

# Postoperative results of myomectomy performed during caesarean section in a tertiary care center.

## A retrospective study



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Aytaj Jafarzade\*, Sveta Aghayeva\*, Ufuk Osman Ekiz\*\*,  
Aydan Biri\*\*\*, Tamer Mungan\*\*\*

\*Department of Obstetrics and Gynaecology, Koru Hospital Ankara, Turkey

\*\*Department of Statistics Theory, Gazi University, Faculty of Science, Turkey

\*\*\*Department Perinatology, Koru Hospital Ankara, Turkey

### Postoperative results of myomectomy performed during caesarean section in a tertiary care center. A retrospective study.

**AIM:** *The aim of this study was to assess the postoperative results of patients who underwent myomectomy during caesarean section in a tertiary center, to investigate whether cesarean myomectomy leads to increased morbidity and to contribute to the literature.*

**MATERIALS AND METHODS:** *This study was designed retrospectively and conducted to compare the preoperative and postoperative results of 121 patients who underwent myomectomy during cesarean and 149 patients who had only cesarean section in a tertiary center between 1.1.2020-1.1.2022.*

**RESULTS:** *Although the study did not show a significant prolongation in terms of operative time, a significant relationship was found in the length of hospital stay. Hemoglobin levels after myomectomy were significantly lower than the group without myomectomy in the study. Additionally, preterm delivery rate was higher in the myomectomy group.*

**CONCLUSION:** *As this study showed us a significant decrease in hemoglobin levels after cesarean and myomectomy, it is appropriate to perform this operation, when necessary, by experienced surgeons and in tertiary centers.*

**KEY WORDS:** Cesarean section, Myomectomy, Myomectomy during cesarean section

## Introduction

Leiomyomas are the most common benign tumors seen in female genital organs<sup>1,2</sup>. The incidence is reported to be about 40% in non-pregnant women<sup>3</sup>, while it is about 10% in pregnant women<sup>4</sup>.

Uterine leiomyomas can grow, stay the same, or shrink during pregnancy<sup>5</sup>. Thus, though it is not always a condition that requires surgical treatment, most authors do not recommend removing myomas that grow in preg-

nancy during cesarean section due to the increased morbidity of the patient<sup>6</sup>. Myomas growing during pregnancy are known to bring about many obstetric problems (abortion, placenta abruption, malpresentation, intrauterine growth retardation, premature birth, postpartum hemorrhage, etc.)<sup>7</sup>. Recently, the increase in cesarean rates has led to an increase in the number of cesarean myomectomies<sup>8</sup>. As the number of myomectomy studies has increased during cesarean section, the perspectives of obstetricians have also changed<sup>9</sup>. In this study, our aim was to compare the intraoperative and postoperative results of patients with and without myomectomy during cesarean section, and to reveal whether cesarean myomectomy is safe or not.

## Materials and Methods

The study was designed retrospectively, and a total of 270 patients, 121 of whom underwent cesarean myomec-

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*Correspondence to: Aytaj Jafarzade Koru Hospital Ankara Obstetric and Gynecological Department Department. Kızılırmak, 1450. Sk. No:13, 06510 Çankaya, Ankara, Turkey (e-mail: jafarzade\_aytac@yahoo.com)*

tomy and 149 of whom had only cesarean section (without myomectomy) were included in the study. The surgery of the patients included in both groups was performed under elective conditions and for obstetric reasons only. The study included patients who underwent caesarean section between 1.1.2020 and 1.1.2022 at Koru Ankara Hospital. Transabdominal and transvaginal ultrasound were used in diagnosing myomas.

The indication for myomectomy was determined according to whether the patient requested myomectomy, whether the fetus exit was obstructed, and the size and localization of the myoma. Patients were informed about all complications in detail. The operations of the patients were performed under spinal anesthesia by experienced surgeons.

1 hour before the operation, IV antibiotics were administered. The operation was started with a pfannensteil incision, and after entering the abdomen, a transverse incision was made in the lower segment of the uterus. After the fetus was taken, the incision was repaired. Then, myomectomy was performed. Electrocoagulation was used during myomectomy, and defects were repaired with 1-0-0-Vicryl and 2-0-Vicryl for myoma site suturing. Then, 20 U of syntitant infusion was administered to each patient postoperatively.

The demographic characteristics of the patients (age, parity, gravida, histopathology result, preoperative and postoperative hemoglobin level, length of hospital stay, blood transfusion requirement, postop infection) and their findings during the operation and postoperative periods were obtained from the hospital files of the patients. Additionally, histopathology reports of the patients were obtained after myomectomy, and the number and size (cm<sup>3</sup>) of the removed myomas were noted. Inclusion criteria for the study were single pregnancy, detection of

myoma during pregnancy controls, and having given birth at Koru Ankara Hospital.

