

Outcome of Pregnancies Associated with Fibroids

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Objectives: To evaluate the behaviour of uterine leiomyoma, their frequency and impact on the course of pregnancy.
Design: It was a descriptive study. **Setting:** Gynaecology and Obstetric Unit, Hayatabad Medical Complex, PGMI, Peshawar. **Subjects:** All the patients presenting to antenatal clinic or emergency having a pregnancy associated with fibroids from 1st July 2001 to 30th June 2002. **Subject and Methods:** Women diagnosed with leiomyoma during pregnancy were evaluated clinically and the findings were confirmed by ultrasound. Detection of leiomyoma during caesarean section also made the patient eligible for the study. In all there were 76 patients in the study. The size of leiomyoma, the type of leiomyoma, their effect on pregnancy outcome and complications were noted. Patients' obstetric and fertility history was recorded on a questionnaire. The concerned doctors were required to fill a performa regarding the outcome and complications the delivery of such patients. **Data Analysis:** After data collection, the data was analyzed using various statistical tests like percentage, relative risk (R.R), odds ratio (O.R), mean, standard deviation (S.D) and confidence interval (C.I), using soft ware SPSS version 8.0 and Epi-Info 6. **Main Outcome Measures:** The main outcome measures were noted down as the frequency of spontaneous pregnancy loss, vaginal delivery or the caesarean section. **Results:** Out of 76 patients (1.9%), 16 underwent spontaneous pregnancy loss (21%, O.R 1.16, R.R 1.13, P 0.59), 31 had vaginal delivery (40.8%, O.R 0.21, R.R 0.62, P 0.0000) and 29 had caesarean section (38.2%, O.R 4.71, R.R 2.91, P 0.0000). The frequency of complicated deliveries was 73.3%. The different complications occurring were antepartum haemorrhage, acute abdomen, laparotomy, preterm labour, dysfunctional labour, retained placenta and retained products of conception. **Conclusion:** Although abortions, preterm delivery, dysfunctional labour and caesarean sections were common, the neonatal outcome in viable pregnancies was fairly good in women with uterine leiomyomas. Because of increased risk of complications all the patients with leiomyomas having pregnancy should be considered as high-risk cases.

Key words: Leiomyoma, fibroids, myomas, pregnancy, abortion, vaginal deliveries and caesarean section.

The incidence of uterine leiomyomas during pregnancy ranges from 0.09% to 3.9%.^{2,3,5-7,10,11,14,15} Because of their relative infrequency, the question arises often as to whether the diagnosis of a uterine myoma can be confirmed during pregnancy. If the diagnosis of myoma is confirmed during the pregnancy, the clinical question arises as to what impact will the myoma have on pregnancy and whether a myomectomy of the offending fibroid can be performed safely at some stage of pregnancy. In the light of numerous questions commonly associated with uterine myoma with pregnancy this study aimed to find out the frequency of myoma with pregnancy, the behaviour of leiomyoma during pregnancy, the obstetric outcome and the complications that occur in the course of pregnancy, labour, delivery and immediate postpartum period in such cases during one year period.

Very often fibroids are first diagnosed during pregnancy. The problems they cause depend on their size, location and number. The fibroids may or may not increase during pregnancy. Small fibroids (5 to 10 cm) seem to increase in size during first and second trimester and decrease during the third trimester.^{1,3,9} Large fibroids (10 to 20 cm) tend to increase only during the first trimester. Nevertheless, myomas tend to become soft as a result of interstitial edema, they flatten out and become

indistinct. Subserosal tumors, on the other hand, may be readily palpated as the uterus enlarges and on occasion may be mistaken for fetal part.

All through the history of medical science the leiomyoma with a pregnancy has been seen as a high risk factor leading to numerous complications and deaths in several of the cases.

Fortunately most women with fibroid have uneventful pregnancy and are able to deliver healthy babies but the overall risk of complications is 71%.^{5,9,10,14} Myomas with a volume greater than 200cm³ show a higher rate of complications than those with volume less than 100 cm³.

