CASE REPORT

Rethinking Caesarean Myomectomy: A case report from Zambia and a review of the literature

Orton Lungu, Chimfwembe Mwansa, Sampa Chileshe, Mwale Kawelwa, Humphrey Frederick Sinkala, Selia Nga'anjo

Women and Newborn-University Teaching Hospital, Ministry of Health, Lusaka, Zambia

ABSTRACT

Background: Fibroids are the most common benign tumours in women of childbearing age. 40-80% of women are affected, and the incidence is rising. The prevalence in pregnancy is 1.6-4%. Large fibroids in pregnancy are not common. While controversy exists on the safety of caesarean myomectomies (CM), new evidence is shifting this debate.

Case presentation: We present a 37-year-old woman who successfully underwent a caesarean myomectomy at term. The procedure was performed due to the benefits of this procedure.

Conclusion: Caesarean myomectomy in carefully selected patients has been associated with good outcomes and reduces the need for a second surgery. This is, however, not a routine procedure and can be associated with serious complications. Due to the paucity of data and lack of consensus on management, a case-by-case basis is recommended.

INTRODUCTION

Fibroids or leiomyomas, are the most common benign tumours of the reproductive system in women of childbearing age.[1,2] It is estimated that 40-80% of women of reproductive age may be affected with fibroids, and the number seems to be increasing.[3] Age, parity, and African ethnicity increase the risk of fibroids.[4] The incidence of fibroids in pregnancy is increasing due to, among others, the increasing number of women delaying pregnancy.[2] The prevalence in pregnancy is estimated to be 1.6-4%.[1,5] This calls for a review of current practices to increase the availability of options for women with fibroids in pregnancy. These women are considered to have high-risk pregnancies due to associated risks of obstruction of the lower segment leading to caesarean delivery (CD) and uncontrollable Postpartum Haemorrhage (PPH).[6]

Caesarean myomectomy (CM) has been described with varying success during CD and currently there is still debate on its safety, especially concerning the increased risk of PPH.[2,6] There are currently few Randomized Controlled Trials (RCTs) that have compared CM to interval myomectomy in women with fibroids undergoing CD.[7] Previously, most literature was against this procedure due to the increased blood supply to the uterus during pregnancy that might predispose women to major

Corresponding Auther:
Orton Lungu
P/Bag RW 1X, Email: drlunguorton@yahoo.com or ortonlungu02@gmail.com. https//orcid.org/0009-0008.

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haemorrhage.[2] In modern practice, several authors have described successful CMs.[2] This offers women the advantage of doing two operations in one instance, hence reducing the cost, discomfort, and risk of complications of a second surgery associated with a planned post-delivery myomectomy.[2, 6] Myomas are estimated to increase the risk of caesarean birth by about 27%, therefore, for carefully selected patients and in well-equipped settings, it is essential to seriously rethink caesarean myomectomies.[3] Data on obstetrical outcomes in patients with large fibroids, more than 5 cm, are scarce, and the optimal management is not known.[8]

We present a rare and successful case of caesarean myomectomy in a 37-year-old prime gravid woman with a large anterior uterine wall pedunculated fibroid.

Literature review

The incidences of both fibroids in pregnancy and that of CDs are rising.[1] The aetiology of fibroids has not been fully elucidated.[9] Current knowledge suggests that fibroids are multifactorial (genetic alterations, hormonal, environmental, and other factors such as race, age, parity, and body mass index) and develop through the conversion of normal myometrial cells into mutated fibroid cells, which further divide.[9, 10] Hormones, especially oestrogen play an important role in promoting the formation and growth of fibroids hence most women experience them less often after menopause.[9] The majority of women with fibroids are asymptomatic or will have mild symptoms and only need conservative management.[1] Most women with fibroids in pregnancy are asymptomatic.[8] 10-30%, however, are associated with significant complications and adverse outcomes.[8] Fibroids in pregnancy can be challenging to manage due to their associated pain when undergoing degeneration, pressure symptoms, risk of miscarriages, malposition or obstruction of the lower segment leading to CD and bleeding post-delivery.[2, 6] There are several modalities to aid in the diagnosis of fibroids and subsequent surgical planning.[10] Ultrasound scans (transabdominal and transvaginal) and Magnetic Resonance Imaging (MRI) are considered the best modalities for initial evaluation.[10] The American College of Obstetricians and Gynaecologists (ACOG) recommends ultrasonography and (MRI) use in pregnancy as the imaging techniques of choice as they are not associated with risk.[11] However, special consideration should be made for MRI with contrast in pregnancy.

