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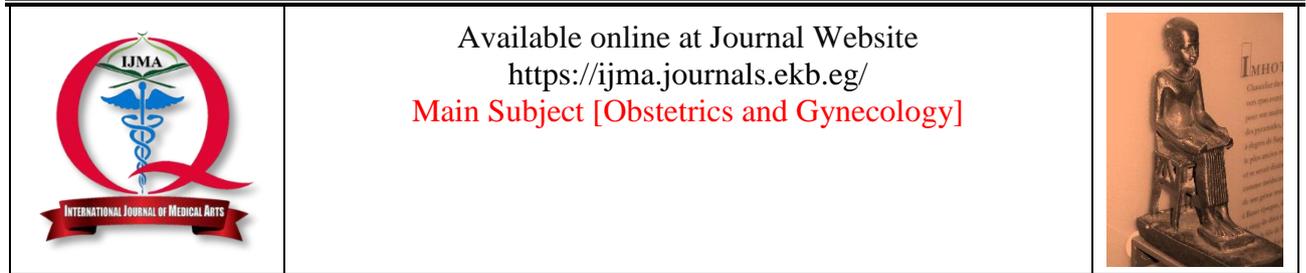
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Original Article

Myomectomy during Caesarean Section: Is it Effective and Safe Procedure?

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ABSTRACT

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Background: The existence of known or incidental leiomyomas throughout pregnancy and the management of individuals with myomas in conjunction with pregnancy are two of the most contentious subjects in obstetrics and gynecology. Many obstetricians face a formidable task owing to the wide range of knowledge, skills, facilities, and resources available in different geographic locations.

The Aim of The Work: The current study designed to examine the efficacy and safety of myomectomy during cesarean section.

Patients and Methods: 71 individuals with single or multiple myomas were scheduled for elective or selective caesarean section were included in this prospective observational study. Main outcome measures were blood transfusion, postoperative ecbolic usage, time required for surgery, problems during surgery, re-laparotomy to control bleeding or to perform hysterectomies, postoperative complications, and length of stay following surgery.

Results: The average blood loss during surgery was 518.3+80.9 mm³ [not including bleeding from the CS incision], and there was no significant bleeding after surgery. The preoperative mean hemoglobin level was 10.35+0.7, while the postoperative value was 10.08 + 0.9 g/dl. There were no postoperative complications for 84.4%, and 82.2% of myomas were in the uterine body; the most prevalent type was intramural [75.6%]. 66.0% of women had a myoma that was no larger than 5 centimeters. A caesarean myomectomy was accomplished in 80% of instances in less than an hour. After the birth of the infant, in 93.3 percent, a myomectomy was performed. Myomectomy was performed successfully in all 71 of the patients.

Conclusion: This can be a safe and successful cesarean delivery myomectomy when performed by expert hands and in a well-equipped environment.

Keywords: Fibroid; Caesarean Section; Caesarean Myomectomy.



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INTRODUCTION

A uterine leiomyoma, often known as a fibroids, is a noncancerous growth of the smooth muscle that may be anywhere from a few millimeters to several centimeters in diameter. Myomas make up the majority of uterine tumors in women who are or will be pregnant. Among African American women, over 80% had detectable leiomyomas, whereas over 70% of Caucasian women did ^[1].

It has been revealed that African Americans had more severe phenotypic patterns for leiomyoma than well-known risk factors, such as greater aromatase activity and signal transducing genes ^[2].

Leiomyomas are most often treated surgically owing to a lack of effective medical treatment and a lack of knowledge about molecular physiology and pathophysiology in general ^[3].

The majorities of the time, leiomyomas don't cause any symptoms and don't need to be treated. Menopause is a role in the treatment of symptomatic people. In leiomyomas that are causing symptoms, surgery is still the best option ^[4].

Hysterectomy improves the quality of life for leiomyoma patients who do not have a reproductive issue. Pregnant women have a 2% chance of developing the condition. Leiomyoma-related problems affect between 10 and 30 percent of all pregnancies. Uterine myomas may develop in 1.6 percent to 12.6 percent of pregnancies, with an increased risk in the elderly and those who have had in-vitro fertilization [IVF] ^[3].

Since ovarian steroid hormones such as estrogen and progesterone stimulate development in pregnant women over 35, these pregnancies are more prevalent than those that occur before puberty. The human uterus may grow by 1000 times and 20 times in its basal volume & weight ^[6].

Myomas, on the other hand, can only expand by one-fourth of their normal size while pregnant. A cesarean section myomectomy causes less tissue damage than does a myoma-removal procedure in which tissue is cut out of the normal-sized, large uterus. Grey scale ultrasound, followed by magnetic resonance imaging [MRI] in difficult or inconclusive cases, is the gold standard for identifying their size, number, location, and relationship with the placental implantation and vascularization zone of pregnant women ^[1].

