deliveries had satisfactory foeto-maternal outcomes. From the results, satisfactory foeto-maternal outcome was highest (95.12%) among the group that had planned caesarean section.

Conclusion: Uterine fibroids can co-exist with pregnancy, and different characteristics of uterine fibroids affect obstetric outcomes through different ways. Planning the mode of delivery in the antenatal period for women with pregnancies co-existing with uterine fibroids can go a long way to reducing negative obstetric outcomes for mother and baby. Large fibroids (>5 cm diameter), multiple uterine fibroids, or fibroids located in the lower uterine segment may cause labour dystocia, severe PPH, and so require elective caesarean section.

Keywords: Co-existing, mode of delivery, preferred, pregnancy, reproductive, uterine fibroids

Introduction

Uterine fibroids (Also referred to as leiomyomas or myomas) are non-cancerous, hormone-dependent monoclonal tumours arising from the smooth muscle cells and fibroblasts of the uterus [1-5]. They are extremely common, with an overall incidence of 40% to 60% by age 35 and 70% to 80% by age 50 [6, 7]. The estimated incidence of uterine fibroids in pregnancy is 0.1 - 10.7% [1, 6-12]. The significantly lower prevalence in pregnancy may be linked to infertility and low implantation rates following *in vitro* fertilization (IVF) [1, 6]. However, the prevalence of uterine fibroids co-existing with pregnancy is likely underestimated as only 42% of large fibroids (>5 cm) and 12.5% of smaller fibroids (3-5 cm) can be diagnosed on physical examination [1, 6]. Moreso, the ability of ultrasound to detect fibroids in pregnancy is even more

limited (1.4%-2.7%) primarily due to the difficulty of differentiating fibroids from physiologic thickening of the myometrium^[1, 6].

Most of the pregnancies with fibroid uterus are usually uneventful but sometimes, serious complications can occur during the course of pregnancy, depending upon the size, site and location of the fibroid^[6-8, 11-13]. About 10%-30% of females with uterine fibroids face obstetric complications during pregnancy^[6, 8]. The size, number and location of uterine fibroids have significant impact on the mode of delivery^[8]. High vaginal delivery rates have been reported amongst pregnant women with co-existing uterine fibroids^[15]. Conversely, high caesarean delivery rates have been reported in patients with multiple uterine fibroids as compared to pregnant females with single or no fibroids delivering vaginally^[16]. Our study was aimed at determining the effect of mode of delivery of pregnancies co-existing with uterine fibroids on pregnancy outcomes as well as to determine if elective (Planned) caesarean section improves foeto-maternal outcome in pregnancies with co-existing uterine fibroids in our region. This study will be a useful addition to the existing body of literature on this subject, and will help appropriate counselling and determination of the mode of delivery of pregnant patients with co-existing fibroids in our region.

Materials and Methods

This was a retrospective cross-sectional study that reviewed the mode of delivery in pregnant women with co-existing uterine fibroids at the Department of Obstetrics and Gynaecology, Rivers State University Teaching Hospital between January 2017 and December 2021. The folders and case notes of women who received antenatal were retrieved from the records department, and relevant maternal and foetal/neonatal information were extracted using a structured proforma.

Of the 9,538 pregnant patients who delivered during this period, 1,337 pregnant patients had co-existing uterine fibroids. Ultrasonography was the modality used to diagnose co-existing uterine fibroids in pregnancy.

Approval for this study was given by the Ethics and Research

Committee of the Rivers State University Teaching Hospital. Data obtained was analysed using IBM SPSS version 25.0 for Windows®, and presented with descriptive tables as number and percentages. Relative risk was calculated at 95% confidence interval while P value less than 0.05 was statistically significant.

Results

Out of 9,538 women who delivered at the Rivers State University Teaching Hospital between January 2017 to December 2021, 1337 of them had coexisting uterine fibroid in pregnancy, giving a prevalence of 14% for coexisting fibroid in pregnancy (Table 1).

Table 2 (A-G) shows the socio-demographic characteristics of the women with 93.3% of the participants being over 30 years of age. The mean age was 31.68 ± 5.44 years with their ages ranging from 23 to 47 years. Most of the parturients were nulliparous at 67.96%. Majority of the women were Christians (97.5%), which is the prevalent religion in in the study area. Most of the women studied had tertiary level of education and made up 78.15% of the study population; delay in child bearing due to educational pursuits may have predisposed them to uterine fibroids. Majority (93.6%) of the women studied were either overweight or obese, and this is a known risk factor for uterine fibroids. Most of the participants (78%) had term delivery at 37 weeks and above while 22% of them had pre-term delivery.

Table 3 shows the mode of delivery and delivery outcomes of the study participants. Two hundred and five of the women studied (15.73%) had elective caesarean section (C/S), three hundred and fifty-six (26.63%) of the women had emergency caesarean section, while seven hundred and seventy-five (57.97%) of them had vaginal delivery. The total number of women who underwent caesarean delivery was five hundred and sixty-one (42.36%). One hundred and ninety-five (95.12%) of the women who underwent elective caesarean delivery had satisfactory foeto-maternal outcomes (table 3), while two hundred and twenty (61.8%) and four hundred (51.6%) of the women who had emergency caesarean delivery and vaginal deliveries respectively had satisfactory foeto-maternal outcomes.

