



A Report of One Case: The Management of Multiple Myoma Uterine During Caesarean Section

Bambang Hady Pratama^{1*}

¹ Department Obstetric dan Gynecology, Datu Sanggul General Hospital Rantau, Indonesia

Email: bhamz_88@yahoo.co.id

*Corresponding author: bhamz_88@yahoo.co.id

ABSTRACT

A woman, 37 years old G3P2A0 gravid 37 weeks 4 days came with a fetal emergency with a Fetal Heartrate of 187x/min. There is an inpartu sign with an opening of 2 cm. Vital signs within normal limits. The patient also has uterine myoma, so surgery of the cesarean section and myomectomy per abdominal is planned. Postoperatively, multiple myomas with the largest size of 10x10 cm were found and histopathological results showed uterine leiomyoma. Baby was born with birth weight 3320 gr, length 48 cm, and Apgar score 8/10. Drip oxytocin, cefotaxim, ketorolac, tranexamic acid, ranitidine, and methylergometrin administered post-operatively. Postoperative hemoglobin was 10.9 grams/dl or 1 gram/dl lower than before surgery. The 9th day after surgery, the general state and surgical wounds looked good, the uterus fundus height was 2 fingers below the center, and there were no other complaints.

Keywords: Myomectomy, Sectio Caesarea, Caesarean Myomectomy, Uterine Myoma

Case Report

A woman, 37 years old with Gravida 3 Para 2 Abortus 0 Gravid 37 weeks 4 days, entered the Emergency Room of Datu Sanggul General Hospital with a midwife's referral for indication of fetal distress with Fetal Heartrate 187x/min. There were complaints of inpartu signs, namely penetrating abdominal pain, as well as mucus and blood discharge. The history of ultrasound examination of pregnancy has never been done before. Injection history of tetanus toxoid 2 times. A history of high blood pressure, diabetes, pulmonary disease, or other diseases were not found.

Physical examination shows a good general state, blood pressure 110/70 mmHg, pulse 88 x/min, breathing 16 x/ min, temperature 36.6°C. At the abdominal inspection, it appears that the abdomen is enlarged according to gestational age. The results of the abdomen palpation were dense mass, bulging, easily moved, flat-brimmed on the upper right abdomen, uterine fundus height 35 cm, child site elongated, with head presentation. On abdominal percussion *shifting dullness* was not found. Auscultation found Fetal Heartrate 182x/min. On examination in the vagina, a soft portion is obtained, there is an opening of 2cm, and there was a release of mucus and blood. The results of routine blood examination, blood chemistry, urine routine and ECG within normal limits. Ultrasound examination was not carried out.

Based on history taking, physical examination and supporting examination carried out, this patient was diagnosed with G3P2A0 gravid 37 weeks 4 inpartu during 1 latent phase + Fetal Distress + Uterine Myoma. The patient was planned to undergo surgical procedures of cesarean section and myomectomy.

The plan of sectio cesarean in the patient begins with the pfannenstiel abdominal incision and continues with the incision on the lower segment of the uterus. After the baby and placenta were born, before suturing the uterus, location of the myoma was identified

before the myomectomy procedure is performed, the surgical procedure begins with performing a hemostasis procedure with a *figured of eight* technique and continues the myomectomy procedure with a linear incision on the uterine fundus of the anterior, posterior, left lateral parts. The post-operative diagnosis in this patient was Partus Aterm with Multiple Uterine Myoma. From the histopathological examination the result of Leiomioma Uteri was obtained.



Figure 1. Appearance of uterus with multiple uterine myomas in the anterior of the uterus



Figure 2. Appearance of incision area of the fundus uteri posterior part during myomectomy



Figure 3. Multiple Myoma uteri with a size ofr 10x10cm

After cesarean sectio was performed on the patient, the baby girl was born with a body weight of 3320 grams, a body length of 48 cm and Apgar score of 8/10. No congenital abnormalities were found in this baby. Meanwhile, after myomectomy was performed on this patient, a multiple uterine myoma with the largest size of 10x10cm was obtained. The amount of bleeding at the time of myomectomy until the completion of the operation was approximately 200 ml. In the treatment after surgery, supervision of the general state, vital signs and amount of bleeding was carried out. Post-surgery treatments as follows: drip Oxytocin 20 IU in 500cc RL 28 drops per minute, liquid exchange for every 24 hours, Cefotaxime injection IV 1 gram/12 hours, Ketorolac injection IV 30 mg / 8 hours,

