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Hemorrhaging Uterine Fibroid Leading to Emergent Early Term Cesarean Delivery: A Case Report

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Abstract

Background The incidence of uterine leiomyomas, or fibroids, affecting pregnant individuals is estimated to be 10%, but there are no guidelines or recommendations for fetal or maternal surveillance in pregnancies affected by them. Risks associated with fibroids during pregnancy include potential for pain, preterm birth, fetal growth restriction, higher cesarean delivery rate, fetal malpresentation, placenta abruption, and postpartum hemorrhage.

Case Presentation This case describes a 26-year-old gravida 1 para 0 who presented at early term for severe abdominal pain and was found to have acute abdomen accompanied by a nonreassuring fetal heart rate tracing. With emergent cesarean delivery, it was found that the patient was hemorrhaging from a ruptured vessel of a pedunculated fibroid and myomectomy was subsequently performed.

Conclusion While rare, hemorrhage from a uterine fibroid should be considered a part of the differential diagnosis of abdominal pain in pregnant patients with fibroids, particularly when accompanied by concurrent indicators such as free fluid, hypotension/tachycardia, or concerning changes in fetal heart rate, especially in a patient without risk factors for uterine rupture.

Keywords
- leiomyoma
- hemorrhage
- uterine fibroid
- cesarean delivery
- acute abdomen

Introduction

The most common solid and symptomatic neoplasm in patients seeking gynecologic care is the uterine leiomyoma, more commonly known as uterine fibroids.[1] Uterine leiomyomas are noted in 70% of the gynecologic population by menopause, but symptomatic fibroids are thought to be mostly in patients of reproductive age.[1–4] The incidence of fibroids in pregnancy is estimated to be approximately 10% of obstetric patients.[5–9] Risks associated with fibroids during pregnancy include increased incidence of pain, spontaneous abortion, preterm birth, higher cesarean delivery rate (depending on fibroid location and size), fetal growth restriction, fetal malpresentation, placenta abruption, and postpartum hemorrhage.[6] While most uterine fibroids are asymptomatic, fibroids have potential to outgrow their blood supply and lead to hemorrhagic infarction and pain via degeneration. Routine removal of fibroids at delivery is not

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recommended due to increased bleeding risk.[10] There has been debate over the years, with proponents of removal suggesting that it is safe and cost-effective, and opponents claiming that it leads to significantly increased blood loss and operating room time.[4] This case report details a unique case in which a patient experienced nonreassuring fetal heart rate secondary to intra-abdominal maternal hemorrhage caused by a fibroid, resulting in emergent cesarean delivery with myomectomy.

Case Presentation

The patient was a 26-year-old gravida 1 para 0 at 37 weeks and 2 days of gestation whose pregnancy was complicated by a known history of fibroids. She had an unremarkable antepartum course and received her prenatal care through the centering program offered by the resident physician practice. An ultrasound performed at 36 weeks obtained due to comorbid maternal obesity (body mass index [BMI] of 35) showed an appropriately grown fetus. Multiple fibroids were also seen throughout the uterus, with the largest one measuring 78 mm × 73 mm × 76 mm and noted to be pedunculated at the fundus.

She presented to the hospital Labor and Delivery triage at 37 weeks and 2 days of gestation for severe abdominal pain, near syncope, and shortness of breath. On abdominal examination, there was immediate concern for an acute abdomen due to positive rebound and guarding. She was tachycardic, with heart rate ranging from 110 to 120 bpm, and she demonstrated such distress and pain that blood pressure assessment could not be obtained. Initial attempts at obtaining fetal monitoring were also unsuccessful due to the patient's severe abdominal pain. A brief point of care ultrasound examination was then performed to assess fetal heart rate, which was noted to be at 60 bpm. A cervical examination showed no evidence of dilation.

Due to the level of patient acuity and concern for maternal and fetal instability, the patient was then taken to the operating room. The decision was made to proceed with an emergency primary cesarean section under general anesthesia for fetal distress and concern for maternal acute abdomen. Upon abdominal entry, a large amount of hemoperitoneum was encountered. This was cleared from the operative field and a live, viable female infant was delivered via low transverse uterine incision weighing 2,790 g with Apgar scores of 3 and 8 at 1 and 5 minutes. Umbilical artery cord gases obtained at the time of delivery were notable for a pH of 6.98 and a base deficit of 13 mmol/L.

On further inspection of the abdomen, there was a large collection of blood clot in the upper abdomen, raising concern for spontaneous uterine rupture. The uterus was unable to be exteriorized due to the size and number of fibroids. To aid in visualization, a midline vertical skin incision was made extending from the initial Pfannenstiel skin incision to the infraumbilical region. The uterus was exteriorized, and a large pedunculated 12 cm fibroid was found at the fundus, as seen in ►**Fig. 1**. A large superficial vessel on the anterior portion of the fibroid was actively bleeding and determined to be the source of the hemorrhage. A self-retaining retractor was placed within the peritoneum to optimize visualization. The hysterotomy was repaired while maintaining pressure with laparotomy sponges at the site of the bleeding vessel. Once the hysterotomy was repaired and hemostatic, attention was then turned to the fibroid. Due to continued bleeding from the vessel, the decision was made to perform a myomectomy. The stalk of the fibroid was injected with 30 mL of dilated vasopressin (20 units in 200 mL normal saline). The pedunculated fibroid and a smaller 3-cm adjacent pedunculated fibroid were transected at the stalk with electrocautery and removed. The myomectomy bed was then repaired with two layers of polyglactin sutures with additional interrupted sutures of poliglecaprone to ensure hemostasis.