Table 1: Distribution of pregnant patients with co-existing uterine fibroids

Year	Total number of deliveries	Number of women with fibroids
2021	1,781	250
2020	1,798	253
2019	1,942	272
2018	2,128	298
2017	1,889	264
Total (%)	9538 (100%)	1337 (14%)

Table 2: Socio demo characteristics and others variables of pregnant women with co-existing uterine fibroids. A) Age

Age (Years)	No. of subjects with myoma (n = 1337)	Percentage (%)
21-25	13	0.98%
26-30	76	5.68%
31-35	801	59.95%
36-40	300	22.45%
41-45	147	10.94%
Mean Age	SD	95% CI

Table 2: b) Parity

Parity	No. of subjects with myoma (n = 1337)	Percentage (%)
Nullipara	908	67.96
Primi para	331	24.70
Multipara	98	7.34

Table 2: c) Religion

Religion	No. of subjects with myoma (n = 1337)	Percentage (%)
Christianity	1302	97.5
Islam	28	2.0
Atheist	7	0.5

Table 2: d) Educational Status

Educational Status	No. of subjects with myoma (n = 1337)	Percentage (%)
No Formal Education	4	0.3
Primary	80	5.98
Secondary	208	15.57
Tertiary	1045	78.15

Table 2: e) BMI

BMI (Kg/m ²)	No. of subjects with myoma (n = 1337)	Percentage (%)
19 - 24	86	6.4
25 - 30	526	39.3
31 - 36	725	54.3

Table 2: f) Gestational age at delivery

Gestational age at delivery (Weeks)	No of subjects with myoma (n = 1337)	Percentage (%)
< 37	294	22
> 37	1042	78

Table 2: g) Size of largest fibroid

Size of largest fibroid	No of subjects with myoma (n = 1337)	Percentage (%)
Large fibroid (>5cm)	335	25
Small fibroid (<5cm)	1002	75

Table 3: Mode of delivery and delivery outcome

Mode of delivery	Number (n = 1,337)	Satisfactory outcome	Foetal distress/ foetal death	Retained Placenta	PPH	Puerperal Sepsis
Elective Caesarean Delivery	205	195 (95.12%)	—	—	5 (2.44%)	5 (2.44%)
Emergency Caesarean Delivery	356	220 (61.8%)	56 (15.7%)	—	15 (4.2%)	65 (18.3%)
Vaginal Delivery	775	400 (51.6%)	80 (10.3%)	50 (6.4%)	205 (26.5%)	40 (5.2%)

Discussion

The global incidence of pregnancy co-existing with uterine fibroid is on a rising trend because of delays in conception and rising maternal ages [1, 17]. The prevalence of uterine fibroids co-existing with pregnancy in our study population was 14%. This is higher than 7.8% from a previous Nigerian study [7], and also higher than the range of 0.1-10, 7% from previous studies on coexisting fibroid in pregnancy [1, 6, 8]. The mean age of the participants in our study was 31.68±5.44 years with women in the range of 31-35 years making up the highest group. This is similar to the age range of 31-35 years with highest group of fibroid in pregnancy in the study by Ani *et al.* [7].

The weight of evidence in the literature reveals that uterine fibroids are associated with increased rate of adverse obstetric outcomes [6, 12, 14, 18]. Complications and adverse obstetric outcomes of uterine fibroids co-existing with pregnancy include spontaneous miscarriage, threatened miscarriage, recurrent abdominal pains, premature rupture of membranes (PROM), premature labour, placenta praevia, intra-uterine growth restriction (IUGR), placental abruption, placenta praevia, preterm delivery, foetal malpresentation, labour dystocia, uterine rupture, chorioamnionitis, uterine atony, post-partum haemorrhage (PPH), uterine inversion, retained placenta, peripartum hysterectomy, puerperal sepsis [1, 6, 8, 9, 11-14, 19, 20]. These events can occur individually, or in combination, and can lead to maternal mortality if not properly managed [14].

The size, number and location of the leiomyoma are the three

most important parameters that predict obstetric outcomes [1, 6, 7, 19, 21, 22]. Uterine fibroids are also a marker for caesarean sections [6-8, 14, 23, 24]. Caesarean section is often indicated if the fibroid is large and located in the lower uterine segment where it is likely to cause malpresentation of the foetus or cause obstructed labour [6, 14].

There are numerous studies detailing the effect of uterine fibroids co-existing with pregnancy. However, there were no other studies noted that compared mode of delivery and obstetric outcome (s) in pregnant patients with co-existing uterine fibroids. In this study 561 (42%) and 775 (58%) of the women with fibroids in pregnancy had caesarean deliveries and vaginal deliveries respectively. In our study, caesarean delivery has been shown to be associated with better obstetric outcomes compared with vaginal delivery, as the proportion of women who had satisfactory foeto-maternal outcomes were more with caesarean delivery compared to vaginal delivery. Planned (Elective) caesarean section (CS) results in better outcomes for mother and baby when compared to emergency CS [20]. This was so in our study as those with planned (Elective CS) had better obstetric outcomes when compared to those who had emergency CS, 4.88% vs 38.2% adverse obstetric outcomes rate.

Some of the adverse outcomes in subjects who had vaginal delivery in our study may have been prevented if the patients were adequately evaluated in the antenatal period and selected for elective caesarean delivery.

The adverse effects associated with emergency CS in our study

were likely due to prolongation of the labour process, maternal exhaustion, foetal distress and predisposition to sepsis, which preceded the emergency caesarean section.

Conclusion

Uterine fibroids are becoming an increasing common finding in pregnancy. Though vaginal delivery is feasible, elective caesarean delivery is associated with best obstetric outcomes in women with co-existing uterine fibroids. Preferred mode of delivery of patients who have uterine fibroids co-existing with pregnancy should be determined during the antenatal period at consultant level taking into cognisance the size, number and location of the uterine fibroids. Adequate and repeated counselling during the antenatal period will prepare patient for the choice of mode of delivery.

Conflict of interest: There was no conflict of interest.

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