

Cesarean Myomectomy: Is it a Safe Procedure?

Sezaryen Miyomektomi: Güvenilir Bir Yöntem midir?

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ABSTRACT

Objective: To determine whether myomectomy during cesarean section causes an increase in intraoperative and postoperative complications.

Materials and methods: A total of 55 patients who had undergone myomectomy during cesarean and a total of 55 patients who undergone only cesarean section in our clinic between January 2010 and December 2013 were retrospectively reviewed.

Results: Mean change in hemoglobin level was 1.72 ± 0.56 and 1.59 ± 0.63 in the patients that underwent cesarean myomectomy and the patients that underwent cesarean section only, respectively, and no significant difference was found between the two groups. The incidence of hemorrhage was 5.44% and 5.35%, respectively, and no hysterectomy was required in any patient in both groups. The mean length of postoperative stay was 2.26 ± 0.57 and 2.089 ± 0.34 days, respectively, and no significant difference was found. Blood transfusion was required in 6 patients, with 3 patients in each group.

Conclusion: Myomectomy during caesarean section is a safe procedure and does not increase the incidence of intraoperative and postoperative complications.

Key Words: Cesarean section, myoma, myomectomy, pregnancy,

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ÖZET

Amaç: Sezaryen sırasında yapılan miyomektominin intraoperatif ve postoperatif komplikasyonlarda artışa neden olup olmadığını belirlemek.

Gereç ve Yöntemler: Ocak 2010 ile Aralık 2013 tarihleri arasında sezaryen ile doğum sırasında miyomektomi yapılan 55 hasta ile sadece sezaryen ile doğum yaptırılan 55 hasta retrospektif olarak incelendi.

Bulgular: Hemogloblin düzeyindeki ortalama değişiklik, sezaryen miyomektomi yapılan hastalarda ve sadece sezaryen ile doğum yaptırılan hastalarda sırasıyla 1.72 ± 0.56 ve 1.59 ± 0.63 olarak saptandı ve iki grup arasında istatistiksel olarak anlamlı fark saptanmadı. Kanama insidansı sırasıyla % 5.44 ve % 5.35 idi ve her iki grupta herhangi bir hastaya histerektomi yapılması gerekmedi. Her grupta 3 hasta olmak üzere toplam 6 hastaya kan transfüzyonu yapıldı. Hastanede postoperatif kalış süresi sırasıyla 2.26 ± 0.57 ve 2.089 ± 0.34 gün idi ve istatistiksel olarak anlamlı bir fark bulunamadı.

Sonuç: Sezaryen sırasında miyomektomi güvenli bir işlemdir ve intraoperatif ve postoperatif komplikasyon insidansını artırmaz.

Anahtar Sözcükler: Sezaryen, miyom, miyomektomi, gebelik

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INTRODUCTION

The diagnosis of uterine fibroid during pregnancy has been more often with the incidence of approximately 2-4% either due to the increasing number of pregnancies at advanced maternal age or the widespread utilization of sonography in gynecology and obstetric practice (1). Uterine fibroids are generally asymptomatic in pregnancies; however, 10-40% of them may be associated with obstetric complications and adverse obstetric outcomes (1). The most common complaint in patients with uterine fibroids is pelvic pain. Abortion, premature birth, placental abruption, myoma degeneration, or torsion accompanied by severe pain and dystocia are infrequent; however, more serious obstetric problems may be associated with the size and the location of the fibroids and also the contact between the myoma and the placenta. (2,3). Moreover, uterine atony may cause life-threatening hemorrhage, and thus hysterectomy may be required.

Removal of uterine fibroids during cesarean section is avoided due to the potential and life-threatening complications and thus conservative therapy is recommended. However, recent studies have revealed that myomectomy during cesarean section can be a safe procedure with careful case selection (1,2). In this study, we investigated the safety of myomectomy during cesarean section.

MATERIALS and METHODS

The retrospective study included a total of 110 patients; a study group of 55 patients who had undergone myomectomy during cesarean section and a control group of 55 patients who had undergone cesarean section only between January 2010 and December 2013. Local Ethical committee approval was obtained and the approval number is 2017-2/4. Patient characteristics including age, gravida, parity, body mass index, gestational age at birth, indications for cesarean section, number of previous cesarean deliveries, presence of systemic diseases, bleeding diathesis and other prior surgical procedures were noted. The size, location and the number of myomas were recorded after the evaluation with ultrasonographic examination followed by pathological confirmation. In the group that underwent cesarean myomectomy, the patients were divided into three groups depending on three criteria (I) the size of the myomas (≥ 5 cm or < 5 cm), (II) the location of the myomas (intramural or subserous), and the number of the myomas (multiple or single). Duration of surgery, additional organ injury, massive hemorrhage, requirement of drainage, need for hysterectomy, differences between pre- and post-operative first-day hemoglobin level and requirement of blood transfusion were noted.