Tranexamat Acid injection IV 500 mg/8 hours, Ranitidine injection IV 50 mg / 8 hours, and methylergometrin injection IV 0.2 mg/8 hours. On monitoring 2 hours after surgery, the patient's general condition was good, fundus uteri height 1 finger below the center, good contractions, good peristalsis, urine amount 75 ml/ hour, clear, and the amount of pervaginam bleeding 50 ml / 2 hours and control hemoglobin after surgery 10.9 grams / dl or 1 gram / dl lower than hemoglobin before surgery. Patient control on the 9th day after surgery, the patient's general condition is good, complaints were absent, surgical wounds were good, fundus uterine height 2 fingers below the center, defecation without any abnormality, and the surgical wound were dry.

Discussion

Section caesarea (SC) is the process of childbirth which the fetus weighs more than 500 grams by incising the abdomen and uterine wall. Currently SC can be done in the lower abdomen. This SC can be done electively if there are indications that the baby cannot be delivered normally or it can be done suddenly (emergency) if there is a condition where the baby must be delivered immediately. According to WHO in 2015 the incidence of cesarean section is 10-15% of the total delivery rate worldwide. In Asia, the rate of cesarean section delivery increased by 15.1%, from 4.4% to 19.5%. According to Riskesdas 2013, cesarean section births were 9.8% with the highest proportion in DKI Jakarta (19.9%).¹

The indication of cesarean section is influenced by three factors, namely fetal factors, maternal factors and mother-fetal factors. Maternal factors include previous SC history, active herpes virus infection, tumors that cause obstruction, a history of reconstructive vaginal surgery, for example fistula repair, HIV infection (depending on viral load values), as well as maternal medical conditions that do not allow for normal delivery, for example, poor heart and lung conditions. Fetal factors such as abnormal fetal heart rate pattern, fetal malpresentation, infant weight <2500 gr, and congenital abnormalities. The maternal-fetal factors that have indications so that cesarean surgery must be performed are no progress in the delivery process, narrow birth canal, failure in the process of forcep, placenta previa, cephalopelvic disproportion, and conjoined twins.¹ In this case, SC is carried out on indications of fetal distress with a Fetal Heart rate of 182x / minute and the presence of multiple uterine myomas with the largest size of 10x10 cm.

In contrast, SC has some contraindications, such as intrauterine fetal death (IUFD), severe anemia, severe congenital abnormalities that can cause death immediately after birth such as anencephaly, pyogenic infection of the abdominal wall, and facilities that are not possible for SC to perform.¹ There are no SC contraindications in the case so SC can be performed.

Incision wounds in the abdomen can be both transverse (Pfannenstiel) and vertical (mediana), while in the uterus it can be both transverse (SC Transperitonealis Profunda) and vertical (classical/corporal SC). The plan of section caesarea in the patient begins with the Pfannenstiel abdominal incision and continues with the incision on the lower segment of the uterus.²

1. Transperitonealis Profunda Sectio Caesarea

The type of surgery which most widely performed by incision of the lower uterine segment. This type provides several advantages such as less incision wound bleeding, the risk of peritonitis is smaller, scarring during the healing process in the uterus is generally strong so that the risk of uterine rupture in the future is reduced because in the puerperium the mother in the lower segment of the uterus does not experience much contractions such as the uterine corpus so that the wound can heal more completely. This technique is a technique which applied to the case.

2. Classic Sectio Caesarea

This surgical procedure is performed by incising the middle part of the uterine corpus 10-12 cm long with the lower end above the plica vesio uterine boundary. This technique is carried out if there is an obstacle to carry out the SC transperitonealis profunda process, for example due to the attachment of the uterus to the abdominal wall due to the previous history of SC delivery and a large risk of bleeding if on the side in the lower segment of the uterus where there is a condition of the placenta previa (the placenta is attached to cover the birth canal). The disadvantage of this breed is that the risk of peritonitis and uterine rupture is 4 times higher in subsequent pregnancies.

Table 1. Comparison between classical SC and profunda transperitoneal SC.

