ORIGINAL ARTICLE

FERTILITY OUTCOME AFTER ABDOMINAL MYOMECTOMY

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ABSTRACT

Background and Objectives: Uterine lieomyomata are one of the causes of female infertility. Surgical excision of these tumour may improve the fertility outcome in these females. The present study was conducted to evaluate the role of myomectomy on fertility after abdominal surgery and to see the influence of the number, size, and location of uterine Leiomyomas pertaining to fertility outcome after the surgery.

Methods: It was a descriptive cross sectional study, carried out in the department of obstetrics and gynecology Lady Willingdon Hospital from January 2008 – December 2011. A total of 30 patients of abdominal myomectomy were included. The women were 25 – 40 years of age with submucousal and intramural fibroids of varying size ranging from 4 cm to 20 cm. Myomectomy was performed in all patients by enucleating all fibroids.

Results: Uterine cavity was opened in 11 patients (36.6%). Out of thirty patients, 19 patients (63%) conceived spontaneously within 12 – 24 months. There were no spontaneous abortions. Eleven patients failed to conceive yet, two of which found to have bilateral tubal occlusion. Remaining nine patients require further follow-up. Out of 19 pregnancies, 3 were pre-term deliveries (15.8%). One patient delivered vaginally (5.3%).18 patients were delivered by caesarean section (94.7%).Three patients had malpresentations (15.8%) and two had post-partum hemorrhage (10.5%). Operative blood loss ranged from 1600 ml – 2500 ml. hospital stay was between 5 – 7 days.

Conclusion: The reproductive outcome was improved after abdominal myomectomy.

Key words: Fertility, fibroid uterus, myomectomy, pregnancies, nulliparous.

INTRODUCTION

Leiomyomas are of the common presenting complaints in females with pelvic mass and occur in about 15 – 30% females in their reproductive age.[1-3] Reproductive disorders like infertility is sometimes a consequence of the presence of uterine leiomyomas that have been reported in 27% women.[4-7]

It has been seen that 50% of the females with infertility become pregnant after surgery. The 75% of these pregnancies take place in the first year after myomectomy.[1,4,8,9]

Infertility may secondarily result from submucous Lieomyomas due to marked distortion of uterine cavity. The important pathogenesis of these reproductive outcomes is because these large masses interferes the normal implantation and displacement of cervix.[2,4,10,11]

Uterine Leiomyomas have also been associated in recurrent abortions due to their nature and location in the uterine cavity.[4,11]

By surgical procedure, the fibroids are removed without affecting the uterus in women of childbearing age that is a safe procedure by experienced surgeons.[1,4,12]

The myomectomies in these patients with unexplained infertility, have resulted in the improvement in their reproductive outcome after surgery.[4,7,10]

This study was designed to evaluate the role of myomectomy on fertility after abdominal surgery and to see the influence of the number, size, and location of uterine Leiomyomas pertaining to fertility outcome.

PATIENTS AND METHODS

This was a cross sectional study conducted on 30 patients in Lady Willingdon Hospital, Lahore in 4 years duration from January 2008 to December 2011, who underwent abdominal myomectomy for infertility and recurrent pregnancy loss. Patients consent was taken and data was entered in study proforma.

In these patients, complete investigations were performed to exclude other causes of infertility like tubal, ovarian and male factor infertility. All patients had husband semen analysis reports, mid luteal phase

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serum progesterone, hormonal profile and reports of hysterosalpingography.

Myomectomy was performed and the uterine defect was repaired with follow up at 3, 6 and 12 months interval for first year and then yearly onward.

The most common reason of surgery was infertility (nulliparous) while miscarriage was the second most frequent complaint at presentation.

The date was analyzed regarding maternal age, parity, period of infertility, type and size of fibroid. Student's *t*-tests was used to detect significant differences between the mean values of two or more independent, continuous variables, respectively. Chi-square analyses were used to compare categorical variables. To identify the significance of potential relationships between variables, simple regression and logistic regression analyses were performed. The *p*-values < 0.05, in two – tailed testing, were considered statistically significant.