Coupled with the extra burden placed on the body by pregnancy, growth of a fibroid can distress a woman immensely. Women have been reported to suffer from aching pain in lower abdomen, lethargy, dragging sensation, aggravation of urinary symptoms already caused by pregnancy like dysuria or frequency, constipation, rectal pain or difficult bowel movements, pain in hypochondria which is excruciating in case of torsion, breathing difficulty especially in case of large myomas and heavy vaginal bleeding.¹² The numerous complications that can arise in a pregnancy having fibroids are abortions,^{7,13,16,17} incarceration, torsion, red degeneration of fibroid, placental abruption, placenta praevia, malpositions,¹⁸

malpresentations, torsion of uterus and non engagement of presenting part. Rarely spontaneous haemoperitoneum¹⁹ thrombophlebitis, disseminated intravascular coagulation²⁰, afibrinogenemia,⁸ cervical pregnancy,²¹ Uterine inversion,²² acute urinary retention,²³ acute renal failure,^{24,26} and L-5 radiculopathy²⁵ have been reported in literature.

Fetal anomalies such as limb reduction anomalies,²⁸ fetal compression syndrome²⁷ and congenital torticollis and head deformation²⁹ have been reported to be caused by myomas during pregnancy.^{5,20}

A myoma can influence the labour in a number of ways like preterm labour and premature rupture of membranes,³⁰ uterine inertia, obstructed labour, adherent placenta, retained placenta, postpartum haemorrhage, inversion of uterus, puerperial sepsis and postpartum expulsion of foul smelling necrotic fibroids.³¹⁻³³

Uterine fibroids are often found in women of reproductive age, Different types of fibroids may affect reproductive outcome to a different extent, with sub-mucous, intra mural and subserosal fibroids (in decreasing order of importance) a cause of infertility and pregnancy wastage.⁴

At present, no diagnostic tool can predict the growth of myomas during pregnancy.⁹ But there seems to be a general consensus on the conservative approach towards an uncomplicated pregnancy in the form of reassurance and regular antenatal visits. Major complications of pregnancy appear to be related to whether the placenta and the myoma are in contact or not. The location and number of myomas, especially in the lower uterine segment, increases the likelihood of malpresentations and Caesarean birth. Frequent ultrasound evaluation to monitor fetal growth and presentation and size of myomas should be undertaken in a woman having a pregnancy with leiomyomas

Patients and Methods

This descriptive observational study was conducted in the Department of Obstetrics and Gynaecology, PGMI, Hayatabad Medical Complex, Peshawar from 1st July 2001 to 30th June 2002. All the patients presenting to the antenatal or the emergency having a pregnancy associated with fibroids were included in this study irrespective of site, size or number of myomas. Detection of leiomyoma during caesarean section also made the patient eligible for the study. The total number of patients in the study were 76.

Pregnant patients having fibroids who were booked with the aforementioned unit but did not deliver in the unit were not included in the study. Similarly patients presenting postnatally with the evidence of fibroids were also not included in this study.

Women diagnosed with leiomyoma during pregnancy were evaluated clinically and the findings were confirmed by ultrasound. The size of leiomyoma, the type of leiomyoma, their effect on pregnancy outcome

complications were noted. Patients' obstetric and fertility history was recorded on a questionnaire. The concerned doctors managing the pregnancy, labour and delivery were required to fill a performa regarding the outcome and complications the delivery of such patients.

After data collection, the data was analyzed using various statistical tests like percentage, mean, relative risk (R.R), odds ratio (O.R), mean, standard deviation (S.D) and confidence interval (C.I), using soft ware SPSS version 8.0 and Epi- Info 6. Results were then compiled after keeping various parameters in observation to draw the conclusion regarding the objectives of the study.

Results

Gynaecology and Obstetrics unit of Hayatabad Medical Complex receives on average 10,000 inpatients per year. Out of these 2,500 are gynaecological patients while the rest are obstetrical patients and the newborns. Total numbers of deliveries occurring in a year are 3600 on average. The time period of this study was from 1st July 2001 to 30th June 2002. During this time period a total number of 9564 patients were admitted in our unit. Of these 2204 patients had gynaecological problems while 3962 were obstetric patients.

The total numbers of deliveries occurring during this time period were 3298. Among these total number of vaginal deliveries were 2732 (82.83%). Total number of caesarean sections were 566 (17.17%).