Only a small percentage of myomas continue to develop following puerperal regression, with the majority shrinking by up to 10% during the third trimester ^[7].

More than 10% of women have premature labor, placental abruption, placenta previa, fetal malpresentation and postpartum hemorrhage. Because of the danger of bleeding and uterine atony, several authors do not recommend myomectomy during cesarean delivery. However, recent studies have shown that myomectomy

during cesarean delivery has its benefits ^[2-4].

THE AIM OF THE WORK

The current study aimed to examine the efficacy and safety of myomectomy during cesarean section.

PATIENTS AND METHODS

From August 2019 to August 2021, researchers at Al-Azhar University's Sayed Galal University Hospital conducted this prospective observational study.

Study participants have to meet one or more of the following criteria: pregnant women with a uterine myoma had to have caesarean sections for a variety of reasons, women who are diagnosed with myoma while pregnant and need C/S for different reasons at an antenatal checkup.

This group includes women who had undergone a cesarean section and were later found to have a myoma. The same senior gynecologist performed all of the procedures.

During the caesarean section, patients were advised of the risks and advantages of myomectomy.

In situations where a diagnosis was made, informed permission was obtained before to the procedure and during the operation in cases where it was not.

During the procedure, a pool of blood donors was maintained on hand. Conventional myomectomy was performed as in a non-pregnant uterus.

Only those women who granted informed consent for myomectomy and caesarean section were included in the research.

After spinal anesthesia, Pfannenstiel incision was created. Through a lower uterine segment caesarean section, the baby was delivered followed by the placenta and the membranes.

Fibroids located in the upper section of the uterus were closed first, followed by submucosal or lower segment fibroids.

The feeding veins were clamped and ligated during a routine myomectomy.

Vicryl-1 and vicryl-2 zero were used to suture the serosa across the fibroid bed to erase the dead space. Extra precautions were taken when they were deemed required.

In no way, shape, or form was a tourniquet ever put on. Uterine incisions were kept to the earliest possible location.

Patients' demographics, including their age, gender, number of fibroids, size and location, time taken for

surgery, total hemorrhage, and length of postoperative hospital stay, were analyzed in the study.

If a woman under the age of 40 had single or multiple pedunculated subserous fibroids of any size, as well as single or multiple small to moderate [10 cm] non pedunculated subserous fibroids, she was eligible for the study.

Single small or moderate [10 cm] submucous fibroids of more than 50% inside the cavity were not eligible.

Patients who did not match the requirements were not permitted to participate in the study. This study did not remove leiomyomas from the cornual area.

The Al-Azhar Faculty of Medicine [Egypt] accepted the trial's protocol.

A high resolution 3-dimensional ultrasound scan was used to properly map out the location, size, and extent of fibroids prior to surgery in patients who were ready for the procedure.

For caesarean myomectomy, serosal myomectomy and endometrial myomectomy [in which the myoma is removed by subendometrial- intramyometrial incisions on the uterus's surface] have been used, respectively.

The sole variation between the two methods is the route via which the intracapsular myoma is removed.

Procedures that employ the concepts of hysteroscopic myomectomy and the uterine involution mechanism to reduce blood loss and suturing are known as endometrial myomas.

Scalpel or low wattage monopolar electro-scalpel were used to make a linear incision over the uterine serosa to access myomas.

Myoma's edges were loosened and its capsule was caught once it reached the surface.

After myoma enucleation, a low-wattage coagulation of the pseudo-capsule vasculature was used to ensure hemostasis, which was then followed by an intravenous oxytocin infusion of 10 IU and a normal saline infusion of 12-24 hours.

Myomectomy and caesarean section were the most difficult procedures to do, as well as the most time-consuming, necessitating blood transfusions, postoperative problems, and the length of hospitalization.

When a cesarean section is followed by a myomectomy, blood loss is measured by weighing the swabs used and measuring the volume of aspirated blood.

RESULTS

Seventy five caesarean myomectomy procedures were carried out throughout the course of the investigation. Table-1 displays the distribution of mothers according to age, parity and gestational age at caesarean section.

Forty eight [64 percent] ladies were of 26 -35 years of age. Fifty women [66.6 percent] women were primiparous.

The majority of cesarean sections [82.6 percent] were performed before or during labor in 62 of the cases studied.

Table 2 shows the distribution of moms based on their myoma's features. Fifty-six percent of the time, myomas were discovered before pregnancy; twenty-three percent of the time, they were discovered during pregnancy; and eight percent of the time, they were discovered accidentally during a caesarean section. Of the women, 33 [44%] had a single myoma, whereas 42 [56%] had many.

