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Fundal Anterior to Posterior Hysterotomy and Cesarean Myomectomy in Fibroid Uterus

Case Reports and Case Series

Fundal Anterior to Posterior Hysterotomy and Cesarean Myomectomy in Fibroid Uterus

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Fibroids are a common benign tumor located in the female reproductive tract and affect up to 10 percent of women, leading to challenges during cesarean section. Few cases of myomectomy at the time of cesarean section have been described and most describe uteri with only a few fibroids present. Our case describes a 39 year old G1P0101female with extensive fibroids including large fibroids located at the lower uterine segment. This patient underwent cesarean section and myomectomy at 27 weeks and five days gestation with a fundal, vertical hysterotomy, extending from the anterior to posterior wall of uterus. This is the first case described in the literature of a cesarean section performed on a uterus with innumerable intramural fibroids and first case documented of a fundal, anterior to posterior hysterotomy.

INTRODUCTION

Fibroids are the most common benign gynecological tumor.¹ Large fibroids located at the lower uterine segment complicate cesarean delivery due to difficulty creating and closing a low transverse incision. Cesarean myomectomy is not standard of care due to concern for higher risk of hemorrhage with the additional step of fibroid enucleation. There have been few cesarean myomectomies described in the literature with most reporting low transverse hysterotomy. This case describes a novel method of cesarean section involving myomectomy prior to delivery, creation of fundal hysterotomy in the lowest area of fibroid burden, and repair of hysterotomy with enucleation of fibroids near hysterotomy in a patient with an extensive fibroid uterus.

CASE DESCRIPTION

This case presents a 39-year-old G1P0 female with prior abdominal myomectomy and known multi-fibroid uterus. This patient had no chronic medical problems and had a surgical history of robotic myomectomy. The patient first presented in the outpatient setting with amenorrhea symptoms and was found to be pregnant. The pregnancy occurred spontaneously, four years after robotic myomectomy. At the patient's first prenatal visit - at 8 weeks and 3 days gestation by last menstrual period - physical exam revealed a large, bulky fibroid uterus extending to the xiphoid. A transvaginal ultrasound was unable to locate the pregnancy due to distortion from multiple fibroids, so an MRI was obtained, revealing an intrauterine pregnancy consistent with menstrual dating and a uterus measuring 26cm x 20cm x 15cm with at least 10 fibroids. The largest, at the anterior lower uterine segment, was 16cm and the majority were intramural without projection into the en-

dometrium. (Figure 1). Antepartum complications included preterm premature rupture of membranes (PPROM) at 23 weeks 4 days gestation, severe pre-eclampsia at 23 weeks 6 days, and fetal growth restriction at 26 weeks 0 days. Persistent severe-range blood pressures despite antihypertensives necessitated delivery via cesarean section at 27 weeks 5 days gestation per maternal-fetal medicine recommendations.

To aid surgical planning, a repeat MRI at 24 weeks 3 days revealed largely stable fibroid measurements. Gynecologic oncology and interventional radiology (IR) were consulted preoperatively and available intraoperatively due to hemorrhage risk and potential need for uterine artery embolization (UAE) or cesarean hysterectomy. Preoperatively, two units packed red blood cells were typed and crossmatched, bilateral uterine artery catheters placed by IR, and tranexamic acid given to reduce intraoperative bleeding. Instead of the standard Pfannenstiel incision, a midline laparotomy incision was created from 6cm above the umbilicus to the pubic symphysis, creating adequate space given the large uterus. The fascia and peritoneum were incised longitudinally. The uterus was surveyed and palpated, confirming the largest fibroid to be at the lower uterine segment and the lowest fibroid burden to be at the fundus, where the hysterotomy was from anterior to posterior in a sagittal plane. The cephalic fetus was delivered through the fundal hysterotomy with standard breech maneuvers. An 8.8cm fibroid at the left aspect of hysterotomy was enucleated. The myomectomy cavity was closed in multiple layers with 0-vicryl suture. The first hysterotomy layer was closed with 0-vicryl using several interrupted figure-of-eight stitches. Due to increased blood loss from myomectomy, bilateral uterine artery gel-foam embolization was performed by IR. Next, the hysterotomy was closed in 3 additional layers of running 0-vicryl suture. A small 3.5cm fibroid on the