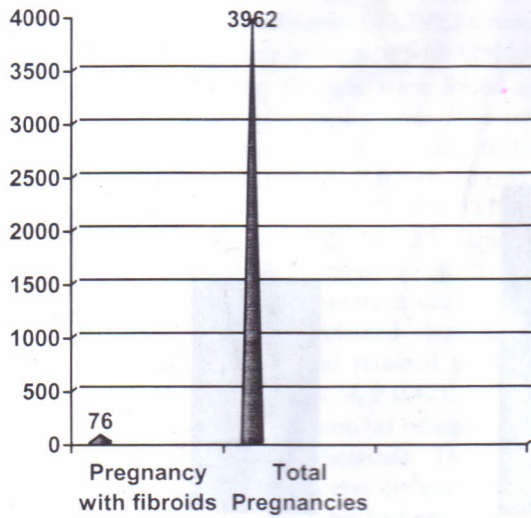
Total number of abortions for which evacuation and curettage was done were 413 (these included missed, inevitable, incomplete and complete abortions). While the total number of threatened abortions that proceeded to viable pregnancies were 69.

Of these patients a total of 76 patients were found to be having a pregnancy associated with fibroids (1.9%) (Graph 1). Majority of these patients had an ultrasonographic confirmation of a leiomyoma with an alive fetus during antenatal period. On clinical examination large fibroids i.e. more than 5 cm diameter were diagnosed readily while the small fibroids (less than 5 cm in diameter) could not be differentiated with certainty from the fetal parts. These were the cases where the ultrasound was the diagnostic tool. However few of the patients were diagnosed as having fibroids during caesarean section. These patients had either small or posterior fibroids.

Most of the patients belonged to the age group of 25 to 35 years (n = 61, 80%). 32 patients were between 26 to 30 years of age (42%). 23 patients were between 31 to 35 years of age (30%) while 6 were above 35 years (7.9%). 11 patients belonged to the age group of 21 to 25 years (14.5%) while only 4 were below 20 years of age (5.3%) (Graph 2).

The significant finding was the association of primary or secondary infertility with fibroids. Of the total number of 76 patients 28 (37%) were found out to be having

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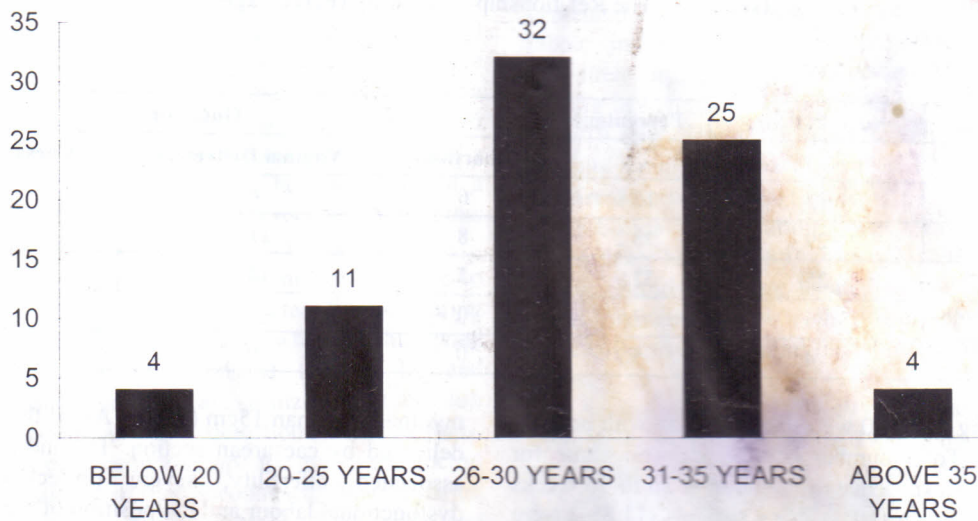
Graph 1: Frequency of Pregnancies with Fibroids

Table 1: *The Relationship with Parity*

	Number of patients	Percentage
Primigravidae	35	46
Multigravidae	24	31.6
Grand multigravidae	17	22.4
Total	76	100

Table 2: *The Relationship with Infertility*

	Number of patients	Percentage
No Infertility	48	63
Primary Infertility	16	21
Secondary Infertility	12	16
Total	76	100