Cervical myoma was found in 1.3% of the women. Subserous, and intramural Subserous myomas were found in 15% of the women, whereas intramural myomas were found in 41% of the women. Some women had tumors as little as 5 centimeters in diameter, while others had tumors as large as 10 centimeters in diameter. Table 3 provides a timeline of what to expect before, during, and immediately after surgery.

There were 74 ladies who had their myomectomy after giving birth [98.66%], whereas the remaining 1 [1.33%] had their myomectomy before giving birth because the myomas were in the incision line.

All of the women who underwent myomectomy had a positive outcome. None of the cases myoma was left behind.

Operative time was <45 min in 17 [22.66 percent] women, 45-<60min in 44 [58.66] instances and 60-90 min in 14 [18.66 percent] cases.

Thirteen women [13.33 percent] required blood transfusions, with seven requiring one unit and three requiring two. Myomectomy performed before to birth and instances of massive intramural myoma necessitated blood transfusion.

During postnatal time [13.33 percent] patients got moderate fever and [2.2 percent] acquired wound infection. [84.4%] ladies had unremarkable postoperative period.

Only 8.9% of women were discharged beyond 72 hours, compared to 91.11 percent of women who were discharged from 48 to 72 hours.

Table [1]: Patients' characteristics

Parameters	Mean	SD
Age	30	2.89
Gestational [Weeks]	37	1.56
Parity	Number	Percentage
0	50	66.6
1	18	24.0
≥ 2	7	9.33

Table (2): Myoma Characteristics

Myoma Number			
		n.	%
myoma numbers	Single	33	44
	2-5	40	53.3
	>5	2	2.7
Types of myoma	Intramural	41	54.6
	Subserous	15	20
	Intramural & subserous	15	20
	Intramural & submucous	3	4
	cervical	1	1.3
Size of myoma [cm]	<5	58	77.3
	5-10	13	17.3
	>10	4	5.3
Timing of Myoma diagnosis	Before pregnancy	50	66.6
	During pregnancy	19	25.3
	During cesarean section	6	8

Table [3]: Outcome of myomectomy

		n	%
Myomectomy technique	Serosal myomectomy	72	96
	Endometrial myomectomy	3	4
Myomectomy timing	Before baby delivery	1	1.33
	After baby delivery	74	98.66
Success of Myomectomy	Successful	75	100
	Unsuccessful	0	0
Operative time [minute]	<45	17	22.66
	45 - 59	44	58.66
	60-90	14	18.66
Need for blood transfusion	Yes	10	13.33
	No	65	86.66
Postoperative Complications	Postoperative Fever	16	21.33
	Wound infection	6	8
	No complication	53	70.66
Post hospitals stay [hours]	48 -72	71	94.66
	>72	4	5.33

DISCUSSION

When a cesarean section is performed, myomectomy is usually avoided. Due to theoretical concerns of postoperative hemorrhage and greater morbidity associated with myomectomy during cesarean delivery, most of the primary obstetrics textbooks advise against myomectomy during cesarean birth. There have been a number of studies done over the last decade confirming the safety of myomectomy during cesarean section. Nevertheless, researchers vehemently rejected their proposal, and despite important scientific development and surgical advancements in previous decade, their

prescription remained doubtful and discouraged in the texts of obstetrics and gynecology. The advantages of caesarean myomectomy over intervals myomectomy are, however, social and economic [9]. For example, the same physician may do two procedures using a single abdominal incision and one anesthetic. Both the patient and the surgeon benefit from avoiding a second appendectomy, which saves time and money by avoiding the need for a third one. Aesthetic advantages of a caesarean section over a laparotomy for myomectomy include a smaller incision and less scar tissue exposed.

Moreover, it gives discomfort alleviation, lowered likelihood of myoma associated issues in future.

However, in more recent studies, Bhatla *et al.* [9] successfully performed second-trimester myomectomy on a 3900-gram sub-serous fibroid. Once the pregnancy reached full term, everything went well.

Li H *et al.* [10] shown that myomectomy during cesarean section was a safe and effective surgery and advocated that this procedure may be employed during cesarean section if this proves save, myomectomy during CS is easier and safer. For these reasons, we performed surgery on a small number of patients despite their anxiety, and the outcomes were positive.

In a retrospective cohort analysis, Kwon *et al.* demonstrated the safety of cesarean myomectomy [12]. They compared 96 fibroids-affected women who had a cesarean birth but no myomectomy to 65 women who received a cesarean myomectomy. At the time of operation, both groups of women had the same gestational age and neonatal weight. Between the two groups, there was no difference in postoperative fever, blood transfusion, hemoglobin, or hospital days after surgery. It took significantly longer to perform the cesarean myomectomy group than the cesarean group without myomectomy [91.9 min vs 60 min, p=0.02].

