# Successful Myomectomy During Cesarean Section: A Case Series

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***Abstract***

***Background****: The incidence of myoma associated with pregnancy is reported about 0.3–5%. As the maternal age increase, so the incidence of myoma. Myomectomy is the most common surgical procedure performed during cesarean section. Many obstetricians are reluctant to perform this combined procedure as they are worried about the potential morbidity and mortality rates due to uncontrollable bleeding. Objectives of this case series is to investigate the success of myomectomy in cesarean section at Persahabatan Hospital, Jakarta.*

***Methods****: Four cases of leiomyoma with pregnancy underwent myomectomy during cesarean section. The indications for cesarean, the average surgery time, the amount of blood loss, the need of transfusion and intensive care, postoperative complications and length of stay were recorded as outcome.*

***Results:*** *The average time taken for surgery was about 100 minutes, average blood loss was approximately 300 ml to 1000 ml, more than usual cesarean section. There were no need of transfusion and intensive care, longer of stay or postpartum hemorrhage in any of the cases.*

***Conclusions****: Myomectomy at the time of caesarean section may be a safe and feasible procedure. Caesarean myomectomy, if done in well-equipped centers by an experienced obstetrician is a definite and safe option.*

***Keywords:*** *cesarean myomectomy, leiomyoma, pregnancy*

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# Keberhasilan Miomektomi pada Seksio Sesarea: Sebuah Laporan Kasus

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***Abstrak***

***Latar belakang:*** *Insidensi mioma yang berhubungan dengan kehamilan dilaporkan sekitar 0,3-5%. Insidensi mioma juga meningkat seiring meningkatnya usia maternal saat kehamilan. Miomektomi adalah prosedur bedah yang paling umum dilakukan dalam seksio cesarean. Banyak ahli kebidanan enggan untuk melakukan prosedur gabungan ini karena kekhawatiran tentang potensi morbiditas dan mortalitas karena perdarahan yang tidak dapat dikendalikan. Tujuan dari serial kasus ini adalah untuk menyelidiki keberhasilan miomektomi selama seksio cesarean di Rumah Sakit Umum Pusat Persahabatan, Jakarta.*

***Metode:*** *Empat kasus kehamilan yang dilakukan miomektomi dalam seksio cesarean. Indikasi seksio cesarean, rata-rata waktu operasi, jumlah perdarahan, kebutuhan transfuse darah dan perawatan intensif, komplikasi post operatif dan lama perawatan dicatat sebagai luaran.*

***Hasil:*** *Rata-rata waktu operasi sekitar 100 menit, jumlah perdarahan mulai dari 300 – 1000 ml, lebih banyak dari tindakan seksio cesarean biasanya. Tidak ada pemberian transfusi, perawatan intensif, perpanjangan perawatan ataupun perdarahan post partum pada serial kasus ini.*

***Kesimpulan:*** *Miomektomi pada seksio cesarean merupakan tindakan yang aman dan memungkinkan untuk dilakukan. Miomektomi pada seksio cesarean, jika dilakukan di pusat tersier yang dilengkapi dengan dokter kebidanan yang berpengalaman adalah pilihan yang pasti dan aman.*

***Kata kunci****: miomektomi seksio cesarean, leiomyoma, kehamilan*

## Introduction

The incidence of myoma associated with pregnancy is reported about 0.3–5%. As the maternal age increase, so the incidence of myoma. Myomectomy is the most common surgical procedure performed during cesarean section. It was performed at 0.89% of all cesarean section from review of 10 years of experience. However, most obstetricians are trained to avoid removal of large myomas during cesarean section before last decade.[2]

Although the rate of myomectomy procedures performed during cesarean sections is increasing, many obstetricians are reluctant to perform this combined procedure as they are worried about the potential morbidity and mortality rates due to uncontrollable bleeding postoperative morbidity.

Patient who undergoes myomectomy during cesarean section will not require a second operation. This will decrease the overall cost and prevent the risk of myoma-related complications in subsequent pregnancies.