Table 1*: Characteristics of 30 women who underwent Myomectomy and wished to Conceive.*

Age Group (n = 30) Mean Age: 27 ± 5.57	*No. of Patients*	*Nulliparous*	*Miscarriage*	*Menorrhagia*
< 25 years	2 (7%)	0	0	2
25 – 35 years	21 (70%)	21 (70%)	2	0
>35 years	7 (23%)	1 (3%)	4	0
Total	30	22 (73%)	6 (20%)	2 (7%)

Table 2: *Frequency of Pregnancies after myomectomy by age.*

Age Group (n = 30) Mean Age: 27 ± 5.57	*No of Pregnancy after Surgery*	*Percentage*	*No Pregnancy after Surgery*	*Percentage*
25 – 35 years	19	63%	0	0
> 35 years	0	0	11	37
Total	19	63%	11	37

Table 3: *Patients with different clinical outcome after myomectomy and developing conception.*

Fertility Outcome (n = 30)	*No. of Patients*	*Percentage*
Preterm deliveries	3/30	15.8
Spontaneous abortions	0	0
Malpresentations	3/30	15.8
PPH	2/30	10.5
SVD	1/30	5.0
LSCS	18/30	95

Key: LSCS: lower segment Caesarean section
SVD: Spontaneous vaginal delivery
PPH: postpartum hemorrhage

RESULTS

The range of patients age was 25 – 40 years with mean age 27 ± 5.57. (Table 1). The 22/30 (73%) of the patients were nulliparous out of whom 21 (70%) were between 25 – 35 years age. The patients had different periods of infertility ranging from 2 years to 5 years (Table 1).

Among all the patients, 23.3% had submucous and 76.6% intramural Leiomyomas of varying sizes ranging from 4cm to 20cm with different numbers, single to multiple (Table 4).

All patients had routine investigations including pelvic ultrasound and hysterosalpingogram pre-operatively and three months after surgery. Operative blood loss ranged from 1600 ml to 2500 ml. Eight patients were transfused blood. Uterine cavity was opened in eleven patients (36.6%). There was no injury to adjacent viscera. Hospital stay was between 7 – 10 days.

Out of 30 patients, 19 patients (63.3%) conceived spontaneously within 12 – 24 months. The number of miscarriages and menorrhagia decreased and morbidity of pregnancy decreased after abdominal myomectomy (Table 1, 3).

Pregnancies occurred more often after myomectomy in younger women. We observed that age was inversely associated with pregnancy all pregnancy taking place between 25 – 35 years age group (Table 2).

There were no spontaneous abortions. Eleven patients (36.6%) failed to conceive yet. Two of which found to have bilateral tubal occlusion. Nine patients (63.3%) require further follow up. Out of 19 pregnancies, 3 (15.8%) were preterm deliveries while remaining were with normal terms. One patient (5.3%) delivered vaginally, 18/19 patients (94.7%) were delivered by caesarean section, while 2/19 had post-partum hemorrhage (10.5%) (Table 2 – 4).

Patients, who are less than 35 years have better fertility outcome with significant p value of < 0.0005

as compared to older one. Patients with prior history of unexplained infertility have better fertility outcome after myomectomy with significant p value of 0.03. The average duration of infertility before surgery was 2 – 5 years. The fibroid nature i.e. size, number, or location of fibroids did not affect the pregnancy rate following myomectomy with insignificant p values (Table 5).

Table 4: *Characteristics of Fibroids in 30 females who underwent abdominal myomectomy.*

Number of Fibroids	*Numbers of Patients (n = 30)*	*Percentage*	*Pregnancy Rate after Myomectomy (%)*
1-4	6	20	6/19
4-5	7	23	7/19
< 5	17	57	6/19
Size of the Fibroid (4-20 cm) Average 12 cm			
<5 cm	13	43	12/19 (63%)
>5 cm	17	57	7/19 (37%)
Location of largest fibroid with respect to Uterine wall			
Submucosal fibroids	7	23	10 (53%)
Intramural fibroids	23	77	9 (47%)

Table 5: *Association of age, infertility and the characteristics of myomas on Fertility outcome following abdominal myomectomy.*

