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Caesarean Myomectomy in a Nullipara Following *In Vitro* Fertilization Pregnancy: A Case Report

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Abstract

Background: Caesarean myomectomy is the surgical removal of a leiomyoma during a caesarean section. The surgical removal of leiomyoma during caesarean section is controversial and is often avoided because of increased vascularity of the gravid uterus which leads to significant blood loss, needless hysterectomy and increased perioperative morbidity and mortality. **Case Presentation:** A 41-year-old gravida 3 para 0 + 2 with *in vitro* fertilization pregnancy who presented at 34 weeks + 1 day gestation for elective caesarean section. She has a history of myomectomy. Abdominopelvic ultrasound scan showed active twin gestation with a submucous fibroid measuring 4 × 3 cm located anteroinferiorly. Patient had anemia which was corrected and subsequently had caesarean section. During the procedure the submucous myoma was encountered at the line of incision at left lateral side and was removed. She developed post-partum preeclampsia and was managed. She also received 2 units of blood post-surgery following a post-surgery packed cell volume of 20%. She was subsequently discharged after 3 days post-surgery and sutures were removed on day 10 post-surgery. There were no complications. **Conclusion:** Caesarean myomectomy remains debatable. However, following careful surgical planning, selected cases can be done by experienced surgeons equipped to handle peri-operative complications should they arise.

Keywords

Caesarean Section, Myomectomy, Leiomyoma, Caesarean Myomectomy

1. Introduction

Tumors located in the smooth muscles of the uterus are called leiomyomas [1]. The most prevalent benign reproductive tract tumors found in women of childbearing age are leiomyomas [2]. Pregnancies complicated by leiomyomas have become more common as the incidence of delayed childbearing increases with age [3]. It is difficult to determine their precise incidence in pregnancy [2]. However, literature reveals that uterine leiomyomas occur in 1.6% to 4% of pregnancies [4]. The precise cause of fibroid formation is still unknown; however, the main theories stress the role of reproductive hormones, myometrial abnormalities and predisposing genetic variations that influence cell signaling pathways [5]. Fibroid coexisting with pregnancy may be asymptomatic or present with mild symptoms [6]. Various complications may arise from leiomyomas in pregnancy. However, the difficulties caused by fibroids vary depending on their size, quantity and location [7]. If the location is at the lower uterine segment, they may prevent the passage of the fetus resulting in caesarean delivery [7]. Caesarean myomectomy is the surgical removal of a leiomyoma during a caesarean section [8]. The surgical removal of leiomyoma during caesarean section remains controversial and is frequently avoided due to increased vascularity of the gravid uterus which results in significant blood loss, needless hysterectomy and increased perioperative morbidity and mortality [6].

The aim of this report was to document a case of successful caesarean myomectomy without any complications.

2. Case Presentation

A 41-year-old gravida 3, Para 0 + 2 with *in vitro* fertilization (IVF) pregnancy who presented to our outpatient department at 34 weeks + 1 day for elective caesarean section with a history of myomectomy. There was no complaint of lower abdominal pain, bleeding per vagina or drainage of liquor. During her antenatal period, she was managed for hyperemesis gravidarum, malaria in pregnancy, bilateral pyelonephritis and anemia in pregnancy. She had prophylactic cervical cerclage at 14 weeks. She had antenatal steroid therapy at 30 weeks of gestation.

On admission, general physical examination showed a middle-aged female who was pale with bilateral pedal edema. Her respiratory rate was 20 cycles/minute; breath sounds were vesicular. Her pulse rate was 86 beats/minute, blood pressure was 120/80 mmHg. Abdominal examination showed that the abdomen was uniformly enlarged, moved with respiration. There was a midline supraumbilical scar. There were no areas of tenderness. Symphysio-fundal height was 42 cm. There was twin gestation both in longitudinal lie; twin 1—cephalic presentation;

twin 2—breech. Engagement 5/5. Fetal heart rate for twin 1 and twin 2 were 150 b/m and 142 b/m respectively.

Investigation results: hemoglobin: packed cell volume (PCV): 18%. Abdominopelvic ultrasound scan showed active twin gestation with a submucous fibroid measuring 4 × 3 cm located anteroinferiorly.

Anemia was corrected using three units of whole blood and the PCV value immediately before the surgery was 27%. Blood was arranged for surgery and informed written consent was obtained from the patient after explaining the surgical procedure and its risks. During the surgery, access was via the previous midline suprapubic scar which was excised. There were adhesions between the left adnexae and the left lateral wall of the uterus and between the posterior wall of the bladder and the anteroinferior surface of the uterus. The lower uterine segment was poorly formed. A transverse incision was made along the lower uterine segment and a 1.8 kg female baby was delivered, with an APGAR score of 7 at 1 minute and 9 at 5 minutes. The delivery of the second twin was delayed because of the location of the submucous fibroid which partly obstructed the extraction. The second twin male (1.7 kg) was subsequently delivered with an APGAR score of 3 at 1 minute, 6 at 5 minutes and 9 at 10 minutes. The fibroid was in the line of incision. Thus, a decision for myomectomy was taken. Oxytocin 100 iu and ergometrine 0.5 mg was administered. The fibroid was excised and the myoma bed was repaired using vicryl 2/0. The uterine incision was repaired using vicryl 2 and hemostasis was secured. The estimated blood loss was 800 ml. Broad spectrum antibiotics and analgesia were administered in the post-operative period. She developed post-partum preeclampsia on the first day post-surgery and was managed by giving a loading dose of 14 g of magnesium sulfate ($MgSO_4$) intramuscularly (IM); 4 g was given intravenously and 10 g was given intramuscularly; 5 g in each buttock, followed by a maintenance dose of 5 g of $MgSO_4$ IM given 4 hourly in alternate buttocks for 24 hours. Her post-surgery PCV was 20%. She was subsequently transfused with 2 units of whole blood. She was subsequently discharged on day 3 post-surgery with hematinic drugs. Sutures were removed on day 10 post-surgery and there were no complications (Figure 1 and Figure 2).