Differences	Classic SC	Transperitonealis Profunda SC
Technique	Easier	More difficult
Delivery process	Faster	Slower
Bleeding	More	Less
Infection	More frequent	Infrequently
Healing	Less good, a lot of attachment between the uterus and the abdominal wall	Better, a little attachment
Contraction disorder in the following childbirth	(+)	(-)
Uterine rupture in the following labor	Big risk	infrequently
Suture	3 layers	2 layers

Secio cesarea has potential complications that are divided into short-term and long-term complications. Short-term complications occur momentarily after the procedure such as maternal death, thromboembolism, bleeding, infection, longer duration of hospitalization, hysterectomy when the bleeding is continuous and cannot be stopped with oxytocin, and acute pain after the anesthetic effect disappears. Long-term complications are complications which will occur several months later. These complications include chronic pain and infertility due to the formation of scar tissue. There are also complications for the fetus, such as fetal death, transient tachypnea of neonatal (TTN), and birth trauma due to incision.³

Uterine myoma is the most common benign tumor of the female reproductive tract. Uterine myoma or often called fibroids is a benign tumor that comes from the smooth muscles of the uterus. Tumor cells are formed due to genetic mutations, then develop as a result of the induction of the hormones estrogen and progesterone. The incidence of fibroids during pregnancy reportedly ranged from 0.1 to 10.7% of all pregnancies and most did not cause symptoms. The incidence of myomas increases with age, therefore pregnant women with myomas are more numerous in older age.⁴

A number of factors associated with the incidence of uterine myoma known by other names of uterine leiomyoma, namely: hormonal, inflammatory processes, and growth factors. The incidence of uterine myoma is motivated by a number of risk factors, including genetics (2.5 times more in the first offspring of uterine myoma patients), age >30 years, sedentary lifestyle, high glycemic index diet and high in omega-3 fatty acids, especially marine fatty acids (MFA), overweight / obesity (severy weight gain of 10 kg, will increase the risk of uterine myoma by 21%), menarche at the age of <10 years and late menopause (associated with lengthening of estrogen exposure), nullipara, hormonal contraceptives containing

estrogen hormones both pure and combined estrogen, comorbid diseases especially hypertension, *polycystic ovary syndrome* (PCOS), and diabetes, infection / irritation of the uterus, and stress. Known risk factors are the patient's age >30 years (37 years) old.⁵

The diagnosis of uterine myoma is established through history taking of menstrual cycle disorders and a physical examination of abdominal enlargement. Ultrasound is a routine supporting examination for confirmation of the diagnosis. Complaints of lengthening of the menstrual duration and vaginal bleeding outside the menstrual cycle; are usually more severe especially in submucosal type myomas. Other symptoms are abdominal and lower lumbar pain during menstruation, full sensation, frequent urination, constipation, and dyspareunia. An important complaint is the frequent spontaneous abortion or difficulty conceiving especially in submucosal myoma. On physical examination, signs of anemia and tumor volume can be found that are visible with an enlarged abdomen. Ultrasound is the most recommended supporting examination, where transvaginal ultrasound is more sensitive than abdominal ultrasound. In palpation of the abdomen, dense, bumpy, and easily moved mass might be palpated. The results of routine blood examination, blood chemistry, routine urine and ECG within normal limits. The ultrasound examination was not carried out. Histopathology examination obtained the results of Uterine Leiomyoma.^{4,6}

Based on uterine layer, myomas are divided into subserous, intramural, submucosal, and cervical types.³

1. Subserous myomas appear just below the surface of the uterine peritonium (serosa), appearing as little to large or lumps protruding from the surface of the uterus. These tumors can be stemmed. Tumors within the uterine wall are referred to as intramural or interstitial tumors. If it is small, this tumor may not cause a change in the shape of the uterus. However, if enlarged the shape of the uterus becomes asymmetrical and nodular. If it becomes very large this tumor will become or will appear as a tumor of subserosa and submucosal at once.
2. Submucosal myoma type is the least commonly found, but is clinically most important because it most often causes symptoms. Although mucosal tumors are small, they often cause abnormal uterine bleeding, either due to shifting or suppression of the blood vessels that hold the endometrium above them or as a result of contact with the nearby endometrium. Sometimes a submucosal tumor can form a long stalk and be born through the cervix. The associated symptoms even though they last for a long period of time are the symptoms of childbirth, that is, uterine contractions that cause cramps in the lower abdomen or pelvis, usually accompanied by hypermenorrhea. If it protrudes through the cervix, this tumor is not uncommon to ulcerate or become infected so that it also causes tumor bleeding.
3. Servical myoma most often arises in the posterior part and is usually asymptomatic. Anterior servical myomas often cause early symptoms due to their suppression of the bladder. The most commonly reported symptom is polyuria, and some women complain of stress incontinence. If the tumor is too large, urinary retention may occur.