In our clinic, patients who underwent surgery stay in hospital for minimum of two days after the surgery and this period can be extended if necessary. The follow-up period consists of two examinations which are performed at week 1 and 40 days postoperatively. Massive hemorrhage is defined as bleeding more than several minutes which compromises tissue or organ perfusion and threatens life. Common symptoms in patients undergoing myomectomy include orthostatic dizziness, weakness and palpitations and common signs include hypotension and tachycardia. Blood transfusion is performed during or after surgery when these findings are observed or the hemoglobin level falls under 7.5 gr/dl.

Surgical Technique

The final decision for myomectomy procedure has been given during the surgery. Intra-ligamentary and cervical fibroids were excluded. All the procedures were performed under general anesthesia. Initially, a cesarean section was performed through the pfannenstiel incision. Myomectomy was performed after the closure of the lower uterine segment. A linear incision was made with monopolar electrosurgical scalpel from the uterine serosa to the surface of the myoma and the myoma was hooked and extracted from its capsule. Additional techniques such as uterine artery tourniquet or intramural vasopressin infusion were not administered before the myomectomy. The myometrium was closed in two layers using interrupted absorbable sutures and the serosa was sutured using a continuous absorbable suture. Oxytocin infusion (20 IU in 1000 cc isotonic solution) was started before myomectomy and continued for 24 h postoperatively. All the patients received prophylactic antibiotics.

Statistical Analysis

Statistical analysis was performed using SPSS 11.5 (Statistical Package for Social Sciences; SPSS Inc., Chicago, IL, USA). Data were presented as mean \pm standard deviation. An independent samples t test was used to compare the differences between the two groups and a chi square test was used for the categorical variables. A p level of < 0.05 was considered significant.

Table 1: Characteristics of the patients and the myomas

	Cesarean myomectomy (n=55)	Cesarean section only (n=55)	p
Age* (years)	33.09 \pm 5.63	29.25 \pm 7.2	
Gravida*	1.95 \pm 1.07	2.55 \pm 1.63	
Parity*	0.84 \pm 0.88	1.25 \pm 1.46	
Gestational age* (week)	37.90 \pm 1.02	38.10 \pm 1.0	
Number of removed myomas	144	0	
Number of removed myomas*	2.62 \pm 1.58 (range, 1-7)	0	
Size of removed myomas* (cm)	5.27 \pm 2.42 (range, 3-12)	0	
Change in hemoglobin levels (g/dl)*	1.72 \pm 0.56	1.59 \pm 0.63	>0.05
Length of postoperative stay (days)*	2.26 \pm 0.57	2.089 \pm 0.3	>0.05
Incidence of hemorrhage (%)	5.44	5.35	
Blood transfusion (number of patients)	3	3	

* indicates mean values

RESULTS

Myomectomy was performed in 55 patients. Table 1 presents the demographic characteristics of the patients. Mean age at delivery was 33.09 \pm 5.63 years. Mean gravida and mean parity were 1.95 \pm 1.07 and 0.84 \pm 0.88, respectively. Mean gestational age at delivery was 37.90 \pm 1.02 weeks. Table 1 also presents the type, size and the number of fibroids removed during the cesarean section. A total of 144 fibroids of various sizes were removed from 55 patients. Most of the myomas were intramural (61.8%). Forty-two patients had multiple fibroids and twenty-four patients had myomas ≥ 5 cm. The mean number and the size of the removed myomas were 2.62 \pm 1.58 (range, 1-7), 5.27 \pm 2.42 (range, 3-12) cm, respectively. The mean change in hemoglobin values in the patients that underwent cesarean myomectomy and cesarean section only were 1.72 \pm 0.56 and 1.59 \pm 0.63, respectively. However, no significant difference was found between the two groups. The incidence of hemorrhage was 5.44% and 5.35%, respectively. No patient required hysterectomy in two groups and blood transfusion was performed in a total of 6 patients, with 3 patients in each group. Mean length of postoperative stay was 2.26 \pm 0.57 days in the patients that underwent cesarean myomectomy and 2.089 \pm 0.34 days in the patients that underwent cesarean section only; however, no significant difference was found.

Table 2: Indications for cesarean section

Indication	Cesarean myomectomy	Cesarean section only
Cephalopelvic disproportion	6 (10.8%)	8 (14.5%)
Previous cesarean section	9 (16.4%)	16 (29.1%)
Breech presentation	9 (16.4%)	8 (14.5%)
Fetal distress	11 (20.0%)	20 (36.4%)
Prolonged first stage of labor	11 (20.0%)	3 (5.45%)
No indication	9 (16.4%)	0

Table 2 presents the indications for cesarean section. The most common indication was fetal distress (n=31), followed by repeated cesarean section (n=25), breech presentation (n=17), cephalopelvic disproportion (n= 14) and prolonged first stage of labour (n= 14). No indication for cesarean section was observed in 9 (16.4%) patients.