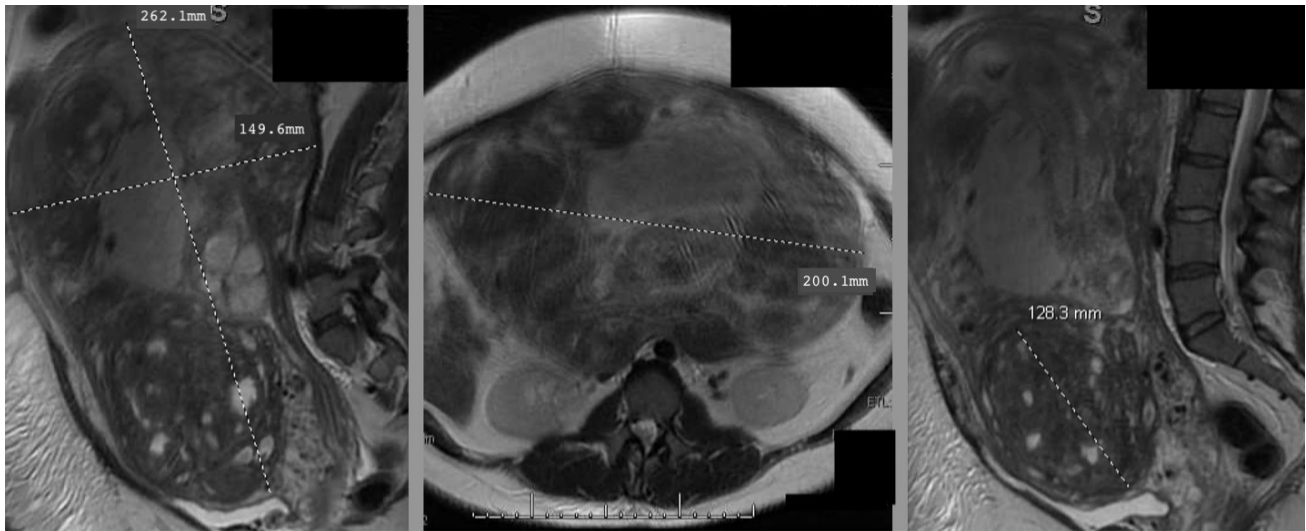


Figure 1. MRI of Fibroid Uterus

Pre operative MRI images of gravid fibroid uterus at 24 weeks and 2 days gestation in a uterine sagittal (A), uterine transverse (B), and myomataous sagittal (C) view from left to right respectively. The image on far right shows the largest fibroid measurement, while the images on the left and middle are measuring the gravid uterus.