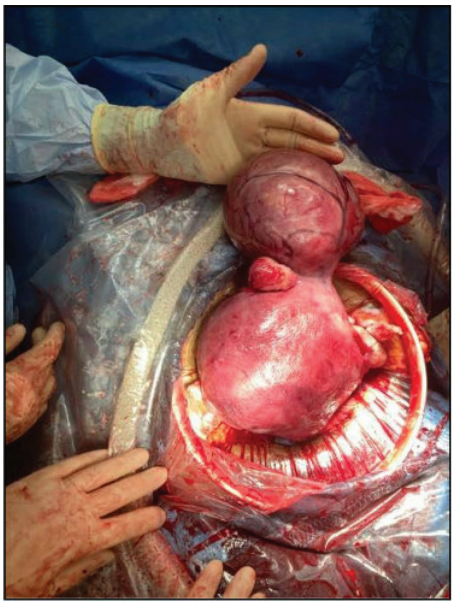

Fig. 1 Intraoperative image depicting a fibroid with bleeding noted at the vascular capsule.

The quantitative blood loss at the end of the case was found to be 2,793 mL, so a repeat dose of cefazolin was given. She was given 4 units of packed red blood cells and 4 units of fresh frozen plasma due to the amount of blood loss. Her postoperative hemoglobin was 9 g/dL and her hematocrit was 27.1%. She had an uncomplicated postoperative course and was discharged home on postoperative day 3. Due to the cord gases and initial need for continuous positive airway pressure (CPAP), the infant was transferred to the neonatal intensive care unit (NICU), but was weaned to room air with improvement in blood gases by day of life 1. At the time of this write-up, the infant was meeting all milestones and without concern for neurologic impairment.

Discussion

This case describes a term primigravid patient with a history of uterine leiomyomas who presented to triage with an acute abdomen and fetal distress necessitating an emergent cesarean delivery and myomectomy due to hemorrhage of a

superficial vessel on her leiomyoma causing severe maternal hypovolemia. Such a presentation, involving hemorrhage from a fibroid vessel, is uncommon and scarcely documented, highlighting an underappreciated risk associated with fibroids in pregnant patients.

Previous literature has indicated that myomas larger than 1 cm typically possess a dense vascular capsule.[11,12] In this particular case, hemorrhage was noted to be coming from one of the bridging vessels of the vascular capsule of a fibroid, as visualized in ►**Fig. 1**. This emphasizes the potential for vascular complications in the context of fibroids during pregnancy. There is varying evidence on size change of leiomyomas during pregnancy.[13,14] It is generally understood that uterine leiomyomas tend to enlarge during the first trimester of pregnancy, followed by a more variable growth pattern with potential for either increase or decrease in size or degeneration in the second and third trimesters.[14,15]

Although fibroids are often asymptomatic in pregnancy, some patients experience abdominal pain if degeneration occurs as a result of the fibroids outgrowing their blood supply.[5,10] Fibroid degeneration has been documented as having potential to lead to abruption, fetal growth restriction, and preterm delivery, and becomes more common during the later portion of pregnancy.[16] The occurrence of complications concurrent with myomectomy during cesarean delivery has been a subject of controversy. Recent literature has called for reexamination of the purported significant escalation in complication rates. Regarding complications, a meta-analysis by Huang et al[17] noted greater mean blood loss of hemoglobin 0.2 g/dL in addition to 1.46 odds of hemorrhage and 1.47 odds of blood transfusion. However, in a different meta-analysis by Goyal et al,[18] there was no noted increase in hemorrhage and the drop in hemoglobin was noted to be clinically insignificant between groups, although the greater risk ratio of blood transfusion was similar at 1.45. To further confound the matter, in another meta-analysis by Pergialiotis et al, there was no significant increase in blood transfusion.[19] All three meta-analyses noted no increase in postoperative fever and a small increase in length of stay, which was less than 1 day of difference. Proponents of myomectomy at the time of cesarean section argue that postpartum uterine involution aids in the reduction of bleeding after myomectomy. Both traditional myomectomy techniques and trans-endometrial techniques have been described.[20–22] This case prompts inquiry into whether prior intra-abdominal surgery might have altered the course of this pregnancy had the instigating fibroid been excised during the prior surgical intervention. Thus, this case engenders a thought-provoking discourse regarding the advisability of performing prophylactic myomectomy concomitant with cesarean delivery, especially in the context of lower-risk myomectomy such as excision of pedunculated fibroids, which do not require incision into the uterine myometrium.

This patient was early term, which is beyond the gestational age at which maximal fibroid growth is expected to have taken place. The precipitating cause of the hemorrhage is unknown, but the authors postulate that it could have been an increase in intravascular pressure related to uterine contractions, leading to vessel rupture and intraperitoneal hemorrhage. The resultant vascular compromise is the suspected cause of inadequate oxygenation of the fetus, leading to fetal acidemia seen in this case. Continued research and clinical experience are vital in refining management strategies and optimizing outcomes for pregnant individuals with uterine fibroids. This case underscores the importance of considering vascular capsule rupture of a pedunculated or serosal fibroid in the differential diagnosis of abdominal pain in pregnant patients with fibroids, particularly when accompanied by concurrent indicators such as free fluid, hypotension/tachycardia, or concerning fetal heart rate consistent with overall hypovolemia, especially in patients without risk factors for uterine rupture.

Conflict of Interest
None declared.

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