Exclusion criteria included the presence of deep anemia, chronic diseases, delivery before 34 weeks of gestation, previous abdominal surgery for other reasons, having more than two cesareans, and the patient's lack of consent for myomectomy.

The study was approved by the Ethics Committee with the decision. The study was written in accordance with the Helsinki Declaration, not been published previously and there was no conflict of interest between the authors.

## DATA ANALYSIS

The data of the patients were evaluated with histogram graph with normal distribution. The data of the patients were given as mean±SD (min-max). Chi-square for nominal data and independent T-test for numerical data was used for statistical analysis of patients. Statistically significant data were taken as  $p < 0.05$ .

## Results

A total of 270 patients who had a cesarean delivery were included in the study. Patients were divided into two groups; who underwent only cesarean section as Group 1 (n=149), both cesarean section and myomectomy operation as Group 2 (n=121).

Considering the age distribution of the patients, Group 1 was 30.2±5.3 (18-52), Group 2 was 33.5±4.6 (25-48) years, and there was no statistically significant difference between the groups ( $p=0.313$ ). The mean operation times were 46.3±12.8(20-70) minutes for Group 1 and

TABLE I - Postoperative characteristics for all patients.

	Group 1(n=149) Mean±SD	Group 2(n=121) Mean±SD	p*
Operation time(minute)	46.3±12.8	56.7±19.7	0.370
Hospitalization time(day)	1.0±0.1	1.2±0.7	0.016*
Preoperative Hemoglobine(gr/dL)	12.2±1.1	12.2±1.3	0.894
Postoperative Hemoglobine(gr/dL)	10.7±0.9	10.4±1.1	0.011*
Decrease in Hemoglobine(gr/dL)	1.4±0.9	1.8±1.2	0.002*
Gestational period during operation (day)	279.2±5.4	273.5±19.2	<0.001*

\* Statistically significant

TABLE II - Demographic characteristics for all patients.

	Group 1(n=149) Mean±SD	Group 2(n=121) Mean±SD	p*
Maternal age (year)	30.2±5.3	33.5±4.6	0.313
Gravidity (n)	2.33±0.957	2.26±0.911	0.276
Parity (n)	0.74±0.713	0.74±0.711	0.997

TABLE III - Hemoglobin decrease-myoma volume (cm<sup>3</sup>) correlation table.

Correlations		Hemoglobine decrease (g/dL) (n=121)	Myoma volume (cm <sup>3</sup> ) (n=121)	P
Hemoglobine decrease (g/dL) (n=121)	Pearson r	1	0.165	0.070
Myoma volume (cm <sup>3</sup> ) (n=121)	Pearson r	0.165	1	0.070

TABLE IV - Comparison of hemoglobin decrease in single and multiple myomas

	Single Myoma(n=95) Mean±SD(min-max)	Multiple Myoma(n=26) Mean±SD(min-max)	p
Hemoglobine decrease (g/dL)	1.8±0.9(0.4-3.5)	1.8±1.3(0-6)	0.954

56.7±19.7 (20-180) minutes for Group 2. Although there was no statistically significant difference between the two groups in terms of operation times, the duration of surgery was longer in Group 2 (p=0.370).

The parities of the patients were 0.6±0.8(0-6) in Group 1 and 0.3±0.7(0-5) in Group 2, and there was a statistically significant difference between the groups (p=0.014).

Myomectomy operation was performed simultaneously in 91 of the patients in Group 2 at their first delivery. The mean myoma volume of the patients in Group 2 was 51.8±203.9(0.6-2227) cm<sup>3</sup>, and a 21x17x12 cm myoma was excised during delivery from a 38-year-old patient. Preterm birth occurred in 3 patients in Group 1 and 17 patients in Group 2, and a statistically significant difference was observed between the groups (p<0.001).

No patient in either group required blood transfusion. Comparative data of the patients are given in Table I and Table II.

Additionally, no statistically significant relationship was found between single or multiple myomas and decreased hemoglobin. No statistically significant relationship was found between the size of myomas and the hemoglobin level (Tables III, IV).

## Discussion

Our study showed that the operation time was not significantly prolonged during the surgery performed by experienced surgeons in our study, but a significant decrease was observed in postoperative hemoglobin levels. In addition, the length of hospital stay was prolonged.

Many studies conducted have shown that myomectomy increases the rate of complications during cesarean section<sup>10</sup>. In our study, preterm delivery rates were also found to be higher in patients with cesarean + myomectomy. And this proved that myoma had a significant

effect on preterm birth. Among the indications for myomectomy performed during cesarean section, there are reasons such as the localization of the myoma, its size, and its effect on uterine contraction.

