



Caesarean myomectomy in a tertiary health facility in southern Nigeria: Report of a series of successful cases

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Abstract

Uterine leiomyoma is the commonest tumour of the uterus with incidence of about 20-40% in reproductive age women. Treatment of leiomyoma during caesarean section remains a controversial subject in spite of advancement in medical treatment. The reasons for avoiding caesarean myomectomy include increased risk of haemorrhage during surgery, prolonged operation time and increased risk of adhesion formation. With recent advances in reduction of blood loss during myomectomy such as use of myoma clamp or uterine tourniquet to occlude uterine arteries and use of vasopressins, good outcomes may be achieved in carefully selected cases. Here, the authors report a case series of 6 patients where myomectomy was performed during caesarean section for multiple uterine fibroids of different sizes in pregnancy with good outcomes.

Keywords: Pregnancy, uterine leiomyoma, caesarean myomectomy, successful delivery.

Introduction

Uterine leiomyomas are the commonest benign tumor in women occurring in 20-40% of women of reproductive age.¹⁻³ The clinically relevant fibroids are found in 0.1 – 10.7% of pregnant women in the three trimesters of pregnancy.^{4,5}

Uterine leiomyomas are 2-3 times commoner in people of black descent than Caucasians and their incidence is increasing in pregnancy due to increasing maternal age and better diagnostic tools.⁶⁻⁸

The complications associated with uterine fibroids in pregnancy include miscarriage, mal-presentation, preterm labour, obstructed labour, primary postpartum haemorrhage and increased caesarean section rate, and therefore considered to be a high risk pregnancy.⁹⁻¹¹

Caesarean myomectomy is still largely controversial due to potential increased risks of primary postpartum haemorrhage, postoperative sepsis, prolonged surgical time (with increased risk of anaesthetic complications and venous thromboembolism); extensive peritoneal adhesions, peripartum hysterectomy and antepartum uterine rupture during subsequent pregnancies.¹² These complications can lead to increased rates of maternal morbidity and mortality. World Health Organization (WHO) has no direct recommendations or criteria for caesarean myomectomy. However, WHO had published a statement on caesarean section rates in 2015 which recommended that caesarean section rates be maintained at 10-15% to effectively prevent maternal and perinatal mortality.¹² WHO also published an update on rising caesarean section rates (to 21%)¹³ due to worldwide study carried out by them. In this study, recommendations were made to reduce caesarean section rates to avoid unnecessary harm to both mother and child.¹⁴ International

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Federation of Obstetrics and Gynecology (FIGO) also has no direct recommendations on caesarean myomectomy. However, it has published good practice recommendations for caesarean delivery. This consists of twelve recommendations aimed at reducing the high rates of caesarean section to a desirable level of 20%.¹⁵ Although both WHO and

FIGO have no direct recommendations on caesarean myomectomy, it can be extrapolated that caesarean myomectomy should not be done as a routine procedure but only after careful evaluation of the patient to minimize complications and ensure good foeto-maternal outcomes. However, here in Nigeria, the Society of Obstetrics and Gynaecology of Nigeria (SOGON) generally recommends a cautious approach with careful patient selection to minimize potential complications. Historically, caesarean myomectomy was initially completely condemned; later it was only permitted when it obstructs the site of the lower segment incision and delivery of the baby during caesarean section. Currently, SOGON has some unpublished recommendations for the procedure which include individualized selection of cases, pre-operative assessment of the sites and sizes of leiomyoma presence (accessible leiomyoma which should not be numerous or of larger sizes), availability of surgical expertise and experience; informed consent by patient after understanding the benefits and risks of the procedure, final intraoperative assessment of suitability of procedure and the need to safely eliminate the need for an interval myomectomy. Thus, caesarean myomectomy is not done as a routine procedure as the risk and benefits must be carefully weighed before it can be performed on any patient. Despite careful pre-operative assessments, the final decision for surgery is taken after intra-operative assessment. This case series is aimed at demonstrating that caesarean myomectomy can be safely performed in low resource settings such as ours, in well selected cases, and by experienced surgeons working in facilities with good blood transfusion and other ancillary services.

CASE 1

She is a 38 year-old, G3P1 +1 (1 Alive) woman, who presented with recurrent abdominal pain (red degeneration of fibroids) at 35 weeks gestation. She was referred from a primary healthcare facility due to pre-eclampsia and one previous caesarean section done three years prior to presentation (due to persistent breech presentation at 38 weeks gestation). On examination, her symphysio-fundal height was 40cm and her blood pressure was well controlled on oral anti-hypertensive drugs. Investigations showed packed cell volume (PCV) of 33% and normal electrolytes, urea and creatinine (E/U/Cr) values. Ultrasound scan revealed a large fundal myoma. The

diagnosis was 1 previous caesarean section with pre-eclampsia and symptomatic large leiomyoma. She was counselled on delivery options after evaluation and subsequently had caesarean myomectomy with delivery of a live male infant weighting 2.7kg. She had a fundal myoma (11cm x8cm x7cm) which was removed (Fig. 1 and 2).

