



Published By : PERINASIA
The Indonesian Society of Perinatology

Simultaneous Myomectomy and Cesarean Section: A Dual Surgical Approach Pregnancy with enormous fibroid



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ABSTRACT

Introduction: Myomectomy during cesarean section (CS) is a complex but increasingly common surgical approach used in cases of large uterine fibroids in pregnant patients. This report aims to evaluate the efficacy and safety of myomectomy in conjunction with CS for large uterine myoma.

Case description: A retrospective study was conducted on two pregnant patients with large uterine myomas who underwent myomectomy during CS at a Hospital of Universitas Airlangga. Clinical data, myoma characteristics, and maternal and neonatal outcomes were evaluated. Myoma sizes were 15x15cm and 15x20cm, and both were intramural. No significant intraoperative complications occurred. Bleeding during surgery was well controlled, and all patients recovered without adverse events. The duration of surgery was 60 and 70 minutes. Patients were discharged home within 3 days after surgery, and all neonates were born healthy with no congenital abnormalities.

Conclusion: Simultaneous myomectomy with CS is a successful and safe method of managing big uterine myomas in pregnant women. This surgery has two advantages: it treats maternal fibroid problems while also ensuring maternal and newborn safety during CS. The installation of a Foley catheter for uterine artery clamping aids in preventing excessive bleeding during surgery. This method can be used to handle pregnant individuals with big uterine myomas who require CS.

Keywords: Myomectomy, cesarean section, Myoma, Fibroid.

Cite This Article: Baktiar, M.P., Rauf, K.B.A., Gumilar, K.E. 2023. Simultaneous Myomectomy and Cesarean Section: A Dual Surgical Approach Pregnancy with enormous fibroid. *Indonesian Society Of Perinatology* 4(2): 27-31. DOI: 10.51559/inajperinatol.v4i2.35

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Received: 2023-05-28

Accepted: 2023-07-08

Published: 2023-08-05

INTRODUCTION

Uterine fibroids, also known as leiomyomas or uterine myoma (later referred to as "myoma"), are benign uterine smooth muscle tumors. Due to their prevalent incidence among women of reproductive age, the possible side effects of leiomyomas during pregnancy and their impact on pregnancy outcomes are clinically significant. While the majority of pregnant women with fibroids are asymptomatic and have no pregnancy-related problems associated with leiomyomas, their prevalence during pregnancy ranges from 1.6% to 10.7%.¹ Furthermore, leiomyomas predispose individuals to a spectrum of pregnancy complications, encompassing miscarriage, antepartum hemorrhage, preterm labor, preterm premature rupture of membranes, fetal malpresentation, labor dystocia, and postpartum hemorrhage.²

Myoma in pregnancy is the

occurrence of uterine fibroids, which are noncancerous growths in the uterus, during pregnancy. These benign tumors can have an impact on pregnancy outcomes, posing difficulties such as an increased risk of problems. Myomas and pregnancy interact in a complicated way, with characteristics like size, quantity, and location determining possible problems. While many women with fibroids have straightforward pregnancies, some may experience complications such as loss, preterm birth, or the need for a cesarean surgery. Understanding the dynamics of myoma and pregnancy is critical for healthcare practitioners who want to provide the best possible care and support to pregnant moms with uterine fibroids.³

Here we report 2 cases of pregnancy with large uterine myoma. Both cases were referred to our hospital for more comprehensive treatment of both mother and fetus. One of the cases had

complications in the form of recurrent miscarriage. In the other case, there was a threat of recurrent preterm labor.

CASE REPORT 1

A 31-year-old woman, gravida 4 with a history of 3 miscarriages presented with chronic hypertension and an extreme obesity condition, as indicated by a Body Mass Index (BMI) of 54. Notably, during her second pregnancy, the patient experienced a miscarriage and was already aware of her uterine myomas; However, specific ultrasound findings were not disclosed and the patient did not exhibit any symptoms attributed to uterine myomas.

In the current pregnancy, at 14/15 weeks of gestation, a uterine myoma measuring 9 x 9.5 cm was first detected at the posterior side of the corpus, and the placenta was in the fundus distant from the

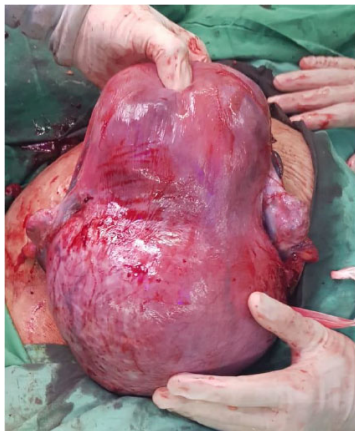


Figure 1. The uterus has exteriorized, and myoma at the posterior uterus.



