Comparison of pregnancy outcomes in different localizations of uterine fibroids

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Summary

Objective: The basic aim of this study is to compare the pregnancy outcomes in cases with uterine fibroids located at the anterior and posterior uterine walls. *Materials and methods:* A total of 84 pregnant women with a diagnosis of uterine myoma larger than 30 millimeter (mm) in diameter were included in the study to determine the obstetric outcomes. In 64 (76.20%) patients, myomas were detected at the anterior uterine wall (group 1), while 20 (23.80%) were detected at the posterior uterine wall (group 2). All patients were followed monthly until the end of pregnancy. Demographic and obstetric characteristics were compared between the two groups. *Results:* There were no significant differences in age, gravida, parity, and myoma size between the two groups. A significant difference existed between the groups with regard to pelvic pain. Posterior located fibroids were associated with more pelvic pain (p = 0.001). No difference was observed between the two groups with regard to the rates of preterm delivery, bleeding in early pregnancy, infants with small for gestational age, and hospitalization period during pregnancy. Women with posterior located myomas had significantly higher miscarriage rates. *Conclusion:* Our findings suggest that pregnancies with uterine fibroids are at increased risk for complications. Posterior located fibroids larger than 30 mm in diameter are associated with severe pelvic pain compared to anterior located fibroids.

Key words: Fibroids; Pregnancy; Pelvic pain.

Introduction

Fibroids are benign smooth muscle cell tumors of the uterus. They are a very common finding in women of reproductive age. Although they are extremely common, with an overall incidence of 40% to 60% by the age of 35 years and 70% to 80% by the age of 50 years their precise incidence remains unclear [1]. The diagnosis of fibroids in pregnancy is not simple. Only 42% of large fibroids (> 5 cm) and 12.5% of smaller fibroids (3 - 5 cm) can be diagnosed during physical examination [2]. During pregnancy, it is difficult to differentiate fibroids from physiologic thickening of the myometrium by ultrasound [3-6]. Therefore the prevalence of uterine fibroids during pregnancy is likely underestimated. The relationship between uterine fibroids and adverse pregnancy outcome is not clearly understood. It has been reported that they are associated with adverse pregnancy outcomes such as increased rate of spontaneous miscarriage, preterm labor, placenta abruption, malpresentation, labor dystocia, cesarean delivery, and postpartum hemorrhage [7].

The authors of the present study believe that posterior versus anterior fibroids may have a different impact on pregnancy outcome. In the present study, the pregnancy outcome in cases with uterine fibroids located at the anterior uterine wall and posterior uterine wall were compared.

Materials and Methods

The present was a retrospective study over a 24-month period, between June 2008 and June 2010. A total of 84 pregnant women that had uterine fibroids greater than 30 millimeter (mm) in size were included in the study. Ultrasound examination is routinely performed during early pregnancy in our hospital. So singleton pregnancies at a maximun of 12 weeks gestation diagnosed with fibroids were included the study. In case of multiple fibroids, patients were categorized according to the maximum size of the fibroid located at the anterior or posterior uterine wall. The fibroid location was studied in relation to placental implantation. The type of fibroids found in the women analyzed (submucosal, intramural, subsierosal, are also reported). Patients were divided into two groups: group 1 included pregnancies with uterine fibroids detected at the anterior uterine wall (n = 64), and group 2 consisted of pregnancies with uterine fibroids detected at the posterior uterine wall (n = 20). There were no obstetric risk factors such as fertility treatments, hypertensive disorders, gestational diabetes mellitus, or multiple pregnancies in any of the patients.

The following clinical characteristics were noted: maternal age, number of pregnancies, and gestational age at diagnosis. In the standard regular antenatal follow-up model, women made visits to the clinics once a month for the first six months of pregnancy, once every two to three weeks for the next two months, and then once a week until delivery. Localization and size of myomas were noted. Obstetric characteristics including miscarriage, vaginal bleeding, pelvic pain, small for gestational age (SGA), mode of delivery, delivery time, birth weight, Apgar score at one and five minutes, admission to neonatal intensive care unit (NICU) were assessed. The local ethics institutional board approved this study.

The statistical analysis for the data was done with SPSS version 11.0 (SPSS Inc., Chicago, IL). The normal distribution of all studied parameters was checked with Kolmogorov - Smirnoff test. Data were analyzed on an intent - to - treat basis with parametric (Student *t* test) and nonparametric statistics (chi-square, Mann Whitney-*U* test) where appropriate. A p value < 0.05 was established as statistically significant.

