



Complications in Cesarean myomectomy at Tu Du hospital: a retrospective study.

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Abstract

Objective: Myomectomy performed during cesarean section is still personality overview of obstetricians. Up to date, there have not enough evidence for safety of performing cesarean myomectomy.

Purpose: to describe the outcome and complications of patients who had or did not have myomectomy in cesarean section.

Method: A retrospective analysis of 87 cases of pregnancy women having myomas was operated at Tu Du Hospital from January 2020 to April 2021.

Results: The total number of cases in our study were 87 of which 24 were myomectomy during operation. Median week of gestation was 38.72. Mean duration of operation was 60.29 minutes. The minimum length of hospital stay was 4 days, but the maximum length was 15 days. Maternal complications included three cases of total hysterectomy because of post-op uterine infection. When the myomectomy during C/S group was compared with the C/S group, the duration of operation in the C/S myomectomy group was longer and this difference was statistically significant (73.96 min vs. 55.08 min; $p=0.0001$). Although blood loss, intra-operation bleeding more than 1000 mL and the need for blood transfusion was greater in the C/S myomectomy, the difference was no statistically significant with blood loss between the two groups ($p < 0.05$). There are statistical differences in some fetal outcomes between the two groups, including Apgar score at minute 1 and neonatal birth weight ($p < 0.05$).

Conclusions: Myomectomy during cesarean section should be an elective procedure although it is possible without life-threatening complications.

Keyword: Caesarean section, Caesarean myomectomy, Myoma

1. INTRODUCTION:

Uterine leiomyoma, also known as fibroid, is smooth muscle-derived benign mass. It is the most common pelvic tumor in women of which the prevalence increases with age during the reproductive years [1, 2]. Studies has shown that the prevalence of the leiomyoma during pregnancy varies from 0.37 to 12% and some complications develop related to it [3,4,5]. Performing myomectomy during C/S is controversial because of the higher risk of complications, especially with large myoma or too many myoma masses in uterus. Compared to C/S only, women who received a concomitant myomectomy had mild decline in hemoglobin (mean difference 0.25 mg/dL, 95% CI 0.06-0.45), longer surgical time (mean difference 13.87 minutes, 95% CI 4.78-22.95) and greater number of postoperative days (mean difference 0.35 days, 95% 0.25-0.46) (3). However, there is no increased rate of blood transfusion (odd ratios [OR] 1.41, CI 0.96-2.07) and postoperative fever (OR 1.12,95 % CI 0.80-1.56) [6]. Potential indications of cesarean myomectomy may be

symptomatic myomas, myoma being bigger 5 cm, tumor previa, anteriorly located myomas, degenerative myomas, pedunculated myomas, or avoiding extra surgical procedures [7]. However, many obstetricians decided C/S only because they didn't want to face intraoperative bleeding and a potential late complications of scar quality. In fact, the more studies proved myomectomy can be safely and effective surgical method. The patients who undergo myomectomy during C/S had lots of benefits. Those are earlier puerperal involution and reducing fibroid-related complications which can develop in later life, such as menorrhagia, anemia, and pain. After all, the patients will require second operation for only myomectomy.

Tu Du Hospital is the leading center in obstetrics and gynecology with 2000 beds in South Vietnam. It also administrates the Minister of Health's protocols in Vietnam Women's Reproductive Health. Cesarean myomectomy has been applied in our hospital but how dependent surgeons on skills and experience that they have. In the present study, we



designed a retrospective, descriptive study to evaluate the outcome and complications of cases with or without myomectomy at the time of cesarean section.

2. METHOD

2.1. Study setting

The study was conducted at Post Operational Department of Tu Du Hospital which is one of the two National OBGYN hospitals in Viet Nam, from February to June 2020.

2.2. Study design and participants Study design

This study used cases study design.

Study participants and Data collection

The present study consisted of a retrospective review of the medical records of all pregnancy women having myomas that were cesarean section from January 2020 to April 2021 at Tu Du Hospital. That posterior diagnosis of operation may be any reasons, but it must have myoma in pregnancy according to code D25 of the International Classification of Diseases 10 (ICD 10). Diagnoses of having myoma were based on both ultrasound images before operation and gross clinical examination at the time of operation.

We collected maternal characteristics including demographic data, past obstetric history, week of gestation, duration of operation, and complications at the time or post of operation, the diameter and localization of myomas, and length of hospital stays. The types of myoma were divided into three categories including subserous, submucous, and intramural forms. The location was mainly in the corpus uterus, cervix, and lower uterus. The diameter of myoma was divided into two categorized of <5cm and ≥ 5cm, respectively. The number of myoma was defined as single or multiple, respectively. In cases of multiple fibroids, the diameter of myoma was defined as the diameter of the largest one.

We focus on recorded complications that organ damage, hemorrhage and uterine atony, blood transfusion, and the next 30 days post-op infections were considered. In the time of operating, the indication and decision for myomectomy was made by surgeon, based on his knowledge and experience. We divided into two groups according to whether cesarean myomectomy was performed or not. The two groups were compared regarding duration of hospitalization, transfusion rates, complications during and after operation.