In addition, myomectomy during C-section accelerates puerperal involution and reduces fibroid-related complications which can develop in later life, such as menorrhagia, anemia and pain. Most studies have shown that myomectomy can be safely carried out if various factors such as uterine contractility, anatomic localization, number and diameter of myomas, and the presence of large vascular structures are taken into account.[3]

## Cases Ilustration

### Case 1

Mrs. C, 28 years old, G2P0A1 at 22-23 weeks gestational age, was referred to Persahabatan hospital due to with multiple uterine myomas and chronic hypertension on March 2018. Patient had history of 4 years infertility. Her general examination was normal, including all antenatal investigations. She did not have any symptoms related to the myoma such as abnormal uterine bleeding or pain, before and during pregnancy because of the myoma. From USG examination, there were total placenta previa and multiple subserous and intramural uterine myomas with the largest myoma on posterior cervix (95 mm) and uterine fundus (98 mm). The others were located in left lateral varied from 10-98 mm in size. Serial USG examination found enlargement and multiplication of myomas up to 10 myomas with the largest diameter was 117 mm. On June 22nd 2018, cesarean section with myomectomy was performed on 36-37 weeks gestational age due to total placenta previa. Baby was born at 2550 grams with Apgar score 8/9 without complication. After removal of the placenta, oxytocin drip 20 IU in 500 cc of lactate ringer was given. Next, we performed myomectomy with preparation of tourniquette placement at the level of cervix. On exploration, we found no myomas invading the uterine cavity. Oxytocin drip was continued during myomectomy. Duration of procedure was about 150 minutes and blood loss was estimated 600 cc. The histological examination confirmed the diagnosis of multiple leiomyomas. The patient was discharged two days after the surgery. The involution of uterus was normal and there were no post partum morbidities at the time of discharge.

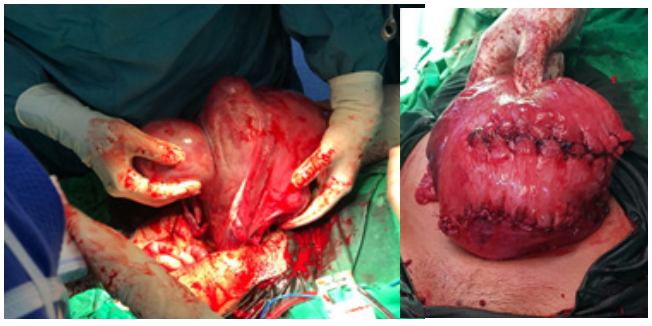

**Figure 1. Case 1**

### Case 2

Mrs. R, 31 years old, G1 at 24-25 weeks gestational age, was referred due to uterine myoma. On USG examination, we found multiple subserous and intramural uterine myomas sized 28x21 mm and 11x9 mm on anterior corpus and 73x60 mm on right posterior corpus. At 34-35 weeks gestational age, patient was anemic with Hb level of 7 g/dL and presentation of microcytic hypochrome. The growth of the baby was restricted with estimated fetal weight of 1700 g. Patient was treated with tocolytic medication, lung maturation, PRC transfusion, venofer infusion, and nutrient support. Based on serial USG exam on 36 weeks, baby was relatively small (EFW 2400 g and AFI 14) with sign of hypoperfusion (CPR<1). Intramural uterine myoma was on right lateral corpus sized 70x57 mm. We decided to perform cesarean section with Joel-Cohen skin incision and low transverse uterine incision. Baby was born without complication, 2100 g, and Apgar score of 8/9. We continued with myomectomy on three uterine myomas with tourniquette placement on lower uterine segment. Defect was sutured continuously with chromic number 1. Intraoperative bleeding was about 400 cc. We did not give intraoperative transfusion with post operative Hb of 10.5 g/dL. Oxytocin drip was continued. Histopathology result showed uterine leiomyoma. Patient was discharged without complication after 3 days of care.

