

Intraoperative Myomectomy during Caesarean Section

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Abstract

Objective. The aim of this article is to support intracaesarian myomectomy as an alternative method of treatment. **Case report.** This article presents a case of myomectomy during a caesarean section at 38+1 weeks' gestation, with a subserosal myoma on the left wall of the uterus. **Conclusion.** The postoperative period was free of complications, lending credit to the possibility that intracaesarian myomectomy can have a favourable outcome.

Key Words: Pregnancy ■ Myoma ■ Myomectomy ■ Caesarean ■ Fibroid.

Introduction

The most common benign neoplasm in women of reproductive age is a myoma. In women presenting with myomas, especially if multiple, their quality of life is significantly impaired, and the healthcare burden increased (1). It is known that multiparous women have a smaller chance of presenting with myomas in their lifetime (2). While there is definitely a connection between myomas and fertility, the evidence remains controversial. Published studies suffer from dissimilar planning and selection bias (3).

Myomas can have severe adverse effects in pregnancy. Depending on the location of the myoma, pain, bleeding, premature membrane rupture, preterm labour, obstruction of delivery, and even miscarriage present as possible ramifications (4). An elective postnatal myomectomy is commonly performed due to the asymptomatic nature of myomas in 70% of cases (5). However, myomectomy during a caesarean section lowers the risk of many complications, such as post-operative haemor-

rhage, multiple surgeries and complications of anaesthesia (6).

This article presents a case of myomectomy during a caesarian section, and the patient's healthcare follow-up.

Case Report

The patient, 34 years of age, was admitted to hospital with a diagnosis of G2P2 at 38+1 weeks' gestation. She had had a prior caesarian delivery and a medical history of thalassemia trait minor. In the course of antenatal care, a subserosal uterine fibroid was detected at 4+4 weeks of gestation on the left anterior wall of the uterus (size 3.66×3.38 cm) (Figure 1) with gradual growth, as recorded in subsequent ultrasounds, reaching a size of 7.45×5.48 cm at the B level ultrasound scan (Figure 2).

At the time of admission, the patient's blood pressure was 134/62 mmHg with a heart rate of 100 bpm. Slight oedema in both feet was present.



Figure 1. Subserosal Fibroid Size 3.66×3.38 cm.

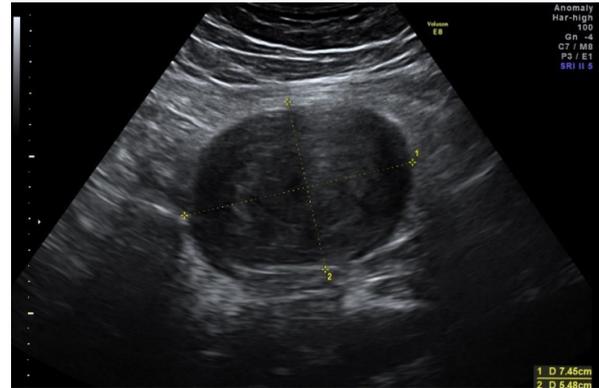


Figure 2. Subserosal Fibroid 7.45×5.48 cm.

Cardiac evaluation did not reveal any abnormalities. The uterus was past 36 weeks in size. The embryo had cephalic presentation. The amniotic sac had not ruptured. The cervix showed no dilation or effacement. The cardiotocography-non stress test (NST) ranged between normal parameters, with FHR at 153 bpm. The patient's hematocrits were 33.1%, INR was 0.83, blood type B positive. Standard virological screening tests were negative. Apart from the fibroid, B level and Doppler ultrasound scans showed no abnormalities.