One [1.33 percent] of the myomas in the lower anterior wall were removed before to birth so as to avoid incision in the upper uterine segment, but 98.66 percent of the time, myomectomy was conducted after delivery. Myomectomy has also been done before the baby is born in few studies due to the discovery of a tumor in the lower anterior wall [11].

In the current research, myomas were detected preoperatively in the majority of instances, and surgeries were performed with good planning and the patient's written permission. However, myomas were discovered by chance in six individuals after cesarean sections. Even back then, myomectomy was only performed with the patient's spouse or guardian's permission. Regardless of the number, size, nature, or location of the myomas, myomectomy was performed. In twenty-one [46.7%] instances, the number was 2-5, and in 8.9% of cases, the number was more than 5. Multiple myomas were also excised in other investigations [13].

Intramural was the most prevalent form [54.6 percent]. The same may be said for the majority of the other investigations. However, in several investigations, the subserous variety was more prevalent. In 17.33 percent of instances, the size ranged from 5 to 10 centimeters, while in 5.33 percent of cases, the size was more than 10 centimeters. Large myomas were also removed in other investigations [18-19].

The average blood loss was reported to be 518.3 + 80.9 mm³, which may be quickly rectified during surgery], whereas 4/61 instances [6.5%] had light bleeding that did not need re-laparotomy and was solely managed with ecbolics and fluids. Although we were unable to quantify the volume of blood lost, we were able to determine the impact of the loss based on the patient's

clinical state. In other investigations, blood transfusion was required in certain instances, but the difference was not statistically significant when compared to the control group [14].

The average operational time in this research was 45-60 minutes in 58.66 percent of patients and 60-90 minutes in 18.66 percent of cases. This is longer than the typical caesarean section period in our facility, which is 30-45 minutes. In the current research, more time was required when several myomas and/or big intramural myomas were removed. However, ten [13.33 percent] of the women had significant bleeding, necessitating the transfusion of 1-2 units of blood. There was no life-threatening bleeding in any of the patients, thus the uterus was not sacrificed. Many studies have been conducted and are available to the public.

In Ozcan *et al.* [15], 306 people with leiomyoma were reviewed. Cesarean Myomectomy was done on 82 women, whereas caesarean sections were performed on 224 women with myomas.

Patients in each group had significantly longer hospital stays [p=0.006] and shorter surgeries, but no differences were identified in the number of postoperative hemoglobin [16] and electrical cauterization, in either group [p=0.05] [17].

Despite the fact that none of these procedures were employed in our research, we did use the normal ecboic during cesarean surgery [10 units oxytocin with 0.5 mg ergometerine unless otherwise contraindicated] with no morbid problems. Because the capsule is looser in a gravid uterus, enucleate on of the fibroid is theoretically simpler, and oxytocic medications increase uterine muscle retraction to assist stop the bleeding and 'Myoma pseudocapsule sparing' is a well-known technique. Its key benefit is the preservation of healthy myometrial tissue, which contains neuro-transmitters and neuropeptides that help in myometrial repair after surgery.

It became feasible to handle instances of severe intrapartum bleeding due to improvements in surgical expertise, surgical technique, blood availability, and anesthetic process. Hemorrhage and hysterectomy may be reduced with proper devascularization and expert obstetricians. In the current research, 53 women [70.66%] experienced no postoperative problems, while only 4 [5.33%] had to remain in the hospital for more than 72 hours. There were either no issues or a tiny percentage of minor complications in the other investigations, which was not statistically significant. However, despite the fact that an unique cesarean procedure known as 'endometrial myomectomy' minimizes adhesion development by keeping the uterine serosa intact as opposed to serosal myomectomy, large-scale randomized controlled studies are required to demonstrate the long-term results of this innovative strategy. In the future, far safer and technically simpler ways may alter people's minds about the hazards of cesarean myomectomy.

To conclude, myomectomy during caesarean birth is a safe procedure that may be conducted in almost all cases when the patient is carefully selected, performed by expert hands in well-equipped facilities, and in tertiary care centers with blood transfusion and/or later surgery.

Though a large-scale randomized controlled trials are needed before a definitive conclusion can be made, the day will come when myomectomy after a caesarean section will be the norm, replacing the previous practice of not touching the myoma throughout pregnancy.

Despite certain limitations, the conclusion from this study is quite apparent [what was once thought to be taboo should now be reconsidered]. A caesarean myomectomy delivery might be a safe and effective procedure.

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None to disclose

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