Women with myomas have an increased risk of childbirth by means of cesarean section, buttock presentation, malposition and premature birth. Complications of uterine fibroids in pregnancy may appear in antenatal, intrapartum or puerperium period. Fibroid complications that have been reported in pregnancy include abortus, postpartum hemorrhage (PPH), fetal malposition, old partum, placenta previa, acute abdomen, laparotomy, premature birth, placental retention and intrauterine growth disorders (IUGR) with a greater risk in myoma >5 cm in diameter compared to the size of a small myoma, or without myoma. Fibroids with a diameter of <5 cm generally remain stable or even shrink as gestational age increases. Multiple and large fibroids can alter the uterine cavity and are consistently associated with fetal malpresentation.⁷

Myomas during pregnancy are associated with a high risk of caesarean section. One of the most controversial dilemmas faced by obstetricians is a procedure called caesarean myomectomy. All this time myomectomy in cesarean births was considered dangerous due to the tendency to intraoperative bleeding and the risk of uterine atony. Myomectomy caesarean patients may also need blood transfusions or caesarean hysterectomies, with increased post-operative morbidity. But in recent decades, the act of myomectomy in childbirth has been reported not to increase the risk of intraoperative bleeding and uterine atony, compared to the act of cesarean section without the action of myomectomy.

Removal of fibroids in cesarean section is not routine because this action is often complicated by heavy bleeding. The management is usually conservative during antenatal periods such as bed rest, adequate hydration, and analgesics. Some researchers suggest that all anterior fibroids should always be removed and cesarean section is an option in carrying out childbirth. However, many obstetricians in the tropics still avoid performing caesarean myomectomy as something that is routinely performed in cesarean section. Caesarean myomectomy in rare cases is usually required in twisted sub-serous fibroids that cause unbearable abdominal pain, sub-serous anterior fibroids and specifically fibroids on the lower segment of the uterus, red degeneration of fibroid that does not respond to conservative therapy, or massively enlarged myoma causing discomfort. In this case, the indication of caesarean myomectomy is a myoma >5 cm and is located anteriorly.⁸

Table 2. Indications and contraindications of caesarean myomectomy.⁹

Indications	Contraindications
Symptomatic myoma	Age >40 years
Myoma >5cm	Multiple myomas
Single myoma	Cornually located myoma
Anteriorly located myoma	Myomas located in the posterior
Tumor previa	Asymptomatic myoma
Stemmed myoma	Tendency to bleeding
Avoiding additional surgical procedures	History of previous uterine ruptures
Degenerative myoma	
The wishes of the patient	

During caesarean myomectomy, both the location and size of the myoma need to be considered, where a study reports that the myoma located in the lower segment needs to be removed. Many report that large or intramural myoma removal is best avoided during SC. Others reported large myoma removal during SC. A meta-analysis of 9 studies of 44 women who underwent caesarean myomectomy, caesarean myomectomy was not associated with any significant hemoglobin changes, and did not require blood transfusions.¹⁰

Some studies have shown that caesarean myomectomy can be performed safely, and the risk of complications as well as the cost of multiple surgeries can be reduced. The benefit of caesarean myomectomy is that it eliminates the need for a second surgery, reducing the risk of complications such as premature labor, dystocia, or uterine atony in the following pregnancies. The decision to perform a myomectomy is generally seen from the location and diameter of the myoma, the size and number of vascular structures, and their impact on uterine contractility. With adequate experience in performing myomectomy on section caesarea with the use of high doses of oxytocin infusion, heavy bleeding which is the most serious complication can be controlled.¹¹

Omar et al reported 2 cases of large uterine myoma in the anterior aspect of the lower segment in a term pregnancy, myomectomy performed on both. In contrast, other studies have shown a high incidence of hysterectomy due to post-partum bleeding and puerperium periods and post-partum sepsis in cases where the myoma is left. Orac et al also reported 22 patients with large myomas (>5 cm) who underwent caesarean myomectomy, and found no hysterectomy or hypogastric artery ligation or other procedures needed to control bleeding. Perinatal death is also not encountered. A case control study by Kwawukume et al in 12 patients undergoing caesarean myomectomy showed normal uterine involution in all patients without a significant increase in intra-operative bleeding compared to controls. In most reported cases, myomectomy performed for resection of stemmed myoma and diameter <6 cm is safe, but if the myoma is larger in diameter, stemmed, and located in the lower segment so that it covers the birth canal, resection also needs to be done.¹² Other studies have also shown that the addition of myomectomy during section caesarean increases the surgical time by about 11 minutes. Although rare, complications that can be caused are transfusions >3 units of blood, post-operative ileus, resurgency is required, and treatment is more than 2 days.¹³