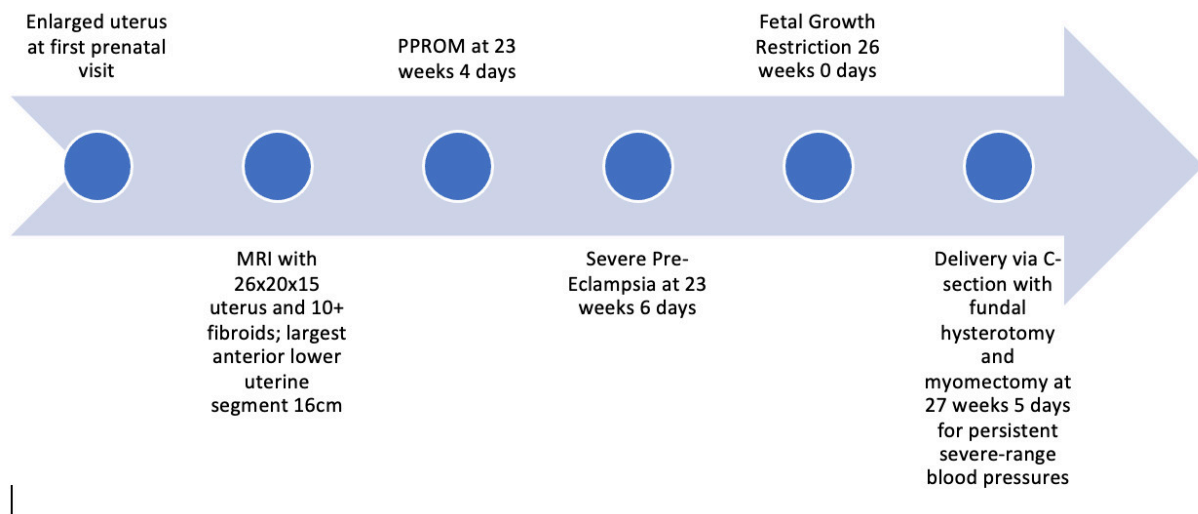


Figure 2. Timeline of Clinical Events

Important clinical events of a gravida with multiple large fibroid uterus undergoing cesarean delivery

right portion of hysterotomy was removed. The prepared 2 units of packed red blood cells were administered intraoperatively. Postoperative hemoglobin was 11.7, up from 10.9 preoperatively. The patient's postpartum course was complicated by expected neonatal admission to NICU given prematurity, and maternal cellulitis, which resolved after short course of oral cephalexin.

DISCUSSION

This is the first case described to our knowledge of a cesarean section performed on a uterus with majority of the

myometrium consisting of fibroids, rendering removal of all fibroids impossible. Fibroids near the anterior lower uterine segment complicate hysterotomy creation and repair. Tjokropawiro et al describe two cases of cesarean myomectomy for large fibroids - 22 cm and 17 cm respectively – but fibroid burden was predominantly at fundus and corpus, so low transverse hysterotomies were performed. Concurrent myomectomies were performed in both cases after hysterotomy closure due to patients' limited access to care.²

For lower uterine segment fibroids, current literature suggests creating a transverse lower uterine segment incision and performing myomectomy prior to hysterotomy

closure.³ In one case described by Garg et al, an 8.5cm fibroid in the antero-lateral lower uterine segment was enucleated and removed prior to low transverse hysterotomy closure.⁴ To decrease morbidity, mortality and blood loss in this case, prophylactic measures such as oxytocin infusion, ligation of uterine arteries, and vasopressin injection were performed.⁴ There is conflicting evidence on whether a significant difference in postoperative hemoglobin drop exists between cesarean myomectomy and cesarean section without myomectomy, but per a 2017 systematic review, there is no difference in need for blood transfusion.^{1,2}

While preoperative MRIs aided in surgical planning, final decision regarding hysterotomy placement was made intraoperatively after palpation of the gravid uterus determined lowest fibroid burden at fundus. The incision was also unique; rather than a standard classical incision made vertically in the uterine corpus, the fundal hysterotomy extended from the anterior to posterior uterine wall. Notwithstanding this careful selection, hysterotomy location without impingement of fibroids was impossible given the extensive fibroids. As a result, myomectomy was performed to allow for maximal approximation of normal myometrial tissue while avoiding abnormal tension that could impair healing. Myomectomy was not felt to significantly alter the

operating time. Finally, intraoperative blood loss was decreased using hysterotomy-approximating interrupted sutures and UAE, which also offers therapeutic benefit for remaining unresected fibroids.

To decrease perioperative morbidity and mortality, multiple interventions were taken. A careful multidisciplinary approach ensured that gynecology oncology and IR teams provided preoperative recommendations and were present and available intraoperatively. Two units of packed red blood cells were readily available for transfusion. Lastly, preoperative uterine artery catheter placement allowed for prompt UAE completion.

CONCLUSION

This case report demonstrates that successful cesarean section with myomectomy can be achieved in a patient with an extensive fibroid uterus through careful preoperative planning, consulting with a multidisciplinary team, and creating a hysterotomy in area of lowest fibroid burden, and that a fundal hysterotomy is a viable option.



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