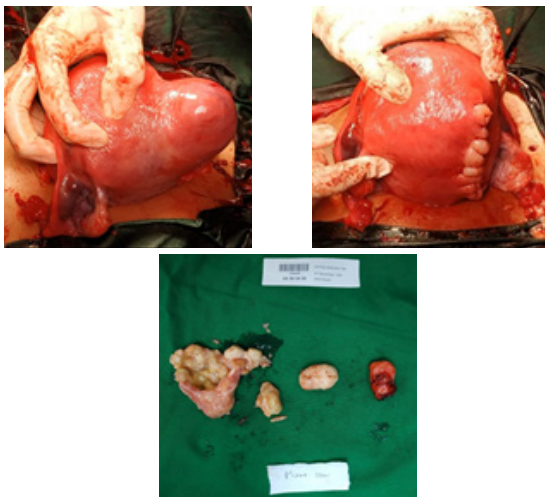

**Figure 2. Case 2**

**Case 3**

Mrs. P, 32 years old, G1 at 24 weeks gestational age, was referred due to multiple uterine myomas. Intramural multiple uterine myomas on right anterior corpus (on margin of lower uterine segment) sized 31-78 mm was found on serial USG fetomaternal examination until 38-39 weeks gestational age. Patient came with contraction and the CTG records was suspicious twice, it was decided to perform cesarean section with pfanenstiel skin incision and low transverse incision on lower uterine segment. Baby girl was born with a weight of 3650 g, and Apgar score of 8/9. Subserous and intramural uterine myomas up to 10 myomas sized 20-80 mm was found on anterior and posterior corpus. It was continued with myomectomy and tourniquette placement under lower segment of uterus and drip oxytocin infusion. Duration of procedure was 110 minutes with estimated blood loss of 1000 cc, no need of blood transfusion and ICU care. The histopathology result confirmed the diagnosis of leiomyoma. Patient was discharged 3 days after operation without any complaints.


**Figure 3. Case 3**

**Case 4**

Mrs. R, 35 years old, G3P2 at 34 weeks gestational age, was referred due to uterine myomas and previous cesarean section. Serial US fetomaternal exam were founf progressivity of intramural uterine myoma on right anterior corpus as high as lower uterine segment on 34 weeks gestational age, sized 98x80x46 mm to 108x97 mm on 37-38 weeks gestational age. When cesarean section was performed, we did pfanenstiel incision and seen gravid uterus with intramural myoma mass sized 14x10 cm on the right lower uterine segment. Lower uterine segment was incised and penetrate continued with myomectomy. After myomectomy, we delivered baby boy 3200 g, Apgar score 9/10. Lower uterine segment was sutured continuously 2 layer with PGA no. 1. Intraoperative bleeding 300 cc with length of procedure was 85 minutes. Histopathology result confirmed the diagnosis of uterine leiomyoma. On post operative care, there was no bleeding and no ICU care or blood transfusion needed.

**Figure 4. Case 4**

## Discussion

Myoma is the most common benign uterine tumor. Studies showed an incidence of 25–30 % in reproductive age, with a high recurrence in patients over 40 years old and black skin.[4] Apart from race, other possible risk factors for developing uterine fibroids are early menarche, familial predisposition and overweight. Parity and smoking may decrease the risk of developing myomas. Uterine leiomyomas are present in 63.2 % of nulliparous women over the age of 30 years.[5] Generally, myomas are localized in the uterine body (95 %), but on the basis of their localization and the direction of their growth they can be categorized into four types: subserosal, intramural, submucosal, and intraligamentous myomas.[4]

Larger fibroids (>5 cm) are more likely to grow during pregnancy and can cause miscarriages, malpresentations, preterm labour, obstructed labour, preterm premature rupture of membranes, retained placenta, postpartum haemorrhage, intrauterine growth restriction, and uterine torsion. It is found that 10–30% of women with myomas associated with pregnancy had complications as mentioned before.[1,6] Caesarean section rates in women with myoma is approximately 73%, mainly due to obstructed labor and malpresentations.[6]

There are reports in the literature that myomas with a size of up to 30 cm have been resected. It has been suggested in the literature that large myomas should be resected if they are located in the lower segment and block the birth canal or if they are symptomatic.[3] In our cases, they remained asymptomatic.