There are also reports of cases of myomectomy performed on myomas with a very large diameter. Lenza et al report successful removal of myomas with a diameter of 22 cm during SC labor.¹⁴ Others report myoma 40 cm after uterine artery ligation to reduce the likelihood of bleeding.¹⁵ The risk of bleeding and hysterectomy due to caesarean myomectomy can be reduced with techniques to minimize bleeding during the procedure. Some of the methods that have been used to minimize bleeding are high doses of oxytocin, devascularization, uterine tourniquet, electrocautery, and some surgical techniques. Bilateral uterine ligation proved effective especially when performed prior to the removal of large myomas. Lee et al also point out that purse-string stitching techniques can be beneficial in controlling bleeding.¹⁶ Both the devascularization and the intracapsular approach are important myomectomy techniques because they depend entirely on the surgeon, especially on areas with ICU centers or a small amount of high-level technological infrastructure.¹⁷

There are 2 approaches in the appointment of leiomyoma during section caesarea; namely serous myomectomy and a new technique, endometrial myomectomy. Both use the same principle of intracapsular myoma removal, with different myoma removal routes.⁹

Serous myomectomy is the removal of leiomyoma by which an incision is made on the surface of the uterus. The difference is that the uterus is enlarged and well vascularized during SC. Uterine involution will clamp large blood vessels in the endometrial cavity, but the development of the blood supply is not affected by the involution so the risk of bleeding increases. In addition, the incision on the surface remains large which can have an impact on adhesion formations. In cases where multiple myoma removal is required, the number of incisions increases as well as the risk of bleeding and the formation of adhesions. In serous myomectomy, removal of posterior myomas and myomas that are near the cornu area is not recommended. The long-term effect of this method is the formation of adhesions.⁹

In 2013, a new technique was developed, namely endometrial myomectomy. The purpose of this new technique is to minimize uterine scarring and the formation of adhesions. After the birth of the baby and the placenta, the uterus is removed from the abdominal cavity. The uterine cavity is wiped with gauze and bleeding control is carried out on the uterine incision. Leiomyoma located near the incision of the lower uterus is removed from the incision line, and the myoma is removed from the subendometrial-intramietric area. After palpation and localization, the leiomyoma is pushed from the serosal location so that it is visible and palpated from the endometrial site, then an endometrial-transmietric incision is performed to reach the leiomyoma with a scalpel or electrocauter blade and the leiomyoma is removed without its capsule with a blunt and sharp dissection.⁹

The entire vascular structure at the base of the leiomyoma is clamped and sutured. If there is more than 1 leiomyoma and it is not close to each other, then the entire leiomyoma is removed one by one and the endometrium is inserted for each leiomyoma. However, the endometrium has a chance to rapidly involute and the size of the endometrial incision shrinks, so the scar is smaller than the initial incision. If the location of the removal of the myoma does not bleed and the diameter of the incision on the surface of the endometrium is <3cm, there is no need for suturing of the endometrial layer to minimize the formation of adhesions.⁹

In this case, caesarean myomectomy is performed. Baby was born without complications with Apgar score 8/10. Bleeding during myomectomy until the completion of the operation is about 200 ml. In the case of one of the postoperative treatments given to prevent postpartum bleeding is oxytocin drip 20 IU in 500 cc RL, tranexamat acid 500 mg / 8 hours, and methylergometrin 0.2 mg / 8 hours. On monitoring 2 hours after surgery, the patient's general condition was good, Uterus fundus height was 1 finger below the center, contraction and peristalsis were good, the amount of pervaginam bleeding was 50 ml / 2 hours and postoperative Hb decreased by 1 gram / dl from Hb before surgery. When the control of the 9th day of post-surgery, the patient's general state and surgical wounds are good, the fundus uterus height is 2 fingers below the center, and there were no other complaints. This case supports that caesarean myomectomy is safe to perform without any significant complications.

Conclusion

A woman, 37 years G3P2A0 gravid 37 weeks 4 days came with a fetal emergency with a Fetal Heartrate of 187x/min and a multiple uterine myoma with the largest size of 10x10 cm. The SC plan begins with the pfannenstiell abdominal incision and continues with the incision on the lower segment of the uterus then gives birth to the baby, and continues with myomectomy with incision on the anterior, posterior, left lateral uterine fundus. Post-operative monitoring up to the 9th day of post-surgery showed good outcomes without any meaningful complications for both the mother and the fetus.

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