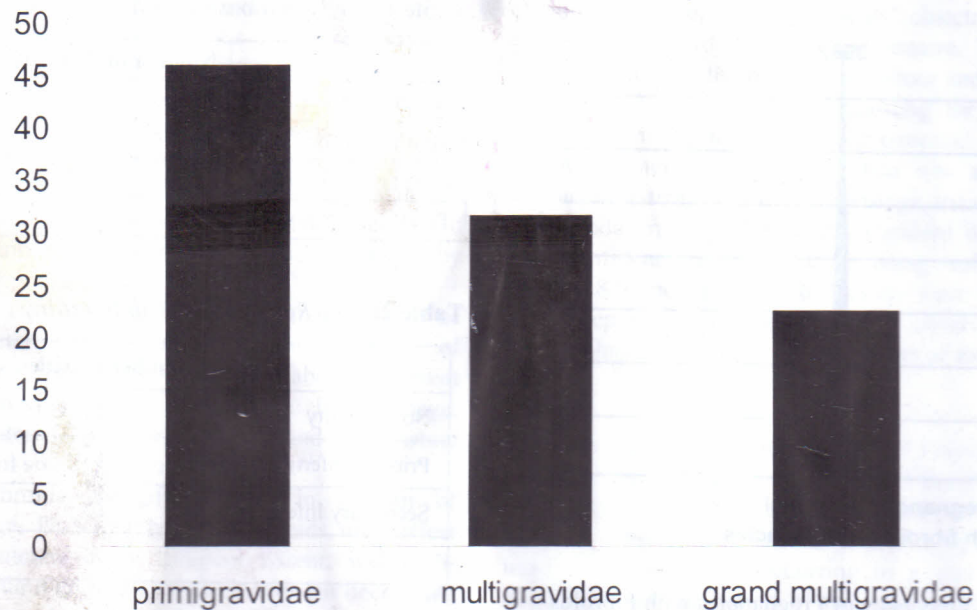
Graph 2: The Age Factor

infertility. 16 (57%) with primary and 12 (43%) patients were with secondary infertility (Table 2). 9 patients had 1 or more previous abortion but the cause of only 4 was confirmed to be fibroids. Out of 28 patients with fertility, the documents of 17 patients (60%) showed the evidence of having fibroids in the past while the rest either did not have any fibroid or did not have any investigation to show otherwise. The infertility ranged between 2 to 16 years. 6 women had primary infertility ranging between 11 to 16 years. All these patients underwent elective lower segment caesarean section. 3 patients who had secondary infertility ranging in between 12 to 16 years were also delivered

electively by cesarean section. All the rest were given a trial of labor.

Majority of the patients with fibroids were found out to be primigravidae i.e. 35 (46%). 24 patients (31.6%) were multigravidae but among them 9 had no previous term deliveries. 17 patients (22.4%) were grand multigravidae.

Majority of the patients presented either as emergency or in the last trimester of pregnancy. Only 21 patients were booked early. 4 patients were booked between 25 to 30 weeks of gestation (5.2%). 16 cases of abortion presented before 25 weeks of pregnancy (21%). Only 3 patients



Graph 3: The Relationship with Parity (Percentage)

Table 3: Size of Myomas

Size of Myoma	No of Patients	Percentage	Outcome		
			Abortions	Vaginal Deliveries	Caesarean Section
≤ 2 cm	12	15.8	6	6	0
3 - 5 cm	29	38.2	8	11	10
6 - 10 cm	25	32.9	2	12	11
11 - 15 cm	6	7.9	0	2	4
> 15 cm	4	5.2	0	0	4

presented during 26 to 30 weeks of gestation with preterm labour (3.9%). Total number of patients who came for checkup and were subsequently booked at 26 to 30 weeks of gestation was eight (10%). Nine patients (11.8%) were booked between 31 to 35 weeks of gestation while 4 came as emergency during this gestational age (5.2%). The rest of the 32 patients were admitted between 36 to 40 weeks of gestation as emergency (42%).