However, there is also information that argues that myomectomy should always be avoided during cesarean section and that it should be performed only in selected patients<sup>11</sup>. This is due to the argument that as a result of uncontrollable bleeding that can occur during myomectomy, the morbidity leading to hysterectomy increases<sup>11,12</sup>. Some authors also argue that myomectomy has advantages during cesarean section. In other words, they argue that factors such as easier suturing in the flexible pregnant uterus, physiological uterine involution, and reduction in the amount of bleeding due to uterotonics make the procedure advantageous<sup>13</sup>.

In a meta-analysis study investigating the result of myomectomy during cesarean section and involving a total of 3,900 patients, it was found that patients with myomectomy + cesarean section had a slight decrease in hemoglobin values compared to patients who had only cesarean section, and although there was a slight prolongation of the operation time and a prolonged hospitalization, there was no increase in major bleeding and the need for blood transfusion<sup>14</sup>. Our study reached the same conclusion as well.

In order to increase the success rate of myomectomy + cesarean section and to reduce its morbidity, many authors have recommended methods such as vasopressin injection<sup>15</sup>, use of uterotonics<sup>16</sup>, use of uterine turnstiles<sup>17</sup>, uterine artery ligation<sup>18</sup>, use of uterine artery occlusion<sup>19</sup>, and electrocoagulation<sup>20</sup>. Thus, they asserted that both the amount of bleeding and the need for blood transfusion were reduced, and the duration of surgery was shortened.

Of course, the most important factors that determine myomectomy success during cesarean section is the experienced surgeons with gentle surgical techniques, surgical instruments, and an experienced team<sup>21</sup>. We believe

that one of the most important factors affecting the results of the study is that the operations were performed in a tertiary center and by experienced surgeons.

No significant relationship was found between the size of the myoma and hemoglobin decrease in our study. Similar studies have also shown that there was no relationship between the myoma size and hemoglobin decrease, and that morbidity did not increase<sup>22,23</sup>.

No statistically significant correlation was found between the size of the removed myoma and the removal of one or more myomas in the same session with the decrease in hemoglobin levels.

Some studies have found it safe to remove myomas of 3-20 cm during cesarean section<sup>24</sup>. However, they argue that myoma has a cut-off value of >50 cm<sup>3</sup> and that sizes above this value cause more bleeding during myomectomy<sup>25</sup>.

The reason why there was no statistically significant difference between the results in our study is that myomectomy operations during cesarean section in the tertiary center were performed by the same surgeons experienced in this field within 2 years. We believe it is more cost-effective that the patients have myomectomy during cesarean section, thus avoiding the need for relaparotomy, since large-sized myomas are less likely to shrink spontaneously to an extent that they do not cause any symptoms after delivery.

The limitation of our study is that it did not consider the localization of myomas, that it was retrospective and retrospectively extrapolated have already been evaluated with larger sample number and methods of higher statistical significance<sup>26</sup>.

## Conclusion

We think that myomectomy during cesarean section should be preferred in suitable cases. However, its significance is that it was performed by experienced surgeons in a tertiary center. For this reason, although there was no significant prolongation in the operation time, a decrease in postoperative hemoglobin value and prolongation in hospitalization were observed.

But there is a need for randomized controlled studies on this subject for obtaining more reliable results.

## Riassunto

SCOPO: Lo scopo di questo studio è di valutare i risultati postoperatori di pazienti sottoposte a miomectomia durante il taglio cesareo in un centro terziario, per indagare se la miomectomia in corso di parto cesareo comporta un aumento della morbilità e per contribuire alla letteratura.

Si tratta di uno studio retrospettivo e condotto per con-

frontare i risultati preoperatori e postoperatori di 121 pazienti sottoposte a miomectomia durante il taglio cesareo e 149 pazienti che hanno subito solo taglio cesareo in un centro terziario tra il 1.1.2020 e il 1.1.2022.

Sebbene lo studio non abbia mostrato un prolungamento significativo dei tempi operatori, è stata riscontrata una relazione significativa nella durata della degenza ospedaliera. I livelli di emoglobina dopo miomectomia erano significativamente inferiori rispetto al gruppo senza miomectomia nello studio. Inoltre, il tasso di parti pretermine è risultato più elevato nel gruppo cesareo + miomectomia.

CONCLUSIONE: Poiché questo studio ci ha mostrato una significativa diminuzione dei livelli di emoglobina dopo cesareo e miomectomia, è opportuno eseguire questa operazione, quando necessario, da chirurghi esperti e nei centri terziari.

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