Figure 2. Temporary Ligation of Uterine Artery Using Foley Catheter.

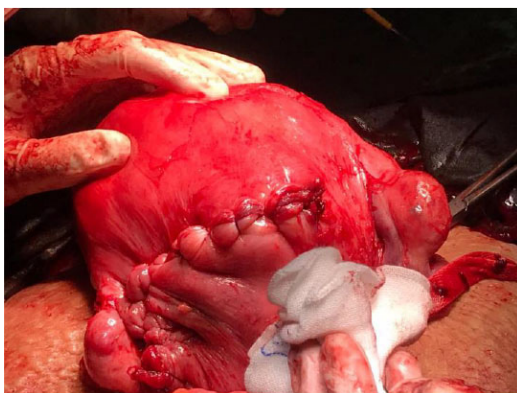


Figure 3. The uterine wall was sutured quickly and carefully with 2 layers of sutures.

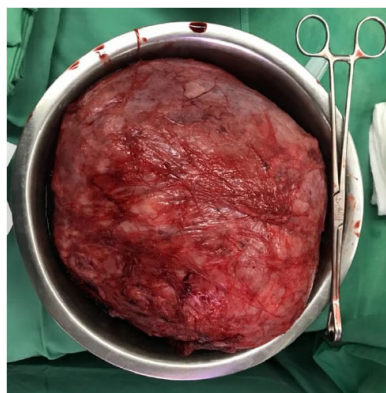


Figure 4. Uterine Myoma.



Figure 5. Intramural Myoma has been discovered.



Figure 6. Giant Intramural myoma.

uterine myoma. On periodic evaluation, ultrasound biometry indicated fetal dimensions consistent with the gestational age, and no IUGR was detected. Uterine myoma has a progressive size becoming 15 x 15 cm at 38 weeks, myoma grew to 15 x 15 cm at 38 weeks gestation, causing discomfort in the belly and waist, as well as pain with a VAS Score of 4-6 (moderate

to severe). To ease discomfort, the patient occasionally takes analgesics. In the month preceding labor, activity and relaxation were restricted.

An elective cesarean myomectomy was scheduled for the patient at 38 weeks of gestation. The incision is performed at the lower segment of the uterus. A baby girl was delivered, weighing 3,120 g, with an Apgar

score of 8-9. After the baby was delivered, the uterus was exteriorized to facilitate exploration. The objective was to access an intramural uterine myoma measuring 15 x 15 cm located in the posterior corpus (Figure 1). Temporary clamps were affixed to the uterine artery using a Foley catheter as a tourniquet (Figure 2), and a new incision was made to remove the myoma. After the myomectomy, the uterine wall was sutured quickly and carefully with 2 layers of sutures using Monosyn[®] 1, and a Foley catheter could be released (Figure 3). The Intraoperative bleeding amounted to 500 cc, with no postpartum hemorrhage occurring. Within the first 24 hours after surgery, uterine contractions were observed to be good. No blood transfusion during and post-surgery. Hemoglobin levels were 11,2 and 10,1g/dL (pre- and post-operative). Oxytocin drip 10 IU and tranexamic acid 500mg were administered within 12 hours, and the patient was discharged after a 3-day hospitalization period.

CASE REPORT 2

A 36-year-old woman, gravida 3, with 2 live children with obesity grade II (BMI 38) is referred from the health clinic due to myoma in pregnancy and required optimal care during pregnancy and labor. 10 x 5 cm at the anterior corpus uterine myoma was diagnosed in the second-trimester ultrasound at 18/19 weeks. The placenta is located in the fundus uterine. Ultrasound biometry indicated fetal dimensions consistent with the gestational age, and no IUGR was detected from routine USG. Uterine myoma has a progressive size of 20 x 15 cm at 37/38 weeks. Myoma was located from anterior corpus to the lower segment of uterus. The fetus was transverse and appeared to be hovering over the myoma. Patient was reportedly hospitalized 2 times due to the threat of preterm labor associated with uterine contractions. For one month before to the birth, the patient also complained of pain, particularly in the waist and hip area. Analgesics had previously been used to ease pain. Pain was graded on a scale of 5-7 (moderate to severe).