There were no peri- or post-operative complications and she was discharged in good condition after 5days.

CASE 2

A 25 year-old primigravida presented at 36weeks gestation with recurrent abdominal pains and breathlessness. She was nursed in cardiac position and pains relieved with intramuscular acetaminophen. Breathlessness was due to the effect of splinting of the diaphragm by the enlarged uterus and was significantly reduced when the patient was nursed in cardiac position. Recurrent abdominal pain was due to red degeneration of the uterine leiomyoma. On examination, vital signs were stable apart from a respiratory rate of 36 cycles per minute, regular. Investigations revealed a PCV of 36% and normal E/U/Cr values. Ultrasound revealed multiple large leiomyomas. She subsequently had caesarean myomectomy under general anaesthesia with delivery of a live female infant weighing 2.9kg. There were 2 myomas on the right lower lateral uterine edge about 9cm x 8cm x 9cm and 5cm x 5cm x 6cm in sizes. The leiomyomas were removed and haemostasis secured satisfactorily. She had a satisfactory postoperative recovery and was discharged in good condition after 4 days.

CASE 3

A 38 years-old G3P1+1 lady presented at 38 weeks gestation with 1 previous caesarean section (due to foetal distress) and multiple leiomyomas. She had no complaint but ultrasonography had revealed multiple fundal, anterior and posterior myomas with the largest measuring 8cm x 6cm x 5cm. Pre-operative PCV was 35% and E/U/Cr revealed normal values. She was counselled on delivery options and subsequently had caesarean myomectomy with delivery of live female infant weighing 3.4kg. She had intra-operative blood transfusion of one unit of whole blood and no post-operative complication, and was discharged after 4days in good condition.

CASE 4

She was 28 years-old primigravida at 38weeks

Table 1: Obstetric Characteristics and surgical outcomes of the women

Features	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Age(yrs)	38	25	38	28	28	28
Parity	G3P1 +1	G1P0	G3P1+1	G1P0	G1P0	G1p0
Complaint	Abdominal pain	Abdominal pain and breathlessness	Nil complaint	Andominal pain in second and early 3 rd trimesters	Recurrent lower abdominal pain	Nil complaint
GA at delivery	35 weeks	36 weeks	38 weeks	38 weeks	38 weeks	38 weeks
SFH	40cm	43cm	44cm	43cm	45cm	43cm
Indication for CS	Pre-eclampsia with 1 previous cs	Huge myoma	1 previous cs with multiple myoma	Huge fibroid for caesarean section? Proceed to caesarean myomectomy	Huge multiple moma + breech presentation at term	Multiple uterine fibroids at term
Preop. PCV	33%	36%	35%	34%	38%	34%
Incision	Subumbilical midline	Surprapubic transvrse	Surprapubic transvrse	Surprapubic transvrse	Submibical midline	Subumbilical midline
Location of myoma	Fundal	Lower right Lateral side	Fundal, anterior, posterior	Fundal and pedunculated	Intramural, left broad ligament, lower uterine segment	Pedunculated lt cornual and anterior; subserous lt anterolateral and posterior
Size	11 x 8x7cm	9x8x5cm	Largest 8x6 x 5cm	14x8x10cm	Largest 9x8x9cm	Largest 14cm x 10cm x 8cm
Birth weight	2.7kg	2.9kg	3.4kg	3.6kg	3.2kg	3.1kg
Apgar	7 ¹ and 9 ⁵	3 ¹ , 5 ⁵ and 7 ¹⁰	8 ¹ and 9 ⁵	8 ¹ and 9 ⁵	5 ¹ , 6 ⁵ and 9 ¹⁰	8 ¹ and 9 ⁵
Nicu	No	Yes	No	No	No	No
Admission						
EBL	900ml	1500ml	1700ml	1200ml	1300ml	1200ml
Blood transfusion	No	No	Yes (1 punt)	Yes (1 Pint intraop.)	Yes (1 Pint intraop.)	Yes (1 Pint imm post op)
Post OP PCV	29%	27%	30%	28%	31%	29%
Uterine size post Op	18 weeks	18 weeks	20 weeks	18 weeks	18 weeks	18 weeks
Duration of hospital stay	5 days	4 days	4 days	4 days	5 days	4 days

Ga = gestational age; sfh= symphysio-fundal height; nicu= neonatal intensive care unit; ebl = estimated blood loss

gestation who presented with recurrent abdominal pain in second and third trimesters of pregnancy which was due to red degeneration of uterine leiomyoma. Ultrasonography revealed a fundal pedunculated leiomyoma measuring about 14cmx8cm x10cm. Pre-operative PCV was 34% and E/U/Cr revealed normal values. She had caesarean myomectomy with delivery of a live female infant weighing 3.6kg.