Myomectomy is a surgical procedure to remove fibroids. Myomectomy is the treatment of choice for women of reproductive age desiring fertility-sparing options and increases the chance of pregnancy and a live birth.[1] Myomectomy has risks and adverse outcomes such as uncontrollable haemorrhage, which can lead to conversion to hysterectomy, uterine rupture and abnormal placentation that have been associated with surgical intervention. There is paucity of RCTs or systematic reviews on CM.[12] CM is the surgical procedure to remove fibroids during a CD. Routine CM is not a standard procedure and is not yet fully accepted worldwide hence, a case-to-case basis is encouraged to improve outcomes and minimise maternal risks.[1] The intra-capsular myomectomy technique is currently the recommended technique.[5] This is because the fibroid pseudo-capsule, which has been shown to contain many neuropeptides and neurotransmitters, is preserved during this procedure. Other management modalities for fibroids include the use of gonadotropin analogues, antiprogestins (mifepristone), ulipristal acetate (a selective progesterone receptor modulator), bilateral uterine artery ligation or embolization to reduce blood supply to the uterus, Magnetic Resonance Imaging-guided Focused Ultrasound (MRgFUS).[9] These modalities, though available are not used in pregnancy, hence the limited options for managing fibroids in pregnancy.

CASE PRESENTATION

A 37-year-old prime gravida presented at 17 weeks to the emergency department with worsening abdominal pain for a day. The pain was peri-umbilical and in the left flank. She had no comorbid medical conditions nor previous surgeries and had fibroids diagnosed before she became pregnant. She

had mild symptoms related to fibroids before pregnancy. Family history was negative for fibroids.

An abdomino-pelvic scan she had done a week earlier at 16 weeks revealed a single viable foetus with normal fundal placentation. Multiple uterine fibroid masses were noted, with the largest measuring 18.3 × 13.9 cm.

On physical examination, she had abdominal tenderness and a bulky uterus with a huge palpable mass in the left flank. The rest of the examination was normal.

The diagnosis of a prime gravida with symptomatic uterine fibroids undergoing red degeneration was made and she was managed with painkillers as an outpatient.

She was then followed up in the antenatal clinic, monthly then weekly as the pregnancy neared term. During her antenatal reviews, she did not have any additional risk factors and had an unremarkable antenatal period. She was dewormed and received tetanus injections as per local antenatal guidelines and she also received routine haematinics and intermittent malaria presumptive treatment with sulfadoxine and pyrimethamine (Fansidar).

At her 38-week review, her haemoglobin level was 12g/dl, platelets were 274000, and white cell count was 6910. An obstetric ultrasound scan reported a single live foetus in cephalic presentation with an estimated foetal weight of 2.3kg. Magnetic Resonance Imaging was not performed because of limited availability and cost.

She was delivered via a caesarean section due to a contracted pelvis at 38 weeks. The midline incision approach was used and a neonate with a birth weight of 2.5kg and an Apgar score of 9/10 was delivered. She had a huge pedunculated well-vascularised fibroid with adhesions to the anterior abdominal wall and the bowels. It was on the fundus with multiple small fibroids on the anterior body of the uterus. A step-by-step dissection and ligation of the adhesion bands was performed and the fibroid, was clamped at the base then dissected off. The stamp was sutured with polyglactin 910 (vicryl 2 suture). It weighed 2.5kgs and was about 15 × 10 cm. The estimated blood loss was 1500 ml and two units of red cell concentrate blood were transfused post-operatively. A continuous oxytocin infusion for 4 hours post-delivery with rectal misoprostol 800 mcg and a stat dose of slow intravenous 1g tranexamic acid were also administered.

She recovered in the high-dependence unit immediately post-operative and was later transferred to the ward. She recovered uneventfully and was discharged on day 5 post-operatively. Postnatal follow-up reviews were uneventful.

Figure 1 shows a huge pedunculated fibroid after the delivery of the baby and repair of the caesarean section uterine incision (hysterotomy).

Figure 2 shows the surgeon dissecting the omentum and bowel off the fibroid while the assistant holds the fibroid.