Taking into account her previous pregnancy, an elective caesarean delivery was planned. A Pfannenstiel incision was performed. During the operation, while entering the peritoneal cavity, the subserosal fibroid was recognized on the left wall of the main body of the uterus. The fibroid presented with multiple adhesions to the peritoneum and the large intestine. The transverse cut to the uterus enabled the extraction of a live and healthy 2730 gr female baby, with Apgar score of 9 at 1 minute and 10 at 5 minutes. The placenta was round, with no abnormalities. The umbilical cord was found free of abnormalities. Intraoperative bleeding of the fibroid occurred due to symphysiolysis, and a myomectomy was performed for immediate hemorrhage assessment. The excision of the fibroid was performed with a minimal increase in surgical time without any further intraoperative complications. Haemostasis was achieved (Figure 3).

Post-operatively, oxytocin and ergometrin infusion were administered to the patient for 24 hours, along with broad spectrum antibiotics and analge-

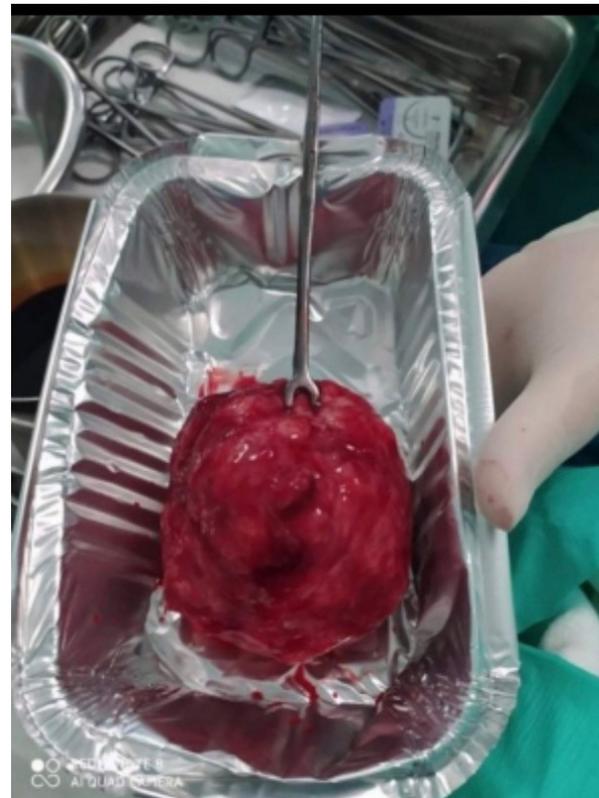


Figure 3. Fibroid after removal from the uterus.

sics. Blood tests were performed after the surgery on postoperative days one and three, with no significant drop in hematocrit levels. The post-operative period was free of complications, and no blood transfusion was deemed necessary. The patient was discharged on the fourth postoperative day.

A month later, the histological examination showed a fibroid of the usual type, with hyaline

necrosis and increased cellularity. At the 4 week follow-up examination the patient was in good health, and on the ultrasound scan there were no signs of the fibroid, uterine rupture or blood in the peritoneal cavity.

Discussion

The percentage of fibroids appearing in pregnant women can be as high as 10%, and may further increase if advanced age or difficulties created by obesity are taken into account (7). It is suggested that fibroids enlarge during pregnancy through various mechanisms. Genetic, hormonal and environmental factors have been shown to contribute to the development of uterine fibroids. These factors include steroid hormones, growth factors, cytokines, and genetic and epigenetic anomalies (8).

Fibroids tend to double in size up to the seventh week of gestation, reaching their maximum size in the second trimester, while in the third trimester they tend to recede (8). The existence of fibroids can cause complications in pregnancy, with severe repercussions for the fetus, ranging from preterm birth and spontaneous abortion, to placental abruptions and emergency caesarean delivery. Infertility due to a large myoma is not unusual (9).

The published literature presents conflicting reports regarding the procedure of myomectomy during pregnancy. The common method of treating fibroids is expectant and removal by surgery at a later date, after the birth (10). The gravid uterus presents with a higher chance of morbidity and mortality during myomectomy compared to a non-gravid uterus, as well as an increased risk of haemorrhage and the need for blood transfusion, since the gravid uterus is more highly vascularised. There is an 18% to 35% chance of the adverse outcome of abortion due to myomectomy in pregnancy (11).