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Results

During the 24-month period of the study, a total of 84 patients were collected. In 64 (76.20%) patients, myomas were detected at the anterior uterine wall (group 1) while 20 (23.80%) were at the posterior uterine wall (group 2). The mean age of the patients was 34.07 ± 5.21 (22 - 46) years. Twenty-two (26.20%) patients were primigravid, 62 (73.80%) were multigravid. The mean size of the myoma was 57.44 ± 23.62 (30 - 132) mm. The final measurement of myoma was recorded just prior to delivery. Fibroids increased in size in 50 (59.5%) of our patients and remained almost constant in 34 (40.5%) patients. No decrease in size in any of the patients in the study were found. Thirty-four (40.47%) patients had multiple myomas.

There were no significant differences in age, gravida, parity, and myoma size between the two groups (Table 1). A significant difference existed between the groups with regard to pelvic pain. Posterior located fibroids were associated with more pelvic pain (p = 0.001). No difference was observed between the two groups with regards to the rates of patients with increase in size, preterm delivery, bleeding during early pregnancy, SGA infants, and hospitalization during pregnancy. Thirty-three (39%) patients were hospitalized during their pregnancy for different indications before delivery. Women with posterior located myomas had significantly higher miscarriage rates (Table 1). No submucosal fibroids were detected in any of the patients studied.

A total of 11 (13%) patients had fibroids which were located retroplacentally. Eight of them were in group 1, and three of them were in group 2 (Table 1). All the patients with retroplacental fibroids experienced bleeding during early pregnancy. Three of them in group 1 had SGA babies and another two had preterm labor. In group 2, out of three patients, two had preterm deliveries and one patient had SGA baby.

Twenty-five (29.80%) of the patients experienced severe pelvic pain mostly during the early second trimester and lasted about five days and they were hospitalized for this. Seventeen (85%) of these had myomas on the posterior uterine wall and the mean size of the myoma was 55.7 mm. Eight (12.5%) patients with myomas on the anterior wall had severe pelvic pain. The difference was significant (Table 1). We detected cystic changes through ultrasound that indicated the development of red degeneration only in seven of 25 patients who had severe pain. Twenty-five (29.76%) patients suffered from bleeding in early pregnancy and 15 patients (17.90%) had spontaneous miscarriages. The mean gestational age at delivery was 37.79 ± 1.69 (33 - 40) weeks. The mean birth weight was 3,169.41 ± 525.83 (2,100 - 4,200) grams. Of the 69 pregnancies, 39 (56.52%) were delivered by cesarean section and 30 (43.47%) vaginally. Malpresentation rate was 42% (29 out of 69) followed by previous section and labor dystocia. Myomectomy was performed during cesarean section in 21 (30%) patients, in which three of them required blood transfusion, and hysterectomy was performed in one patient who also needed blood transfusion. No patients had uterine atony or postpartum hemorrhage after delivery. Seven (8.30%) patients had SGA baby. Twenty preterm deliveries were seen. None of the newborn admitted NICU.

Table 1. — *Characteristics and prognosis of cases with uterine fibroids located at anterior uterine wall (group I), and posterior uterine wall (group II).*

	Group I (n = 64)	Group II (n = 20)	*p*
Maternal age (years)*	33.5 ± 4.8	35.6 ± 6.1	0.121
Gravida**	3 (1 - 8)	3 (1 - 7)	0.760
Parity**	2 (0 - 6)	2 (0 - 5)	0.838
Size of myoma (mm)*	57.9 ± 23.3	55.9 ± 25.1	0.749
Final size of myoma (mm)*	68.2 ± 29.9	67.1 ± 28.7	0.872
Increase in size (no., %)	35 (54)	15 (75)	0.125
Pain (no., %)	8 (12.5)	17 (85)	0.001
Preterm delivery (no., %)	18 (28.1)	2 (10)	0.135
Bleeding in early pregnancy (no., %)	19 (30.2)	6 (30)	0.989
SGA (no., %)	6 (9.4)	1 (5)	0.537
Miscarriage (no., %)	8 (12.5)	7 (35)	0.040
Hospitalization during gestation (no., %)	29 (45.3)	17 (85)	0.798
Delivery time (weeks)**	38 (33-40)	39 (34-40)	0.063
Birth weight (grams)*	3146.5 ± 512.3	3264.6 ± 591.7	0.471
Myomectomy during cesarean section (no., %)	17 (26.6)	4 (20)	0.769
Intramural myoma (no., %)	42 (65.6)	13 (65)	0.813
Subserosal myoma (no., %)	22 (34.4)	7 (35)	0.732
Retro-placental myoma (no., %)	8 (12.5)	3 (15)	0.632

*Values are mean ± Standard deviation; **Values are median (minimum-maximum); SGA: Small for gestational age; NS: Nonsignificant.