In 12 patients myoma was 2 cm or less (15.8%). It includes 6 cases of abortion. 29 patients had myoma between 3 - 5 cm. 10 of these cases proceeded to have caesarean section, 8 patients had abortions while the rest delivered by spontaneous vaginal delivery (Table 3). 25 patients had myoma between 6-10 cm (32.9%). 2 patients had spontaneous loss of pregnancy, 11 had caesarean section and the same number of patients delivered vaginally. 6 patients had myoma between 11 - 15 cm (7.9%). Of these only 2 patients delivered vaginally while 4 proceeded to have caesarean sections. 4 patients had

myoma more than 15cm (5.2%). All of these patients were delivered by caesarean section. The indications were the associated infertility, severe pre-eclamptic toxemia, dysfunctional labour and malposition of the fetus.

43 cases with single fibroids were detected (56.6%). 7 cases were found to be having two fibroids (10.6%). 16 cases were diagnosed as having multiple fibroids (21%).

As far as the site is concerned, there was a general preponderance for the myomas to be located in the fundus. As many as 20 patients had myomas located in fundus. 12 myomas were in the upper segment while 14 were in the lower segment. 7 myomas were in lateral walls, 4 were in the anterior wall and 3 were in the posterior wall. 16 cases had fibroids at multiple sites with no specific predilection for any site.

In 16 out of 76 patients there was spontaneous loss of pregnancy (21%). Among these only 6 had myoma size of less than 2cm. All the rest of the patients had myomas between 2-10 cm.

16 pregnancies ended up as spontaneous abortions (21.05%). 29 caesarean sections were performed (38.15%) while there were 31 vaginal deliveries (40.78%) among the 76 patients who had pregnancy associated with fibroids.

The pregnancies having fibroids were found to be associated with a number of complications. The overall rate of complications was 73.3%. These included; abortions (21%, O.R 1.16, R.R 1.13, P 0.597), antepartum haemorrhage (3.9%, O.R 1.76, R.R 1.73, P 0.337), acute abdomen (1.3%, O.R 3.22, R.R 3.2, P 0.232), laparotomy (1.3%, O.R 1, R.R 0.11, 0.0049), preterm delivery (3.9%, O.R 0.54, R.R 0.56, P 0.288), caesarean sections (38%, O.R 4.71, R.R 2.91, P 0.0000), retained placenta (1.3%, O.R 2.06, R.R 2.04, P 0.47) and retained products of conception (2.6%, O.R 1.77, R.R 1.74, P 0.42).

Fetal complications were not as frequently encountered as the maternal complications. Three fetuses were born preterm and had to receive neonatal intensive therapy due to prematurity. One fetus had congenital head compression syndrome and lower limbs deformity due to compression between two large fibroids.

Discussion

Many fibroids go unnoticed all through the pregnancy and majority of them cannot be detected even during the delivery. These are those fibroids that do not pose any problem to the mother or the fetus. We received 76 patients in our unit during the study time period who had a pregnancy associated with fibroids. These were out of a total number of 3962 obstetric patients received during this time period. (n = 76, frequency = 1.91%) (Graph 1).

Different studies done on the aforementioned topic so far have used different parameters to detect fibroids during antenatal period. In affluent countries where sophisticated tests eg ultrasonography, computed tomography and magnetic resonance imaging are utilized to their full capacity, there is almost 100% detection rate of fibroids. Even the smaller ones cannot escape the eye of the doctor. Generally the studies of these countries show a larger percentage of women having fibroids both with and without pregnancy, a lower complication rate, a better maternal health and an excellent fetal outcome. In contrast the studies of poorer countries where the facilities of detection are less and where much emphasis is laid on the clinical diagnosis, many of the fibroids are bound to go unnoticed.

In my study 12 patients were referred to our tertiary care hospital from different local clinics solely on the basis of a fibroid associated with pregnancy so the rate and the risk of complication are exaggerated.

Myomas were found to be more common in the age group of 26 to 35 years. Mean maternal age in this study was 29.2% (29.2, S.D = 1.2) (Graph 2).

There were 35 primigravidae (46%), 24 multigravidae (31%) and 17 grandmulti gravidae (22%) who presented

with a pregnancy associated with fibroids in my study (Table 1), (Graph 3).