		Live Birth	*No Pregnancy*	*p-value*
Age (yrs.)	< 35	19	4	< 0.0005
	> 35	0	7	
Infertility before surgery				
1 years		7	0	<0.05 when compared with females who became pregnant when period of infertility was 1 year and 1-2 years
1-2 years		5	1	
2-3 years		4	2	
3-5 years		3	7	
Size of fibroids				
	5 cm	10	4	Not significant difference
	> 5 cm	9	6	
Number of fibroids				
	1 – 3	11	5	Not significant difference
	> 3	8	5	
Site of fibroids				
	Submucosal	4/7	3/7	Not significant difference
	Intramural	15/23	8/23	Not significant difference

DISCUSSION

The nature and location of fibroids plays an important role in fertility status of the patient. Submucous myomas are clearly implicated in infertility and recurrent pregnancy loss. The results compare favorably with reports in the literature which suggest that the surgical removal of myomas has beneficial effect on enhancing fertility and improving pregnancy outcome. The 63% successful live birth rate following myomectomy strongly indicates that such treatment may be standard of care in such women.[1,4,13] The findings of our study are not consistent regarding the nature of leiomyoma because the size, number, or location of fibroids did not affect the pregnancy rate following myomectomy with insignificant p values.

A study by Donna Sinclair indicates the successful live birth rate of 75% after myomectomy, while another

study in Pakistan by Razia Iftikhar, reported 70% live birth rate after this procedure.[1,4]

Our study supports these findings. Pregnancies were achieved after a relatively short period of time (2 – 5 years) and 63% of the patients conceived spontaneously. In this study, it was seen that the main factors determining fertility after myomectomy were patient characteristics. Women age and duration of infertility before the abdominal myomectomy were the most important factors in our study. All pregnancies were achieved in females < 35 years of age.

Out of 30 patients, 19 patients (63.3%) conceived spontaneously. The 7 patients (23.3%) failed to conceive yet; of these 2/7 (28.6%) had laparoscopically demonstrable post-operative pelvic adhesions. These complications may potentially be avoided by gentle tissue handling, washing with normal saline and good hemostasis. The use of anti-inflammatory agents and hydrocortisone intraperitoneally may help to reduce adhesive formation.[1,4]

There were no spontaneous abortions after myomectomy in our study. The incidence of preterm delivery was 15.8%. The incidence of mal-presentations and postpartum hemorrhage were 15.8% and 10.5% respectively. A study by Donna Sinclair reported almost similar incidences.[4]

Regarding the mode of delivery post-myomectomy, it has traditionally been recommended to do cesarean section due to the risk for uterine rupture during labor, following entry of the endometrial cavity. It has been mentioned in the literature that extensive dissection of the myometrium during myomectomy is the factor that indicates the need for caesarean section and not endometrial cavity entry.[4,14,15]

In our study, myomectomy was performed exclusively by abdominal approach, a well – established method. Some of the main concerns after abdominal myomectomy are obstetric complications, including uterine rupture during pregnancy and the need for elective cesarean delivery.

In our study, 18 patients were delivered by caesarean section and one patient delivered vaginally. Our study analyzed the fertility outcome in a large number of patients (19/30) and in literature so far the data for a large number of patients has not been observed.

The issue of uterine rupture has long been an area of concern in patients who achieve a pregnancy following myomectomy. There were no cases of uterine rupture in our study. Application of multiple rows of interrupted sutures obliterate the myoma bed, approximate the myometrium, ensure satisfactory hemostasis and reduces the long term risk of uterine rupture in pregnancy.[4,16]

It is ***concluded*** that abdominal myomectomy may be the standard of care for patients with myoma who have otherwise unexplained infertility and recurrent pregnancy loss.Abdominal myomectomy might be useful to increase pregnancy rates and to decrease pregnancy losses in women with uterine fibroids who want to have children. The study also indicates that younger women and women with unexplained infertility may benefit most from this form of surgery.

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Conflict of Interest

All the authors report no conflict of interest.

AUTHORS CONTRIBUTION

TM conceived, designed and did statistical analysis & editing of manuscript. FW, ZM, HM and KS did data collection and manuscript writing. MHB, FZ and SFI did review and final approval of manuscript and TM takes the responsibility and is accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. SFI and MFZ helped in finalization the manuscript.

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