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Pregnancy with leiomyoma uteri and feto-maternal outcomes

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Abstract: *Objective:* Evaluation of fetal and maternal outcomes in pregnancy with leiomyoma uteri. *Methods:* Total 50 pregnant women with uterine myoma attending the department of Obstetrics and Gynecology of IPGME&R, Kolkata were followed during the antenatal, intranatal and postnatal period. Total 200 women of normal uncomplicated pregnancy were recruited as control and matched for age and parity. *Results:* The women were having 10% submucous, 74% intramural and 16% subserous type of uterine myoma. Highest incidence was in more than 30 yrs age group. Spontaneous miscarriage in 16%, malpresentation in 14%, fetal growth restriction (FGR) in 14%, intra uterine fetal demise (IUFD) in 8% and placental abruption in 8% cases were noted. During intranatal period preterm labour in 18%, prolonged labour in 22%, fetal distress in 22%, retained placenta in 6% and preterm premature rupture of membranes (PPROM) or premature rupture of membranes (PROM) in 16% cases were also seen. Postpartum hemorrhage (PPH) in 22% and subinvolution in 14% cases were found. APGAR score was less than seven in 18% babies and 46% babies weighed low birth weight. *Conclusion:* Pregnancies complicated with uterine myoma adversely affect fetal and maternal outcomes.

Keywords: Leiomyoma, pregnancy, placental abruption, fetal growth restriction (FGR), intra uterine fetal demise (IUFD), low birth weight (LBW).

Introduction

Leiomyoma uteri are very commonly encountered tumours of reproductive age. Though it is not fatal condition but often associated with morbidity. Size and location of leiomyoma are the two most important factors determining its morbidity and producing symptoms. It usually does not hinder conception but it may obstruct the passage of sperms through the uterine cavity up to the fallopian tubes by endometrial cavity distortion. It is also known to interfere with pregnancy too some extent [1]. But the diagnosis of leiomyoma in pregnancy is not so easy and the radiologist may often encounter difficulties. It has been observed that the leiomyoma measuring greater than five cm. is detected in approximately in 40 % cases, whereas the myoma smaller than five cm. is very difficult to diagnose during pregnancy [2].

As we all know that during pregnancy the myometrium is thickened physiologically and to differentiate it from the leiomyoma by sonological method requires skilled person behind the machine [3]. It is sometimes associated with obstetrical complications including preterm labour, placental abruption, fetal malpresentation, obstructed labour, increased rate of caesarean section and post-partum hemorrhage [4]. Another dreaded complication during pregnancy is red degeneration which can present as acute abdomen. It accounts for 0.1% to 3.9% cases in pregnant women with leiomyoma uteri [5]. Only analgesia is enough in most of the circumstances. In this background the aim of the study was to evaluation of feto-maternal status in pregnancies associated with myomas in the antenatal period and complications in the intrapartum and postpartum period and neonatal outcomes.

Material and Methods

It was a prospective observational study. In these study total 50 pregnant women with uterine myoma attending outpatient department and admitted in the department of Obstetrics and Gynaecology of IPGME & R

and SSKM Hospital, Kolkata were studied during one year period (from June 2011 to May 2012). The study was done after taking the permission from the institutional ethical committee in accordance with the ethical standards. All pregnant women who were presented with a documented fibroid diagnosed sonologically or were diagnosed during caesarean section, included in the study. The sample was selected by simple random sampling technique. Demographic variables, antenatal complications, intranatal complications, mode of delivery, post natal complications, morbidity, neonatal outcomes etc. associated with the management of pregnancy with fibroids were recorded on a performa. Characteristic abstracted were age, parity, gestational age at delivery, mode of delivery, and complications associated with pregnancy with fibroid and its management. Patients with fibroid uterus without pregnancy or underwent induced abortion were excluded from the study.

Fig-1: A fibroid in the fundal region during caesarean section

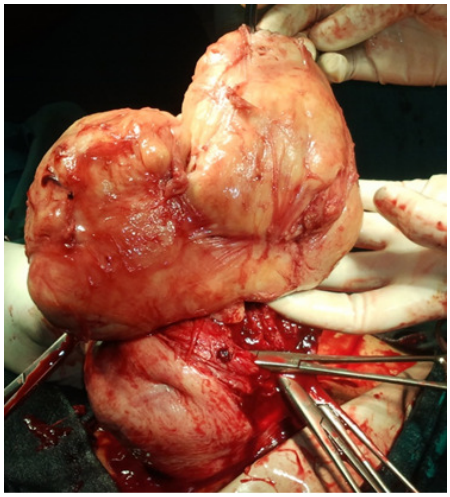
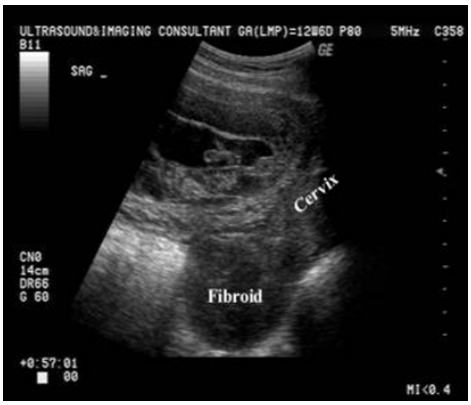


Fig-2: Broad ligament fibroid on right side with a 10 weeks intrauterine gestational sac.