Increase of estrogen and progesterone levels, uterine blood flow, and possibly human chorionic gonadotropin levels in pregnancy, are believed to affect the growth of myoma. Most studies that have sonographically monitored the size of fibroids across pregnancy have refuted the commonly held belief that fibroids increase in size through gestation, although there are exceptions. It appears that fibroid size remains stable (<10 % change) across gestation in 50 to 60 percent of cases, increases in 22 to 32 percent, and decreases in 8 to 27 percent.[7] In our study, uterine leiomyoma size significantly increases in the half of cases (50%).

Burton, et al. reported thirteen cases of incidental myomectomy at cesarean section. Out of thirteen cases, only one case was complicated by intra-operative hemorrhage due to myomectomy. They suggested that myomectomy in cesarean section may be safe in carefully seleted patients. In case control study conducted by Kwawukume, et al involution of the uterus was normal in all patients with myomectomy during cesarean section and there was no intra-operative hemorrhage significantly higher than control cases.[2] Kaymak, et al. reported a non-significant increase in the risk of bleeding during caesarean myomectomy compared to caesarean section alone.[8] In our study, the mean estimated blood loss during caesarean myomectomy (about 600 cc) was not greater than blood loss during typical caesarean sections and no need of blood transfusion. There were no incidence of postpartum haemorrhage.

In the setting of the symptomatic patient with an accessible subserosal or pedunculated fibroid or the patient with fibroids obstructing the lower uterine segment, Roman and Tabsh in a retrospective study involving 111 women with myomectomy at cesarean section and 257 women undergoing cesarean section alone noted no significant difference in incidence of intraoperative hemorrhage, post partum fever, operative time, and length of hospital stay.[9,10] Several recent studies have described techniques which can minimize blood loss at cesarean myomectomy, including uterine tourniquet, bilateral uterine artery ligation, and electrocautery.[9]

Our study also shows that cesarean myomectomy is not as dangerous as generations of obstetricians have been trained to believe. Enucleation

of the fibroid is technically easier in gravid uterus owing to greater looseness of the capsule. Retraction of uterine muscles is enhanced by oxytocic agents to help arrest the hemorrhage.[10] Valson, et al. reported no patient had a hysterectomy, postpartum complications, or blood transfusion. The length of hospital stay was comparable in both groups; hence, these authors also generally recommended performing the procedure.[6]

In a study conducted on 24 women in Ghana, the average duration of operation was shorter in cases having myomectomy with LSCS (62.08 minutes)[11] than minutes in our institution while cesarean myomectomy required 100 minutes. It takes more experiences for our obstetrician.

From the review studies in Africa, these surgeries have been largely performed on pedunculated and anterior fibroids individually less than 6 cm and those obstructing the lower uterine segment or wound closure after extraction of the baby. However, if it is performed as an emergency procedure when the patient is already in labour or has ruptured the fetal membranes, there is an increased risk of sepsis occurring.[12]

The decision to perform myomectomy was based on the localization of the myoma, the diameter of the myoma, the number and size of the vascular structures nourishing the myoma, and the impact on uterine contractility. However, when opting for myomectomy, the experience of the surgeon and the proximity to a tertiary center must be taken into account. To ensure the safety of cesarean myomectomies, procedures must be in place to reduce bleeding and the incision must be carefully planned.[3] In this study, we have demonstrated that myomectomy performed at time of cesarean delivery does not increase the risk of hemorrhage, postoperative fever, or prolong hospital stay. These results indicate that in selected patients and in experienced hands, myomectomy during cesarean delivery can be a safe procedure.

## Conclusion

In all cases of caesarean myomectomy in our study, there were no postoperative complications, suggesting that myomectomy at the time of caesarean section may be a safe and feasible procedure. Caesarean myomectomy, if done in well-equipped centers by an experienced obstetrician is a definite and safe option.

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