An elective cesarean myomectomy was scheduled at 38 weeks of gestation. We made two incisions for this procedure.

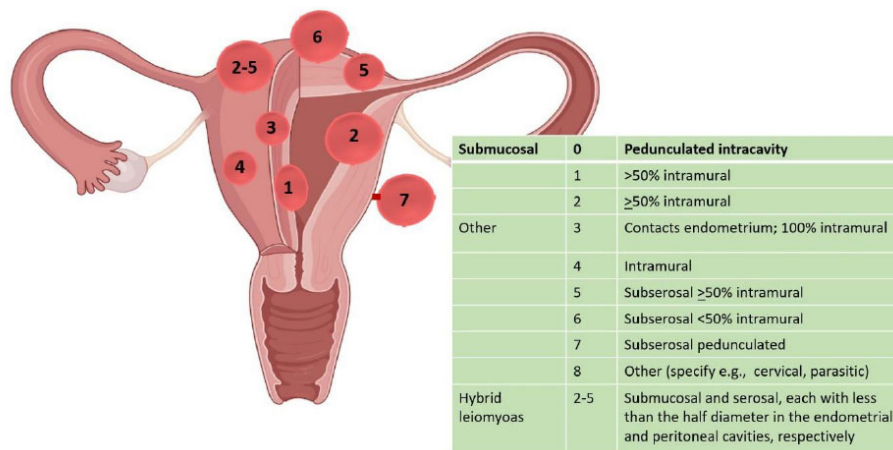


Figure 7. FIGO classification system for uterine leiomyoma.²

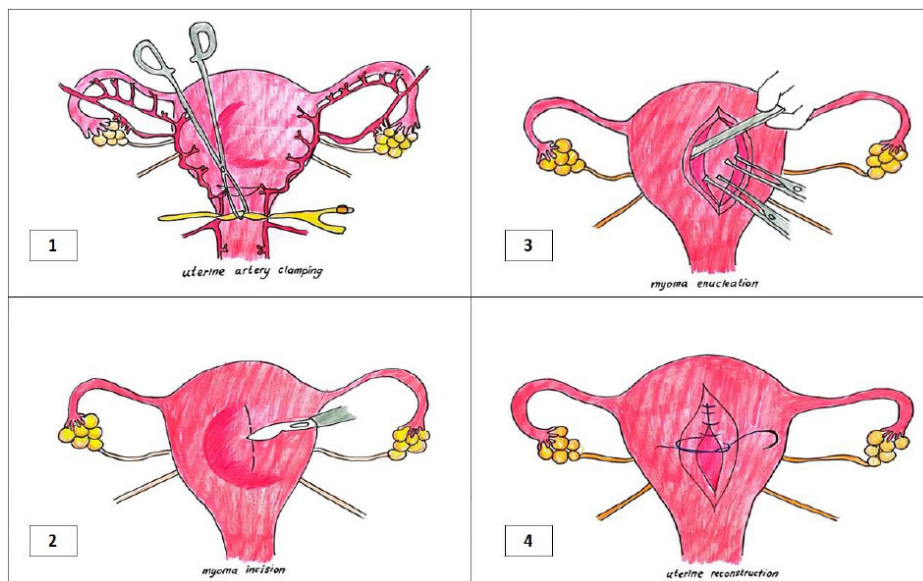


Figure 8. Myomectomy procedure involving uterine artery clamping.²

To deliver the infant, the first incision was made above the myoma. (Figure 5). Baby Boy was delivered, weighing 3,050 g, with an Apgar score of 7-8. The uterus is exteriorized after the initial incision is closed in order to obtain good exposure. A 20 x 20 cm intramural myoma uteri has been discovered at the lower segment uterine. Temporary clamps were affixed to the uterine artery using a Foley catheter as a tourniquet. A large intramural myoma is removed from the uterus through second incision (Figure 6). After myomectomy, the uterine wall was sutured quickly and carefully with 2 layers of sutures using Monosyn® 1. The Intraoperative bleeding amounted to 300 cc, with no postpartum hemorrhage occurring. No blood transfusion during and post-surgery. Hemoglobin levels were 11,5

and 10,5g/dL (pre- and post-operative). Oxytocin drip 10 IU and tranexamic acid 500mg are administered within 12 hours. Postoperative analgesics were administered to facilitate mobilization, and the patient was discharged after 3-day hospitalization period.