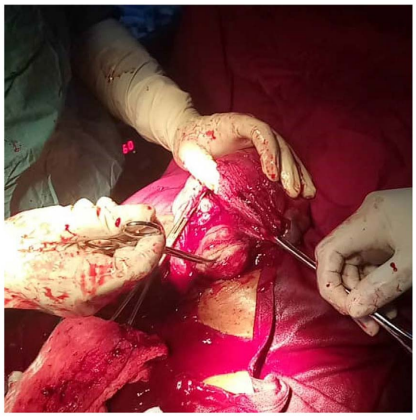

Figure 1. Single myoma in the lower uterine segment intraoperatively.

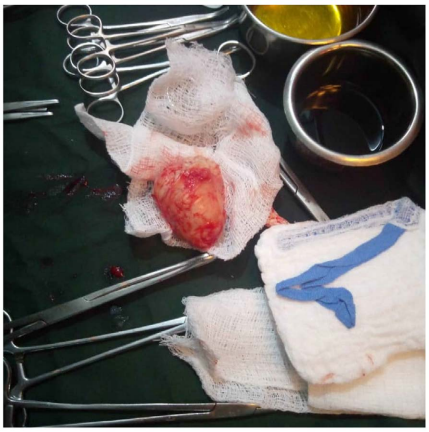

Figure 2. Single myoma removed from the patient.

3. Discussion

Caesarean myomectomy (CM) is a process of removing fibroid during caesarean section (CS). It is a dangerous procedure which can result in serious complications such as uncontrolled bleeding, hysterectomy etc [9]. CM should be done by experienced obstetricians and gynaecologists who are adequately prepared to manage any complication if they arise.

The incidence of uterine fibroid increases in frequency now more than in the past because females now delay child-bearing to their thirties and this is the time for the greatest risk of myoma growth [10], which correlates with our index case who is a 41-year-old para 0 + 2 with a history of myomectomy. In the past, obstetricians feared the removal of fibroid during caesarean section (CS) with the exception of pedunculated fibroid because of excessive bleeding and hysterectomy but within the past 10 years, some gynaecologists have reported a successful CM, but this was done in a selected few [9]. However our patient, had an estimated blood loss of 800 mls.

In a study by Awoleke J. O, he stated that indications for caesarean myomectomy include prevention of necrobiosis, pain during pregnancy, fibroids obstructing the lower uterine segment leading to inability to access the baby and fibroids causing difficulty with wound closure [11]. Chauhan A. R. also said in her report that CM can be performed in unavoidable situations such as where the myoma is sitting directly over the line of uterine incision, obstructing the lower uterine segment and access to the baby or when the closure of the uterine incision is not possible without its removal [9]. The decision for myomectomy to be done in the index case was because the myoma was in the line of incision and also partly delayed the delivery of the second twin.

Lower segment transverse incision was used for our index patient and this was supported by the study done by Elguindy *et al.* (2020) which stated that a transverse uterine incision will transect a fewer blood vessel to be compared to longitudinal incision because transverse incisions run parallel to the course of the blood vessels. They also went on to say that suturing transverse incisions helps to pro-

vide effective hemostasis because the sutures are placed perpendicular to the transected vessels [12].

Awoleke J. O (2011) described various methods to prevent bleeding during caesarean myomectomy. These include high dose oxytocin infusion after the delivery of the baby and placenta, application of tourniquet to encompass and compress both uterine arteries at the base of the broad ligament and the vessels in the infundibulopelvic ligament after lifting away the fallopian tube, electrocautery, bilateral uterine artery ligation, combination of uterine tourniquet and high dose oxytocin infusion [11]. However, in the index case, upon delivery of the babies and the placenta, oxytocin 100 iu given as a bolus and ergometrine 0.5 mg was given by the anesthetist and the myoma was excised using surgical knife.

Intra-operatively, bleeding was adequately controlled and post-operatively, she had an optimum uterine involution, there was no history of post partum hemorrhage or sepsis following the surgery. Studies have shown that doing CM do not cause major complications in most cases and Song *et al.* reviewed nine case–control studies that included greater than 1000 women with fibroids, of whom 41% underwent CM and 59% underwent CS alone. They found no major differences in safety parameters like intraoperative blood loss, need for transfusion, surgical time or postoperative morbidity [13]. Similarly, in a case control study done be kwawukume *et al.* 24 patients with myomectomy during cesarean section, involution of the uterus was normal in all of the patients and there was no intra-operative hemorrhage significantly higher than control cases and there were no complaints during the puerperal period [14]. However, surgical time for our index patient who had CM was two hours which increased the usual duration of our caesarean section by one hour concurring with what Tinelli said in his study that prolonged operative time was the only drawback in his study [15].

4. Conclusion

Caesarean myomectomy remains controversial. However, following careful surgical planning, selected cases can be done by experienced surgeons equipped to handle perioperative complications should they arise.

Consent

Informed consent was obtained from the index patient before the publication of this case report and pictures.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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