A recent systematic review and meta-analysis performed by Goyal et al. (12) attempted to gather evidence from the published literature about the safety of caesarean myomectomy. In the reviews presented, the most commonly associated complication in a myomectomy during caesarean deliv-

ery was haemorrhage. The analysis performed by the group showed that, even though myomectomy during caesarean delivery increased the need for blood transfusion, evidence indicated no discernible difference in the incidence of haemorrhage. Similar results were shown by a retrospective case control study (13). There was no significant increase in the percentage of haemorrhage between the group that underwent caesarean myomectomy and the control group that underwent only a c-section.

A common indicator for performing myomectomy during a caesarean delivery is the size of the myoma. An assessment plan is considered in cases where the myoma exceeds a diameter of 3 cm (14). Apart from morbidity, fear of excessive blood loss and a postpartum decrease in size advocate against fibroid removal, as well as increased intraoperative time (12).

Myomectomy during caesarian section lowers the risks commonly found in successive pregnancies, while eschewing the necessity for interval myomectomy, as well as enabling vaginal delivery in subsequent births (8). Performed by experienced surgeons, myomectomy during a c-section is a safe procedure. The size and location of the myoma are the main factors that contribute to the decision. Predictably, a myoma that lies at the site of the uterine incision can be safely removed. Intramural myomas close to the fallopian tubes are best left intact (15). Routine myomectomy should be considered only for the safe closure of the uterine breach, or to accommodate the delivery of the fetus (8).

Adhesions are a common complication in operative gynaecology, with possible detrimental effects on the health of the patient. Left intact, bowel obstruction, or inadvertent ureteral, vascular or bowel injury may occur, in addition to obstruction in the operation field due to anatomical changes. Another potential complication is chronic pelvic pain, however the existing literature presents conflicting evidence (16). For these reasons, adhesiolysis is a well-advised practice, albeit one that carries its own intraoperative risks, that include injury to the surrounding organs and vessels (17).

In our case, the removal of the myoma was decided intraoperatively due to the excessive adhesions that resulted in intraoperative haemorrhage. The excision of the fibroid was performed with a minimal increase in surgical time, without generating intraoperative complications. The patient's post-operative period showed no complications, and no blood transfusion was required.

Current medical evidence drives our routine practice, and removal of myomas is discouraged during caesarian delivery. It used to be thought of as an operation with potentially disastrous effects on the mother and was used exclusively in cases of pedunculated subserosal fibroids (18). However, there have been cases of intracaesarian myomectomy with no complications (5, 10). According to Kwawukume, enucleation of a myoma can be performed with minimal difficulty in pregnancy, since the tissue is softer (14). The decision to document this case was made in order to highlight the fact that myomectomy can be effective and safe, on a case by case basis, when performed by an experienced surgeon.

Conclusion

The current literature presents conflicting data regarding the necessity of intraoperative myomectomy during a caesarian delivery. Taking into consideration the high prevalence of myomas in women, more studies are needed on the treatment of myomas during pregnancy. To the best of our knowledge, the aforementioned management can be a safe practice when performed by experienced attending physicians.

What Is Already Known on This Topic:

Myomas can have severe adverse effects in pregnancy. Depending on the location of the myoma, pain, bleeding, premature membrane rupture, preterm labour, obstruction of delivery, and even miscarriage present as possible ramifications (4). An elective postnatal myomectomy is commonly employed due to the asymptomatic nature of myomas in 70% of cases (5).

What This Study Adds:

Myomectomy during caesarian section lowers the risks commonly found in successive pregnancies, while eschewing the necessity for interval myomectomy, as well as enabling vaginal delivery in subsequent

births (8). This article presents a case of myomectomy during a caesarean section at 38+1 weeks of gestation, with a subserosal myoma on the left wall of the uterus. The post-operative period was free of complications, lending credit to the possibility that intracaesarean myomectomy can have a favourable outcome.