DISCUSSION

We report the cases of 2 patients with large fibroids (>15 cm) who underwent successful cesarean myomectomy (Table 1). Both patients were multigravida with different previous pregnancy histories. There were 2 recurrent miscarriages (case I) and abdominal pain for the past year (case II). The type, size, and location of myoma are associated with low fertility outcomes. Although both cases were not

recognized as submucosal myoma type, the size of more than >4cm in intramural had an impact on the incidence of recurrent miscarriage. Notably, the myoma in case I is classified as type 4 or intramural (figure 7). Contrary, the myoma in case II was categorized as type 5 with the proportion of myoma more towards the sub-serosal so that it did not have a history of miscarriage in previous pregnancies.⁴ In an American cohort study, it was observed that leiomyomas can reduce pregnancy implantation rates from 22% to 18% and elevate miscarriage rates from 8% to 15%.⁵ another report involving 47 subjects reported a miscarriage incidence of 34% and a preterm birth rate of 21%.¹

Both patients had BMIs greater than 30kg/m² (54 and 38, respectively), indicating grade 3 and grade 2 obesity. Obesity during pregnancy impairs ultrasound accuracy while examining fetal congenital defects. Ultrasound sensitivity is affected by gestational age, maternal condition, fetal position, ultrasound machine, and operator experience. Furthermore, the existence of a myoma in an obese pregnancy makes it difficult for the patient to notice any changes in her abdomen.⁵ To produce better images and increase the quality of prenatal diagnosis, special procedures, low-frequency settings, and numerous scans at different gestational ages are required.⁶ With routine ultrasound evaluations every 2-4 weeks from 24 weeks gestation to term, both fetuses in our research exhibited no congenital anomalies.

During pregnancy, the size of myoma expanded dramatically. Based on 2D ultrasound examination, the increase in area (cm²) was 162.8% and 500% in cases I and II, respectively. Measurements were taken at the initial visit to our hospital and one day prior to surgery. Various percentages of myoma growth during pregnancy have been reported. Several studies have found a more than 300% rise during pregnancy. Surprisingly, this considerable increase is not related to a significant decrease in overall uterine volume.^{7,8} The presence of IUGR, on the other hand, causes particular concern in cases of pregnancy with myoma. However, according to the claim report, the fetus is growing well. The placement of the placenta

Table 1. Clinical Characteristics of the patient

Case No.	Age of Patient	Gravidity	Risk factors pre- and during pregnancy	Complication during pregnancy	Myoma extent during pregnancy*	Type uterine myoma	Blood loss (mL)
1	31	Multigravida	Recurrent miscarriage, Chronic Hypertension, Extreme Obesity (BMI 54)	Abdominal and waist discomfort, VAS Score 4-6	15x15	Type 4	500
2	36	Multigravida	Obesity grade II (BMI 38)	Parturition premature imminent, transverse lie, waist and hip discomfort, VAS Score 5-7	20x15	Type 5	300

*Using 2D USG, mass area in cm²

away from the myoma is also thought to be a helpful factor in avoiding fetal IUGR and improper placental implantation in cases of myoma pregnancy.⁹⁻¹¹ The location of the myoma also influences fetal presentation; in example case number 2, the fetus was discovered to be transverse due to the myoma's position in the front corpus up to the lower section of the uterus.

In our case, the rise in myoma volume caused several problems, including abdominal, waist, and pelvic discomfort. This discomfort was linked to pain, which was assessed using VAS score standards. A VAS score of 4-6 and 5-7 indicated moderate to severe pain and necessitated medications. In both individuals, there was a history of using analgesics to reduce pain, even if they were not taken daily. The existence of discomfort in myoma is defined by varied degrees of pain complaints. This is assumed to be due to the myoma's size (>5cm), which has been observed to be quite significant in producing pain, particularly in the second and third trimesters.¹² In addition, the presence of pain causes the release of prostaglandins as mediators that stimulate uterine contractions and result in the threat of premature labor.¹³ In case II we found a history of hospitalization due to signs of early labor. After administering tocolytic and confirming the contractions were gone, the patient remained on outpatient treatment and was scheduled for termination at term.