She had intra-operative blood transfusion of 1 unit of whole blood. Thereafter, she had an uneventful post-operative recovery and was discharged home after 4days.

CASE 5

A 28year-old primigravida presented at 38weeks gestation with recurrent lower abnormal pain due to red degeneration of leiomyomas. On examination, symphysio-fundal height was 45cm and the foetus was in breech presentation. Investigations revealed PCV of 38% and normal E/U/Cr values. Obstetric ultrasound revealed multiple uterine fibroids. She had caesarean myomectomy with delivery of a live male infant of birth weight 3.2kg. She had multiple intramural fibroids on the fundus, lower uterine segment and broad ligament which were removed with good haemostasis achieved (Fig. 3 and 4).

She had intra-operative blood transfusion of I unit of whole blood and was discharged in good condition after 5 days.

CASE 6

A 28 years-old primigravida presented at 38 weeks



Figure 1

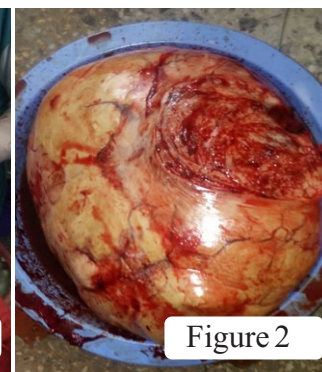


Figure 2

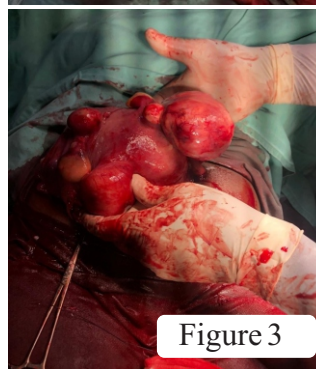


Figure 3

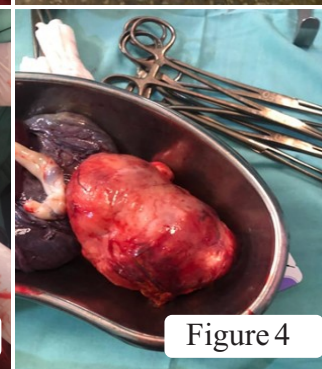


Figure 4



Figure 5

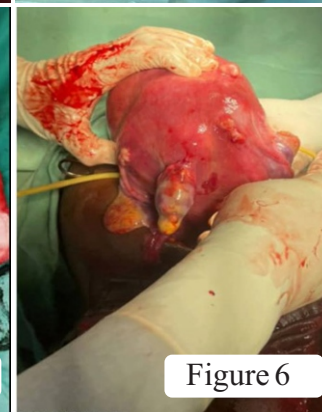


Figure 6

gestation with oblique lie but had no complaint. A routine ultrasound scan revealed multiple uterine fibroid nodules. Pre-operative PCV was 34% and E/U/Cr was normal. She was counselled on delivery options and subsequently had caesarean myomectomy with delivery of a live female infant of birth weight 3.1kg. She had multiple uterine fibroids; 2 pedunculated fibroid nodules at the left uterine cornu and anterior and posterior subserous fibroid nodules with the largest size measuring 14cm x 10cm. She had blood transfusion of one unit of whole blood in the immediate post – operative period. Thereafter, she had an uneventful post-operative recovery and was discharged home in good condition after 4 days.

The details of the socio – demographic data, types of skin incisions used, descriptions of leiomyomas and neonatal outcomes have been provided in Table 1 below.

Discussion

Caesarean myomectomy is still controversial globally despite remarkable advances in medical sciences. This is due to fear of increased peri – operative and post – operative complications such as primary postpartum hemorrhage, unplanned caesarean hysterectomy and antepartum uterine rupture during subsequent pregnancies) which could result in increased maternal morbidity and mortality.^{11,16}

In the six cases presented above, the patients were carefully selected after clinical and ultrasonographic evaluation to ascertain general health condition of the patients as well as the sites and sizes of the leiomyoma. They were objectively counseled on the procedure and informed consent obtained. The final decision for surgery was taken intraoperatively in all the cases.

The surgeries were done by an experienced surgeon in a tertiary institution where blood transfusion service was readily accessible. There was also an experienced multidisciplinary team – anaesthetists, haematologists, neonatologists who were involved during the preoperative preparation. The above conditions were considered to be adequate to safely eliminate the need for subsequent interval myomectomy and minimize both intraoperative and post-operative complications. They also met the recommendations of SOGON national guidelines.