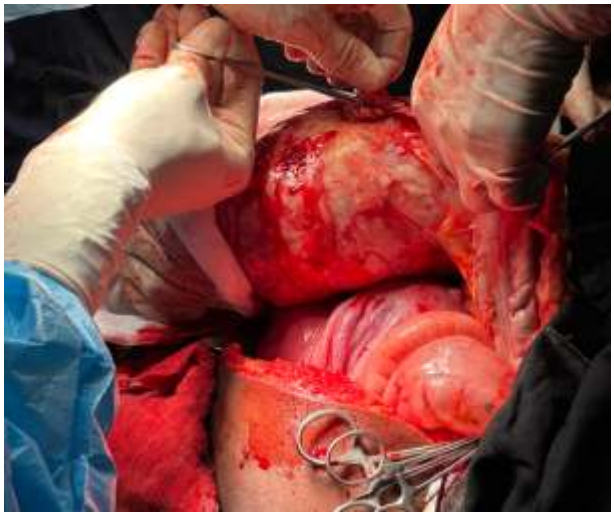

Figure 3 shows the fibroid with adherent bowel loops, the uterus and other free normal bowel loops.

Figure 4 shows the stamp on the uterus after myomectomy.

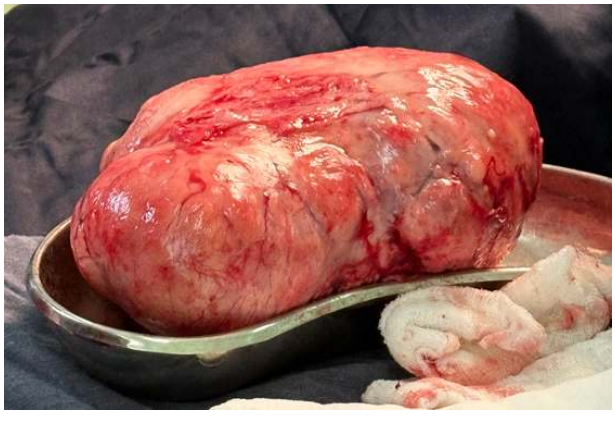

Figure 5 shows the mass after excision on a kidney dish.

Figure 6 shows the mass being weighed after surgery

DISCUSSION

Obstetricians have been faced several times with the daunting question of whether the benefits outweigh the risks of significant morbidity and mortality associated with CM. The discussion has been shifting in the past few decades, with several case reports and retrospective studies reporting similar outcomes or better outcomes in CM compared to interval myomectomy.[7] A meta-analysis by Goyal *et al.* in 2021 found that CM, especially with multiple and large myomas, is associated with a clinically insignificant increase in operative time, blood loss and hospital stay.[2] The authors concluded that CM should be preferred over CS alone, especially by experienced surgeons with appropriate haemostatic techniques and tertiary care centres. Despite the growing evidence, caution should always be exercised to balance the benefits versus the risks. The amount of blood supplying the uterus increases significantly during pregnancy by about 10 to 50-fold.[13] This, coupled with inexperienced hands and a lack of essential commodities like blood, can have devastating outcomes.

CM is relatively safe in anterior wall myomas, subserous and pedunculated fibroids and when a myomectomy is feasible without an additional hysterotomy.[15] Multiple or deep intramural,

posterior uterine wall, fundal and cornual fibroids have been found to have a higher risk of surgical complications during CM. Patients such as those with posterior or submucosal or intramural fibroids, who are not ideal candidates for CM should be counselled for an interval myomectomy done in a separate setting after the CD. Our index case had a large pedunculated subserous (Type 7) fibroid according to the International Federation of Obstetricians and Gynaecologists (FIGO) 2011, 3-tier fibroid classification system.[14] The fibroid had a well-defined stalk making her an ideal candidate. Types 0 and 7 myomas are usually encircled and tied off at the base using threads before excision which was done in our case.[7] PPH and uncontrollable haemorrhage leading to hysterectomy are among the major complications associated with CM.[1] Our index patient had PPH, which was managed with two units of red cell concentrates, antifibrinolytics (tranexamic acid) and misoprostol per rectal of 800 mcg.

Due to the paucity and heterogeneity of available evidence, it is difficult to draw conclusions on the outcomes associated with CM and make recommendations. Dey *et al*. in a Cochrane systematic review, found that the evidence on the effect of CM on the requirement for blood transfusion, risk of bleeding, length of hospitalisation, length of operation, risk of major surgery and risk of postpartum fever is very uncertain hence it not being possible to generate any meaningful conclusions.[12] This lack of evidence-based supportive findings for routine generalised CMs means surgeons need to exercise caution in the selection of participants. A shared decisions approach with the patient is also key to balance the benefits and risks of the procedure and to ensure the patient fully participates in the decision.

CONCLUSION

Caesarean myomectomy in carefully selected patients has been associated with good outcomes and reduces the need for a second surgery. This is not a routine procedure and can be associated with serious adverse maternal outcomes in poorly selected patients, inexperienced surgeons and where there are limited haemostatic resources.

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