Myomectomy combined with CS takes extensive planning to avoid complications during and after surgery. Because of the risk of uncontrolled bleeding (UCB), conducting myomectomy after cesarean delivery is fraught with controversy.⁷

During myomectomy, we did temporary clamping of uterine artery with a Foley catheter to prevent UCB. The major arterial that contributes blood flow to the uterus is the uterine artery. The blood flow vascularizing the uterus can be restricted by temporarily clamping this vascular, lowering the risk of bleeding. The use of a Foley catheter is also convenient because it does not pose a risk of organ or vascular injury that would be deadly to the quantity of bleeding. This treatment is thought to be safe and helpful for preventing bleeding, particularly in major myomectomy.^{14,15}

A study involving 26 patients who underwent uterine ligation demonstrated an average bleeding volume of about 254 ml.¹⁶ Efforts to mitigate bleeding during myomectomy encompass the use of vasopressin and catheters for tourniquet placement to compress the uterine artery.¹⁷ Similarly, a study conducted encompassing 84 patients, of whom 57% had intramural leiomyomas, indicated an average blood loss of approximately 876 ml.¹⁸ Uterine artery ligation emerges as a promising approach in managing pregnant women with leiomyomas during CSs, who are undergoing CS because it is able to reduce postpartum blood loss and minimize the necessity of future surgery.¹⁶

Furthermore, the dimensions of the myoma and the uterine location wield a significant influence on delivery outcomes. The incidence of postpartum hemorrhage (PPH) correlates with the size of leiomyomas. The location also bears relevance, with occurrences of PPH distributed as follows: 8.6% intramural, 5.6% subserosal, and 4.7% submucosal.^{19,20}

We divided myomectomy into 4 steps: uterine artery clamping, myoma incision, myoma enucleation, and uterine

reconstruction (Figure 8). After suturing the CS incision site, the uterus was removed in both cases to allow access to the operative field. In the first example, the myoma was in the posterior corpus, requiring extreme caution to avoid damaging the digestive organs. Similarly, in the second example, the myoma was in the anterior corpus up to the lower portion of the uterus, necessitating placement of the tourniquet lower than the myoma. The possibility of tissue ischemia and thrombus development must also be considered while using this clamping approach. To make up for this, the clamps must be opened and closed every few minutes. According to our records, the entire operation took 60 minutes and 70 minutes respectively.

To simplify the process of enucleating the mass, the myoma is incised in the shape of a circle. When undergoing uterine reconstruction, the incision model additionally helps in suture approximation. Enucleation can be performed with a sharp incision or electrocautery. In our method, a sharp scissor incision will be made with the arch facing the mass and following the curve of the myoma. This procedure will result in a large empty gap that will need numerous stitches to prevent hematoma.

Finally, 2-layer sutures were used for reconstructing the uterus. Using Monosyn® 1, the first layer of myometrium was sutured with continuous sutures, followed by the second layer of myometrium and serosa with interrupted sutures. The total bleeding during operation was 500ml in both cases and 300ml in the other. Uterine contractions were observed to be normal during the procedure, and no blood transfusions were administered during or after the procedure. We gave oxytocin drip

10IU and tranexamic acid 2x500mg for 12 hours postoperatively to prevent hypotony and further bleeding. Both babies were delivered healthy and were immediately given joint care with their mothers. The patient had been confirmed as clinically fit on the third postoperative day and discharged with her baby in good health.

CONCLUSION

Two cases of enormous myomas (≥ 15 cm) in pregnant women having successful cesarean myomectomy are reported. Significant intramural myomas may interfere with pregnancy, increasing the chance of recurrent miscarriage, although adequate surgical treatments and management may result in excellent pregnancy outcomes. Despite the risk of bleeding, this surgery produces controlled bleeding. Oxytocin and tranexamic acid were administered postoperatively to prevent hypotony and additional bleeding. The babies were born healthy, highlighting how important of treating big myomas throughout pregnancy with caution.

CONFLICT OF INTEREST

The authors declare that they have no conflict of interests.

CONSENT FOR PUBLICATION

The patient has signed informed consent regarding the publication of medical data in medical scientific journals.

FUNDING

The authors did not receive any funding from any sources (research organizations, governments, or university). The authors used their own funds to conduct this study.

AUTHOR CONTRIBUTOR

All authors contributed equally to preparing this manuscript.

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