In all the cases presented, caesarean section was first performed and the uterus repaired in 2 layers with

good haemostasis secured using vicryl 2 sutures. Thereafter, the uterus was exteriorized and a foley catheter (size 18 – 24FG) was applied firmly at the level of the internal cervical os as a uterine tourniquet. Myomectomy was subsequently performed with careful multiple layer closure of the cavities using vicryl 2 sutures; good haemostasis was secured. In addition, oxytocin (40iu titrated in 1 litre of normal saline infusion over four hours), tranexamic acid (1 gram given intravenously) and misoprostol (800 microgrammes inserted rectally) were used during the procedure after caesarean delivery to prevent primary postpartum haemorrhage. At the end of myomectomy, the tourniquet was released and good haemostasis ensured before closure of the abdomen. The uterine tourniquet was not applied for more than 1 hour continuously to allow adequate blood flow to the uterus during the surgery. It was released intermittently for about 10 minutes before re-application in cases where surgery lasted more than one hour. All the specimens obtained during surgery were sent for histology and histopathological diagnosis of leiomyoma confirmed.

A study done by Mahudbala *et al.* showed that about a quarter (23.25%) of caesarean myomectomy patients lost more blood than control patients who had caesarean section only. About 14% of them were transfused 2 – 6 litres of blood and had bilateral iliac artery ligation. Based on their findings, the study concluded that caesarean myomectomy is a cost – effective procedure which serves to prevent later myomectomy and hysterectomy, thus preserving the uterus for future pregnancies.¹⁷ In that study, measures to reduce blood loss during the such as use of Foleys catheter was not utilized as in index case, which resulted in higher haemorrhage and blood transfusion recorded. In our case series, four out of the six patients received one unit of whole blood peri-operatively. They all had uneventful post - operative recovery and were all discharged home in good condition after 4-5 days.

A systematic review and meta- analysis done by Goyal *et al.* revealed that caesarean myomectomy was associated with a clinically insignificant increase in operative time, blood loss and hospital stay especially in multiple and large sized uterine fibroids. The study concluded that caesarean myomectomy was preferred to caesarean section alone when done by experienced surgeons with appropriate haemostatic techniques in a tertiary care centre.¹⁸ Their results were similar to that revealed in this

study.

The results of our research were also in accordance with that revealed by other researches done by Gadavaram et al., Sparic et al. and Kwon et al. They also found that caesarean myomectomy is a safe and effective procedure which relieves symptoms associated with uterine fibroids with no significant differences in peri- operative complications, operative time and length of hospital stay.¹⁹⁻²¹

We had good maternal and neonatal outcomes in all the cases presented up till their discharges from postnatal check – up after six weeks. We counselled the patients to book early for antenatal care during their subsequent pregnancies for expert care in a tertiary hospital. This is because one of the long term complications of caesarean myomectomy is uterine rupture, especially when extensive incisions were made in the upper uterine segment and uterine fundus. Thus, these patients require close monitoring in subsequent pregnancies for clinical and radiologic signs of uterine rupture to ensure subsequent good foeto-maternal outcomes.

Caesarean myomectomy can be safely performed in well selected cases even in poor resource settings such as ours. The factors which contributed to the success of the surgeries include individualized approach applied in patient selection, presence of skilled surgeons and ancillary services, as well as close postoperative monitoring. The advantages of caesarean myomectomy, when safely performed, include avoiding additional financial cost of an interval myomectomy and preserving the fertility potential of women of low parity. In addition, it increases the probability of subsequent successful delivery because the scar integrity after caesarean myomectomy has been found to be higher than that following interval myomectomy when assessed by serial ultrasound scan during subsequent pregnancies.^{22,23}

This study demonstrated that caesarean myomectomy can be safely performed in low resource settings such as ours. This procedure was safely performed in well selected cases in the hands of experienced surgeons, accessible good blood transfusion services and an experienced multidisciplinary team. This was aided by the use of uterine tourniquet, oxytocin, misoprostol and tranexamic acid 24-26 to ensure good foeto – maternal outcome.

Conclusion

Although caesarean myomectomy is still a globally controversial procedure, it can be safely performed by experienced surgeons in well selected cases with good foeto-maternal outcomes. It is especially desirable in low resource setting such as ours, to reduce the need for an interval myomectomy and additional costs/ risks involved, with maintenance of fertility in low parity women.

The decisions to perform the six cases of caesarean myomectomy reported here were made on individualized basis after careful evaluations of the patients to minimize potential complications and maximize the desirable benefits. The patients were objectively counselled and closely monitored pre- and post – operatively to avoid immediate and subsequent complications. These met the basic recommendations of the SOGON national guidelines on caesarean myomectomy and resulted in good foeto – maternal outcomes.

Conflicts of interests

The authors declare that there is no conflict of interests regarding the publication of this paper.

Ethical approval

Each of the patients gave a written informed consent prior to surgery.

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