Table 3 presents the primary outcomes of the subgroups who underwent cesarean myomectomy. The patients were divided into three groups according to the size, location and the number of myomas. The change between pre- and post-operative hemoglobin levels was calculated. Change in hemoglobin level was 1.77 \pm 0.77 g/dl in patients with myomas ≥ 5 cm and 1.69 \pm 0.36 g/dl in patients with myomas < 5 cm and no significant difference was found (p=0.65). Change in hemoglobin level was 1.80 \pm 0.67 g/dl in patients with intramural myomas and 1.60 \pm 0.35 g/dl in patients with subserous myomas and no significant difference was established (p=0.26). Change in hemoglobin level was 1.71 \pm 0.34 g/dl in patients with single myoma and 1.72 \pm 0.63 g/dl in patients with multiple myomas and no significant difference was observed (p=0.97).

Table 3: Primary outcomes of the subgroups who underwent cesarean myomectomy

Characteristics of fibroids	Group 1		P value	Group 2		P value	Group 3		
	≥5 cm	< 5 cm		Intramural	Sub-serous		Single	Multiple	P value
Change in hemoglobin from preoperative to postoperative period (g/dl)	1.77±0.77	1.69±0.36	0.65	1.80±0.67	1.60±0.35	0.26	1.71±0.34	1.72±0.63	0.97
Length of postoperative stay (day)	2.41±0.73	2.34±0.66	0.94	2.34±0.66	2.11±0.32	0.17	2.23±0.43	2.26±0.61	0.85

Data are given as mean ±SD

No intra- or post-operative problems such as organ injury, fever, or wound infection occurred in any patient. No pelvic or abdominal drainage was used in any patient and the patients were uneventfully discharged on postoperative day 2.

DISCUSSION

The management of uterine fibroids during cesarean delivery is controversial. Uterine atony and accompanying excessive bleeding are serious and life-threatening complications why obstetricians avoid to performing cesarean myomectomy. Burton et al. (4) reported only one case with intraoperative hemorrhage among thirteen patients that underwent cesarean myomectomy. Exacoutos and Rosati (5) reported three hysterectomies due to the massive intraoperative hemorrhage during cesarean myomectomy and concluded that myomectomy during cesarean section must be performed with the awareness of the risk of hemorrhage (4,5). On the other hand, recent studies revealed that myomectomy during cesarean section can be a safe procedure with careful case selection (6,7,8,9,10). Ehigiegba et al., Brown et al., and Hassiakos et al. reported that myomectomy during cesarean section does not lead to increased intra- and post-operative complications (6,7,8,9). Song et al. reported a case-control study including nine studies and 1,082 patients with leiomyoma. Of these patients, 443 (41%) patients underwent cesarean myomectomy and the remaining 639 (59.1%) underwent cesarean section only. The study reported that the decrease in hemoglobin level and the operative time did not establish a significant difference between the two groups. Song et al. also reported that myomectomy during cesarean section may be reasonable but there is no consensus on this issue due to the low quality of the findings presented by the studies (3).

In a similar study, Ehigiegba et al. compared the patients who underwent cesarean myomectomy and the patients who underwent cesarean section only and found no significant difference in postpartum fever, operating time, and length of postpartum stay (6).

The decision to remove fibroids mainly depends on the location of the fibroids and the experience of the surgeon. In a recent study, Hassiakos et al. (9) reported that fibroids located at the uterine incision site may be removed easily with minimal blood loss, whereas myomectomy should be avoided in large, fundal, and intramural fibroids that are located near the tuba uterine and at the corneal region of uterus. Similar with Hassiakos et al. (9), Roman et al. (7) reported that myomectomy should be avoided if the myomas are large, intramural, and located at the fundus of the uterus and also reported that the patients with subserous or pedunculated fibroids should be operated on safely (7). Furthermore, Roman et al. revealed that the size and the location (intramural or subserous) of fibroids did not affect the incidence of hemorrhage (7). In our study, the incidence of hemorrhage in the patient

group was 5.44% and no patient required hysterectomy. Moreover, similar to the findings reported by Roman et al., Ehigiegba et al., Brown et al. and Hassiakos et al., the number and location of myomas in our patient group did not appear to affect the incidence of hemorrhage and the incidence of intra- and post-partum complications. In our study, similar with the recent studies reported by Ehigiegba et al., Brown et al. and Hassiakos et al., myomectomy during cesarean section was not associated with intra- or post-operative complications.

CONCLUSION

The limitation of this study is its retrospective nature. However, we had no intra- or post-operative complications in patients with cesarean myomectomy and thus the procedure seems to be safe. Nevertheless, further prospective randomized studies are needed to substantiate these findings.

Conflict of Interest

There is no conflict of interest is declared by the authors.

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