Statistical Analysis: Numerical variables were compared between both groups by Student's unpaired t-test. For paired comparisons the paired t-test was used. The Chi-square test or Fischer's exact test was used for intergroup comparison of the categorical variables. The analyses in this study were both sided and $p<0.05$ was considered significant statistically. The Software used for analysis were Statistica version 6 [Tulsa, Oklahoma: Stat Soft Inc.] and Graph Pad Prism version 5 [San Diego, California: Graph Pad Software Inc.].

Results

In this study as shown in table 1 out of total 50 women, 37 (74%) were having intramural type, eight (16%) were having subserous type and rest five (10%) were having submucous type of fibroid. Highest incidence 28 (56%) was found in more than 30 yrs age group. The other 20 (40%) women were from 20-30 years age group and rest two (4%) were from less than 20 years age group. The most of the women 29 (58%) were multigravida and other 21 (42%) women were primigravida and same percentage in control group were also noted.

Table-1: Distributions of study group versus control group according to types of fibroid, age and parity

	Study group (n=50)	Control group (n=200)
Types of fibroid		
Submucous	5 (10%)	-
Intramural	37 (74%)	-
Subserous	8 (16%)	-
According to age (yrs)		
< 20	2 (4%)	10 (5%)
20-30	20 (40%)	84 (42%)
> 30	28 (56%)	106 (53%)
According to gravida		
Primigravida	21 (42%)	84 (42%)
Multigravida	29 (58%)	116 (58%)

According to table 2; spontaneous miscarriage in eight (16% vs. 7%), malpresentation in seven (14% vs. 3.5%), fetal growth restriction (FGR) in seven (14% vs. 8%) and placental

abruption in four (8% vs. 2%) were significantly more frequent in study group compared to control (p< 0.001) but no significant difference was seen for intra uterine fetal demise (IUFD) in four (8%) cases versus 7.5% in control (p value 0.63). Among intranatal events preterm labor in nine (18% vs. 7%), prolonged labor in 11 (22% vs. 6.5%), fetal distress in 11 (22% vs. 10%) and retained placenta in three (6% vs. 1%) cases were found and it was significantly higher than control (p <0.001). Preterm premature rupture of membranes (PPROM) or premature rupture of membranes (PROM) was found in eight (16% vs. 18%, p 0.3) cases which was statistically insignificant. In the study population 30 (60%) women were delivered by lower segment cesarean section and ten (20%) women delivered vaginally compared to 30% and 60% in control group which were statistically significant. But rest two (4% vs. 3%) women delivered by assisted vaginal delivery and it was insignificant finding (p 0.61). Postpartum hemorrhage (PPH) and subinvolution of uterus were seen significantly higher in study group i.e. 11 (22% vs. 5%) and seven (14% vs. 3%) women respectively (p < 0.001). Total nine (18% vs. 3%, p < 0.001) babies of study population had Apgar score less than seven and rest 33 (66% vs. 90% in control) babies had Apgar score more than seven. Marked predominance of low birth weight babies i.e. weighing less than 2500 gram were found in 23 (46%) babies, among which 12 (24%) weighed less than 2000 gram and 11 (22%) weighed 2000–2500 gram. Whereas only 13% babies were low birth weight among control group (p < 0.001). The rest 19 (38% vs. 80% in control group) babies were of normal birth weight. No patients were diagnosed as red degeneration of leiomyoma.

Table-2: Spectrum of Obstetric and Fetal outcomes

	Study group (n=50)	Control group (n=200)	p value	Odds Ratio
Antenatal complications				
Spontaneous miscarriages	8 (16%)	14 (7%)	< 0.001	2.5
Malpresentations	7 (14%)	7 (3.5%)	< 0.001	4.5
Fetal growth restriction	7 (14%)	16 (8%)	< 0.001	1.9
Intrauterine fetal death	4 (8%)	15 (7.5%)	0.63	1.1
Placental abruption	4 (8%)	4 (2%)	< 0.001	4.3
Intranatal complications				
Preterm labor	9 (18%)	14 (7%)	< 0.001	2.9
Prolonged labor	11 (22%)	13 (6.5%)	< 0.001	4
Fetal distress	11 (22%)	20 (10%)	< 0.001	2.5
Retained placenta	3 (6%)	2 (1%)	< 0.001	6.3
PPROM or PROM*	8 (16%)	36 (18%)	0.3	0.9
Mode of delivery				
Cesarean delivery	30 (60%)	60 (30%)	< 0.001	3.5
Vaginal delivery	10 (20%)	120 (60%)	< 0.001	0.2
Assisted vaginal delivery	2 (4%)	6 (3%)	0.61	1.3
Postnatal complications				
Postpartum hemorrhage	11 (22%)	10 (5%)	< 0.001	5.4
Subinvolution of uterus	7 (14%)	6 (3%)	< 0.001	5.3
Fetal outcomes				
APGAR score at five minute				
<7	9 (18%)	6 (3%)	< 0.001	7.1
>7	33 (66%)	180 (90%)	< 0.001	0.2
Birth weight				
<2000 gm.	12 (24%)	10 (5%)	< 0.001	6
2000-2500 gm.	11 (22%)	16 (8%)	< 0.001	3.2
>2500 gm.	19 (38%)	160 (80%)	< 0.001	0.2

* PPROM, preterm premature rupture of membranes; * PROM, premature rupture of membranes.