The significant finding was the association of primary or secondary infertility with fibroids (Table 2). Of the total number of 76 patients 28 (37%) were found out to be having infertility. 16 (57%, n = 28) with primary and 12 (43%, n = 28) patients were with secondary infertility. 9 patients had 1 or more previous abortion but the cause of only 4 was confirmed to be fibroids. Out of 28 patients with fertility the documents of 17 (60% n = 28) patients was showed to be having fibroids in the past while the rest either did not have any fibroid or did not have any investigation to show otherwise. The infertility ranged between 2 to 16 years. 6 women had primary infertility ranging between 11 to 16 years. All these patients underwent elective lower segment cesarean section while 3 patients who had secondary infertility ranging in between 12 to 16 years were also delivered electively by cesarean section. All the rest were given a trial of labor.

The size of leiomyoma increased in 12 (15.7%) patients, while 33(43.5%) remained static. One myoma (1.3%) degenerated and caused excessive pain, while in 30 patients (39.5%) follow up scan was not done because they presented as emergency case of abortion, in preterm labour, in labour or as a term pregnancy in which case it was their first antenatal check up. The only significant finding in my study was the relationship of fibroids more than 10 cms diameter with caesarean section. Out of ten patients having myoma more than 10 cms, 8 underwent caesarean section (80%) (Table 3).

Fibroids distribution was fairly even. 16 pregnancies had single fibroids while 16 had multiple. Single fibroids 20 were located in the fundus, 12 in upper segment and 14 in the lower segment. 14 fibroids were collectively found in the lateral posterior and anterior walls.

At the time of delivery 12 patients (15.8%) had myoma size less than 2cm. In 29 patients (38.1%) the size of myoma was more than 2 cm but less than 5cm. In 25 (32.9%) cases the size was between 5 - 10 cm. In 6 cases (7.9%) it was between 11 - 15 cm and in 4 patients (5.3%) it was above 15 cm.

Rate of spontaneous pregnancy loss in our study was 21%. This rate is not much more than what is seen in general population with normal pregnancies (16) and statistical analysis shows it not to be significant (O.R 1.16, R.R 1.13, P 0.597).

The numbers of caesarean sections in my study were 29 (38%) (Table 4). This figure is statistically significant (O.R 4.71, R.R 2.91, P 0.00000). All the emergency caesarean sections were done for the indication of dysfunctional labour. While all the fibroids associated with either fetal malpresentation or long standing infertility were dealt by doing elective lower segment caesarean section. Only one patient having two gigantic fibroids of 17 and 15 cms diameter was delivered by elective classical

caesarean section at 34 weeks of gestation. The baby of the same patient had fetal head compression syndrome because of lying sandwiched between the two large fibroids.

Table 4: Outcome of Pregnancies with Fibroids

	Total Number	Percentage
Abortions	16	21.05
Caesarean sections	29	38.15
Vaginal deliveries	31	40.8
Total Number	76	100

The frequency of complicated pregnancies in our study is 73.3%. Individually all the complications were not found to be occurring in any way to impact significantly except a laparotomy done due to misdiagnosis of fibroid as a case of ovarian carcinoma. The different complications were abortions (O.R 1.16, R.R 1.13, P 0.597), antepartum haemorrhage (O.R 1.76, R.R 1.73, P 0.337), acute abdomen (O.R 3.22, R.R 3.2, P 0.232), laparotomy (O.R .1, R.R 0.11, 0.0049), preterm delivery (O.R 0.54, R.R 0.56, P 0.288), retained placenta (O.R 2.06, R.R 2.04, P 0.47) and retained products of conception (O.R 1.77, R.R 1.74, P 0.42) (Table 5).

Table 5: Maternal Complications

	Number	Percentage
Abortions	16	21
Acute abdomen	1	1.3
Antepartum Haemorrhage	3	3.9
Laparctomy	1	1.3
Preterm deliveries	3	3.9
Caesarean sections	29	38
Retained placenta	1	1.3
Retained POC's	2	2.6
Complications	56	73.3

Conclusion

The number of women having a pregnancy associated with uterine leiomyomas will continue to rise because of increasing awareness for antenatal check up, routine use and widespread facilities of obstetric ultrasound, better detection techniques in the form of computer tomography scan and magnetic resonance imaging, assisted conception and ever developing of new methods to treat infertility. Due to referrals from various small clinics to a tertiary care hospital, the number of patients presenting with a pregnancy associated with a fibroids was significant in our study. But more importantly the significantly higher rate of complication was unprecedented. To further evaluate the

impact of leiomyoma on pregnancy a multi-center case control trial is essentially required.

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