Discussion

Approximately 10% to 30% of women with fibroids develop complications during pregnancy [7]. In this study 46 (54.7%) patients were hospitalized during their pregnancy for different indications before delivery. Prospective studies have shown that the majority of fibroids (60% - 78%) do not demonstrate any significant changes in size during pregnancy [8, 9]. In contrast to this, the authors found that fibroids increased in size in 50 (59.5%) of the patients studied. Growth was remarkable, especially during the first and the second trimester, with almost no growth observed during the third trimester. It has been previously reported that all fibroids decrease in size during third trimester [9, 10]. In this study, no decreases in size were found in any of the patients studied.

Pain is the most common complication of fibroids in pregnancy, and is most often seen in women with large fibroids (> 5 cm) during the second and third trimesters of pregnancy [3, 7]. Approximately 30% of the patients in this study suffered from severe localized abdominal pain, mostly during early second trimester which lasted about five days. Most of these had myomas in the posterior uterine wall and the mean size of the myoma was 55.7 mm. If fibroids show heterogeneous echogenic pattern or cystic changes in ultrasound, this indicates the development of red degeneration [10]. There are three main theories to explain the severe pain associated with red degeneration. First, rapid growth results in tissue anoxia, necrosis, and infarction [7, 11]. Second, the growing uterus causes a change of the blood supply to the

fibroid which leads to ischemia and necrosis [12]. Third, the release of prostaglandins from cellular damage within the fibroid results in pain, which is supported by the observation that ibuprofen and other prostaglandin synthetase inhibitors effectively and rapidly control fibroid pain [7]. The authors detected cystic changes in ultrasound that indicated the development of red degeneration only in seven of 25 patients who had severe pain. There might be some other mechanisms associated with pain. Pain was conservatively managed through bed rest, hydration, and analgesics.

Most authorities agree in avoiding to perform a myomectomy during cesarean delivery due to risk of severe hemorrhage [13-16]. Myomectomy was performed in 21 (25%) of the patients during cesarean delivery. Most of them had pedunculated subserosal fibroids; in one case, it was difficult to facilitate safe delivery of the fetus. All of them however, were safely delivered, but a blood transfusion was needed in three of them. Hysterectomy was performed in one patient due to a challenged safe delivery of the fetus because of severe adhesions due to prior cesarean sections and multiple myomas.

Numerous studies have shown that uterine fibroids are a risk factor for cesarean delivery [3, 10, 17-21]. The risk of fetal malpresentation also increased [17, 19]. In the present study, the cesarean rate was 56%. The leading indication was malpresentation, followed by previous section and labor dystocia. No patients had uterine atony or postpartum hemorrhage after delivery.

It has been reported that spontaneous miscarriage rates are greatly increased in pregnant women with fibroids [22]. The current miscarriage rate was 17.90 % and occurred during the first trimester.

Retroplacental fibroids are likely to interfere with placentation and may clinically cause bleeding, intrauterine growth restriction, or placental abruption [23]. In the present study, 11 patients (13%) had fibroids located retroplacentally, and all experienced bleeding during early gestation. Four of them had SGA babies and another four had premature delivery. The numbers are still insufficient to draw any conclusions regarding the effect of retroplacental fibroids in the pregnancy outcome.

One limitation of this study was that the ultrasound evaluation of posterior fibroids was more difficult and less accurate than evaluation of anterior fibroids. Posterior fibroids are not easy to study in pregnancy, but the authors believe that posterior uterine wall fibroids may not have escaped ultrasound detection because the initial diagnosis was confined to an early gestational age window. Fibroids seem to increase the risk for adverse pregnancy outcome, but there was no control group in consisting pregnant women without a fibroid. Since there was no control group, the authors could not determine the increased risk ratio and this was another major limitation of the study.

In conclusion, in light of the small sample number of cases, the authors can state that pregnancies with uterine fibroids are at increased risk for complications. Pelvic pain during the second trimester was the most common complication; especially posteriorly located large fibroids are associated with severe pelvic pain which can be managed conservatively by bed rest, hydration, and analgesics.

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