Neonatal data collected were gestational age at delivery, birth weight, Apgar score at 1 minute and 5 minutes.

2.3. Statistical method

Descriptive statistics for continuous variables were expressed as mean ± standard deviation or median (minimum-maximum) and nominal variables were expressed as number and percentage (%). For each group with or without cesarean myoma section, differences in mean values and differences in median values were evaluated using the student's t-test and Mann Whitney U-test, respectively. The chi-square distribution test was used to compare categorical data, with p values of ≤0.05 considered as statistically significant. Statistical analysis was performed using R software.

2.4. Ethical considerations

Our research was observational study. Before going research, we were accepted by Medical Committee of University of Medicine and Pharmacy at Ho Chi Minh City, Vietnam, and Tu Du Hospital.

3. RESULTS

There was a about 30000 were cesarean deliveries between January 2001 and April 2021, of which 93 had myoma in pregnancy. Six cases were off our present study because two of them had ovarian cystectomy at once and others were complications of severe preeclampsia. The total number of cases in our study were 87 of which 24 (26.44%) were myomectomy during operation.

Table 1: Demographic characteristics, past obstetric history, and current pregnancy state of studying cases

Characteristics	Cases (n= 87)
Maternal Age (y)	Mean± SD: 35.46±4.56
< 35	35 (40.2%)
≥ 35	52 (59.8%)
Gravidity	
Nulliparous	43 (49.4%)
Multiparous	44 (50.6%)
Parous- no previous c/s	68 (78.2%)
Parous- previous c/s	18 (21.8%)
Previous myomectomy	3 (3.4%)
Age of gestation (weeks)	38.72 (min: 25.85; max: 41)
Duration of operation	60.29 ± 18,07
Duration of hospitalization	5 (min: 4; max: 15)

Demographic characteristics and past obstetric history of patients in our present study are shown in Table

1. The mean maternal age of cases was 35.46 ± 4.46 years. Fifty-point-six percent had one or more deliveries with 21.8 % having a history of a cesarean section. Although all cases of women reported no previous myomectomy, 3 cases (3.4%) had.

Median week of gestation was 38.72 that the minimum gestational age was 25.85 weeks and the maximum one was 41 weeks. Mean duration of operation was 60.29 minutes. The minimum length of hospital stay was 4 days, but the maximum length was 15 days.

Table 2: Number, diameter, and localization of studying cases' myomas.

Characteristics	Cases (n=87)
Number	
1	53 (60.9%)

≥ 2 34 (39.1%)

Localization

Corpus uterus 69 (79.3%)

Lower segment of uterus 4 (4.6%)

Both 14 (16.1%)

Type of myoma

Intramural 29 (33.3%)

Subserous 44 (50.6%)

Both 14 (16.1%)

Size of myoma

2-5 cm 32 (36.8%)

> 5cm 55 (63.2%)

Myoma characteristics were described in Table 2. 60.9% cases had single tumors while 39.1% were multiple. The types of fibroids had subserous, intramural, and both so that subserous form was major (above 50.6%). Fibroids that were more than 5 cm had the higher than ones lower than 5 cm. The location was mainly in the corpus uterus (more than 79.3%).

Table 3: The pregnancy outcome of studying cases

Characteristics	Cases (n=87)
Fetal outcomes	
Gestational age	
≥ 37 weeks	65 (74.7%)
< 37 week	22 (25.3%)
Presentation at birth	
Head	73 (83.9%)
Breech	7 (8.05%)

Transverse 7 (8.05%)

Apgar at minute 1

<7 22 (25.3%)

≥ 7 65 (74.7%)

Apgar at minute 5

<7 9 (10.3%)

≥ 7 78 (89.7%)

Birth weight 2889.1 ± 762.35 g

≥ 3500 g 18 (20.7%)

< 3500 g 69 (79.3%)

Maternal complications

Intraoperation bleeding more than 5 (5.7%)
1000 mL

Blood transfusion 9 (10.3%)

Hysterectomy in repeated operation 3 (4.6%)

Post-op Internal Bleeding 1 (1.1%)

Maternal and neonatal data are shown in Table 3. The mean birth weight was 2889.1 ± 762.35 g with 79.3% of neonates were born less than 3500 g. Among the 87 live neonates, 22 cases (25.3%) experienced Apgar score at minute 1 lower than 7 that means newborns need to resuscitation immediately. However, this neonatal status improved and only 9 cases (10.3%) were still low Apgar score at minute 5. Gestational age over 37 weeks was 74.7%. All study cases chosen involved cesarean sections in which amount of blood loss of 5 cases was estimated more than 1000 mL and 9 cases that required blood transfusion. Maternal complications included three cases of total hysterectomy because of post-op uterine infection.