Discussion

Presence of leiomyoma does not necessarily mean that the patient will be symptomatic. Many women with leiomyoma are asymptomatic. In this regard site and size are the important factors which determine the chance of producing symptoms and complications [6]. Intramural leiomyoma is the most common type that we all know. Subserosal myoma is located beneath the visceral peritoneum of the uterus. It may also grow in outer aspect towards the abdominal cavity and become pedunculated which carries the risk of twisting. Sub mucosal leiomyoma have the potentiality to distort the uterine cavity and produce subfertility. In our study also most of the women had intramural type of myoma. Leiomyoma uteri are the most common benign tumors in females and encountered during reproductive years [7]. Highest incidence of leiomyoma was found in more than 30 years age group in our study and least common in less than 20 years age group. We had found that leiomyoma were less frequent in women in their first pregnancy compared to multigravida. This is in accordance with the study done by Noor et al. who reported leiomyoma was found more commonly in multigravida [8].

Approximately one third of women with leiomyoma uteri may develop complications during pregnancy [4]. If the woman is having leiomyoma uteri then the spontaneous miscarriage rate is seems to be more than those who do not have the condition [9]. Evidence based literature suggests that though the size of the leiomyoma may not affect the miscarriage rate but the number of it could affect it. It has been seen that multiple leiomyoma are more associated with pregnancy losses [9]. Women having the leiomyoma in the uterine corpus are more prone to early miscarriage than those who have the lesion in the lower segment of the uterus [9]. Leiomyoma may cause fetal malpresentation [9]. Important risk factors for fetal malpresentation are large, multiple, and lower uterine segment leiomyoma. The incidence of malpresentation in our study was 14%.

Leiomyoma uteri usually don't affect fetal growth. But in our study women with leiomyoma were at slightly increased risk of delivering a growth-restricted infant. Submucosal fibroids, retroplacental fibroids, and fibroid volume >200cc are independent risk factors for placental abruption [10]. Among the study population also women suffered from placental abruption, retained placenta. When the placenta is attached over the site of uterine fibroid there is a possibility of retained placenta or it may be due to extreme uterine cavity distortion [11]. Though the direct evidence of intrauterine fetal demise (IUFD) in association with leiomyoma uteri is lacking but increased risk placental abruption may cause IUFD which was noted in our study.

Preterm labour is often complicating a pregnant woman who is harboring leiomyoma uteri [12]. Multiple leiomyoma is an important risk factor for preterm labor [12]. Abnormal labour in the form of prolonged or obstructed labour is more in women with leiomyoma uteri [10]. We had found preterm labour, and prolonged labour in our study. As like previous study done by Kore S et al, we had also encountered 22% cases of fetal distress [12]. The rate of cesarean delivery is more in women with uterine leiomyoma [10]. In our study population majority of caesarean sections were preformed for failure to progress and fetal distress. If caesarean section is required, it is unwise to attempt myomectomy because of the pregnancy associated increased vascularity unless the leiomyoma is located over the uterine incision line or sub serous pedunculated variety. The rate of caesarean section was 60% in this study which is compared to other studies [8].

Though the cesarean section rate is higher, but the presence of leiomyoma is not an indication to perform it. Total 24% women delivered vaginally or by assisted vaginal delivery in our study. The association between leiomyoma and postpartum hemorrhage is not well defined. Risk of postpartum haemorrhage is seems to be higher as the leiomyoma may interfere with the retraction of uterus after delivery and also by distorting normal uterine architecture. It can also predispose to subinvolution [9]. The incidence of postpartum hemorrhage and subinvolution were 22% and 14% respectively in our study. Neonatal outcomes were encouraging, thus indicating that fibroids do not impair fetal

health so much. Women, who have fibroids detected in pregnancy, usually may require additional fetal surveillance when the placenta is implanted over or in close proximity to a fibroid [13]. In our study 66% babies scored Apgar score more than seven and 38% babies were normal birth weight. Apart from these 46% babies were weighed less than two kilograms. Because we know that, women with fibroids may deliver a growth-restricted infant [9]. Rarely, very large fibroids can compress and distort the intrauterine cavity and thereby leading to fetal deformities.

Conclusion

Fibroids during pregnancy lead to increase in rate of caesarean section due to higher incidence of dysfunctional labour and malpresentation. In this study intramural fibroid was found maximally, however most were detected during caesarean section rather than sonological method. The common antenatal complications were fetal growth restriction, malpresentation, spontaneous miscarriage, placental abruption, preterm delivery, prolonged or obstructed labour; fetal distress was an intrapartum complication. The occurrence of puerperal complications were low and most of the deliveries had uncomplicated perinatal outcome.

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