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Conflict of Interest: The authors declare that they have no conflict of interest.

References

- Fortin C, Flyckt R, Falcone T. Alternatives to hysterectomy: The burden of fibroids and the quality of life. *Best Pract Res Clin Obstet Gynaecol.* 2018;46:31-42.
- Sparic R, Mirkovic L, Malvasi A, Tinelli A. Epidemiology of Uterine Myomas: A Review. *Int J Fertil Steril.* 2016;9(4):424-35.
- Parker WH. Etiology, symptomatology, and diagnosis of uterine myomas. *Fertil Steril.* 2007;87(4):725-36.
- Sparic R. Uterine myomas in pregnancy, childbirth and puerperium [in Serbian]. *Srp Arh Celok Lek.* 2014;142(1-2):118-24.
- Eyong E, Okon OA. Large Uterine Fibroids in Pregnancy with Successful Caesarean Myomectomy. *Case Rep Obstet Gynecol.* 2020;2020:8880296.
- Awoleke JO. Myomectomy during Caesarean Birth in Fibroid-Endemic, Low-Resource Settings. *Obstet Gynecol Int.* 2013;2013:520834.
- Karlsen K, Schioler Kesmodel U, Mogensen O, Humaidan P, Ravn P. Relationship between a uterine fibroid diagnosis and the risk of adverse obstetrical outcomes: a cohort study. *BMJ Open.* 2020;10(2):e032104.
- Vitale SG, Padula F, Gulino FA. Management of uterine fibroids in pregnancy: recent trends. *Curr Opin Obstet Gynecol.* 2015;27(6):432-7.
- Laughlin SK, Baird DD, Savitz DA, Herring AH, Hartmann KE. Prevalence of uterine leiomyomas in the first trimester of pregnancy: an ultrasound-screening study. *Obstet Gynecol.* 2009;113(3):630-5.
- Roman AS, Tabsh KM. Myomectomy at time of cesarean delivery: a retrospective cohort study. *BMC Pregnancy Childbirth.* 2004;4(1):14.
- Jhalta P, Negi SG, Sharma V. Successful myomectomy in early pregnancy for a large asymptomatic uterine myoma: case report. *Pan Afr Med J.* 2016;24:228.

12. Goyal M, Dawood AS, Elbohoty SB, Abbas AM, Singh P, Melana N, et al. Cesarean myomectomy in the last ten years; A true shift from contraindication to indication: A systematic review and meta-analysis. *Eur J Obstet Gynecol Reprod Biol.* 2021;256:145-57.
 13. Kaymak O, Ustunyurt E, Okyay RE, Kalyoncu S, Mollamahmutoglu L. Myomectomy during cesarean section. *Int J Gynaecol Obstet.* 2005;89(2):90-3.
 14. Kwawukume EY. Myomectomy during cesarean section. *Int J Gynaecol Obstet.* 2002;76(2):183-4.
 15. Hassiakos D, Christopoulos P, Vitoratos N, Xarchoulakou E, Vaggos G, Papadias K. Myomectomy during cesarean section: a safe procedure? *Ann N Y Acad Sci.* 2006;1092:408-13.
 16. Herrmann A, Torres-de la Roche LA, Krentel H, Cezar C, de Wilde MS, Devassy R, et al. Adhesions after Laparoscopic Myomectomy: Incidence, Risk Factors, Complications, and Prevention. *Gynecol Minim Invasive Ther.* 2020;9(4):190-7.
 17. Herrmann A, De Wilde RL. Adhesions are the major cause of complications in operative gynecology. *Best Pract Res Clin Obstet Gynaecol.* 2016;35:71-83.
 18. Garg P, Bansal R. Cesarean myomectomy: a case report and review of the literature. *J Med Case Rep.* 2021;15(1):193.
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