Table 4: Complications in patients with or without myomectomy during cesarean section

Characteristics	Cesarean myomectomy group p (n=24)	Cesarean alone group (n=63)	P value
Blood loss (mL)	300 (Min: 200-3500)	200 (Min: 200-1100)	0.01(*)
Intraoperation bleeding more than 1000 mL	2 (8.3%)	3 (4.8%)	0.61(**)
Blood Transfusion	4 (16.7%)	5 (7.9%)	0.25 (**)
Duration of operation	73.96±24.4	55.08±11.48	0.0001 (***)
Post-op Hysterectomy	2 (8.3%)	1 (1.6%)	0.18 (**)
Neonatal birth weight	2552,08 ± 836,07	3017,46±697,24	0.01

Apgar score: - at minute 1	11 (45.8%)	11 (17.5%)	0.007 (****) 0.11 (**)
- at minute 5	5 (20.8%)	4 (6.5%)	

(*) *Mann-Whitney U-test*; (**) *Fisher test*; (***) *T test*, (****): *Chi square*

When the myomectomy during C/S group was compared with the C/S group, the duration of operation in the C/S myomectomy group was longer and this difference was statistically significant (73.96 min vs. 55.08 min; $p=0.0001$). The blood loss is no normal distribution that ranges from 200 mL to 3500 mL in the cesarean section group, while it ranges from 200 to 1100 mL in the cesarean alone group; and the difference was statistically significant ($p = 0.01$). Although intra-operation bleeding more than 1000 mL and the need for blood transfusion was greater in the C/S myomectomy, the difference was not statistically significant ($p > 0.05$). Similarly, no statistical difference was observed in the post-op hysterectomy between the two group (8.3% vs. 2.6%; $p=0.18$). There are statistical differences in fetal outcomes between the two groups, including Apgar score at minute 1 and neonatal birth weight ($p < 0.05$, **table 3**).

4. DISCUSSION

Mean maternal age in our study is around 35 years old that look suitable for uterine fibroid's growth. In the Nurses' Health Study II, a large prospective study in the United States, overall incidences by age group were: 25 to 29 (3.3 per 1000 woman-years), 30 to 34 (6.8), 35 to 39 (10.3), and 40 to 44 (16.0) [2]. It presupposes if the patients were not had myomectomy at the time of cesarean section, they would like to be repeated operation for myomectomy because of larger size or complications. This is supported myomectomy during C/S.

Number, type, size, and localization of myoma are major factors to cesarean myomectomy. In our study, more than half of myoma were single, subserous, and located at corpus and therefore performing myomectomy is not obligatory; nor is it wrong [7]. Really, serosal and/or single myomectomy has a minuscule impact on blood loss in the light of no difference in blood product transfusion rates when it performed during C/S [8,9]. Myoma at lower segment of uterus or larger myomas (more than 5cm) is potential indications of cesarean myomectomy [7]. In our study, more than half of myoma were larger 5 cm but cesarean myomectomy accounted for 26.44 % of all cases. This shows that performing myomectomy during C/S has not accepted widely yet in our experienced surgeons.

In a previous study, Dianrong Song et al. assessed nine studies, including 1 082 women with leiomyomas which 443 (41.0%) women underwent cesarean myomectomy and 639 (59.1%) underwent cesarean delivery alone [10]. The drop in hemoglobin after surgery was 0.30 g/dL greater in the cesarean myomectomy group than in the control group, but the difference was not significant. The operative time was 4.94 minutes longer in the cesarean myomectomy group, but

again the difference was not significant. The overall incidence of fever was comparable in the 2 groups. No hysterectomies were performed in any of the included studies. In other meta-analyses of mostly retrospective studies of patients with fibroids undergoing cesarean, those undergoing concomitant myomectomy had greater drops in hemoglobin (mean difference 0.25 to 0.27 mg/dL), an approximately 40 percent increase in use of blood transfusion, and longer hospital stay [11]. In this study, there were no differences significantly in the mean blood loss and rate of blood transfusion between the patients underwent cesarean myomectomy and typical cesarean sections. However, the comparison of duration of operation, neonatal weight, and Apgar score at minute 1 showed statistical significance. Specially, hysterectomies were performed in our study because all two cases had serious uterine infections. The distinction between studying results is proof that cesarean myomectomy hasn't quite supported. That the surgeon has appropriate expertise, appropriate patients are selected, and blood products are available may be important points for greater safety and success of caesarean myomectomy.

This is study is important because cesarean myomectomy still is limited procedure in my hospital. Myomectomy at the time of C/S was considered complex procedure with high risk of severe bleeding and need to good skill for controlling bleeding. From our study results, we hope that cesarean myomectomy is a safe option in the hands of skilled, experienced surgeons and where the appropriate facilities are available. The main limitations of our study are its retrospective nature and the lack of follow-up data for patients.

5. CONCLUSIONS:

The pregnancy outcome and complications of pregnancy having myoma that were received cesarean myomectomy are more serious than C/S alone. Due to bias of observational studies, further and stronger-designed research should be done for re-evaluating the risk and benefit of myomectomy during C/S.

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