

Traumatic Uterine Rupture in Second Trimester: Two Departments, Two Patients, Two Survivors

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Abstract: Uterine rupture is defined as the complete division of all three layers of the uterus: the endometrium, myometrium, and perimetrium. Uterine rupture due to trauma often results from high-impact blunt abdominal trauma such as motor vehicle accidents, falls and domestic violence, and it is most common in the third trimester. Prompt diagnosis is necessary to treat this emergency, given its quick onset and progression, to prevent potentially life-threatening complications to the mother and fetus, notably fetal death, which commonly occurs in such cases. Here, we present a case of a 33-year-old female, Gravida 3 Para 2+0, with two previous uterine scars who sustained a traumatic uterine rupture at gestation of 18 weeks due to blunt abdominal trauma after a bathroom fall. The uterine rupture was surgically repaired, allowing continuation of pregnancy and delivery of a live baby 20 weeks later. We demonstrate a timely multidisciplinary approach to managing a pregnant trauma patient by surgical and obstetric teams to optimize outcomes for both the fetus and the mother.

Keywords: blunt abdominal trauma, uterine rupture, pregnancy, cesarean delivery

Introduction

Traumatic uterine rupture in pregnancy is a life-threatening obstetric emergency both for the mother and the fetus, accounting for approximately 10% of all cases of ruptured uterus. Motor vehicle accidents, domestic violence and falls are the most common causes of blunt trauma during pregnancy.¹ In addition to gestational complications of traumatic uterine rupture such as placental abruption, abortion, and preterm labor, premature rupture of membranes, maternal death and still birth, and non-obstetrical complications caused by trauma itself such as pelvic fractures can also occur. Non-traumatic causes of uterine rupture include obstructed labor and use of uterotonics such as misoprostol in women with a prior uterine scar and rarely without explanation.^{2,3} Most uterine ruptures occur at the term of pregnancy and only a limited number of cases occur in the first or second trimester of pregnancy.⁴ In this case report, we present a 33-year-old female, Gravida 3 Para 2+0, with two previous uterine scars who sustained a traumatic uterine rupture at 18 weeks of gestation due to a bathroom fall, uterus repaired, pregnancy continued and culminated into a live term birth.

Case Report

A 33-year-old female, G3P2+0 with an intrauterine pregnancy at 18 weeks was brought to the Emergency Department (ED) of Mengo Hospital in December 2023, 10 hours after a bathroom fall at home. The patient came in as a self-referral for further management from a peripheral clinic. The obstetric team received, assessed, and provided her with initial evaluation and care. Her past obstetric history included two cesarean deliveries, most recent was 3 years ago due to cervical dystocia. Physical examination revealed a Glasgow Coma Scale (GCS) of 15, hypotension (84/56mmHg, PR-112bpm), conjunctival and tongue pallor, and generalized abdominal tenderness but no vaginal bleeding. Focused Assessment with Sonography in Trauma (FAST) and obstetric ultrasound scans revealed maternal abdominal and pelvic gross free fluid with multiple mobile echoes in all potential spaces with the deepest pool in right iliac fossa measuring 8.5cm in depth, normal maternal organs and a single live intrauterine pregnancy in oblique lie with fetal heart rate of 153bpm, adequate amniotic fluid, fundal-anterior, not-low lying placenta, and the source of bleeding was not seen



Figure 1 A sonogram showing gross maternal hemoperitoneum and the fetus.

[Figure 1]. The patient was resuscitated with 2 liters of physiological saline and 1 liter of Ringer's lactate; however, the patient's condition continued worsening with dropping blood pressures (BP-75/43mmHg), PR-127bpm. The surgical team was called and suspected solid organ injury. The patient was immediately brought to the operating room for emergency exploratory laparotomy. Intraoperative, gross hemoperitoneum of about 4 liters and a 4cm transverse laceration on the left lower segment of the uterus with minimally exposed placental tissue were found [Figure 2]. There was minimal active bleeding from the laceration. The myometrium was re-approximated with a figure of eight vicryl-2 sutures [Figure 3]. All other intra-abdominal organs (liver, spleen, kidneys, and mesentery) were intact.

Postoperatively, obstetric ultrasound showed a single live intrauterine gestation consistent with 18 weeks with a cephalic fetal presentation. The placenta was noted to be fundal-anterior, and the amniotic fluid index (AFI) was found to be 10.33 cm. The patient was transfused with 4 units of whole blood, given oxygen therapy, at 4L/min via nasal prongs, IV Ceftriaxone, IV Paracetamol, and IV Drotaverine and observed for 5 days without complications. She was discharged on day 5 with hemoglobin level of 9.2g/dl. The patient was followed with weekly ultrasound scans in the

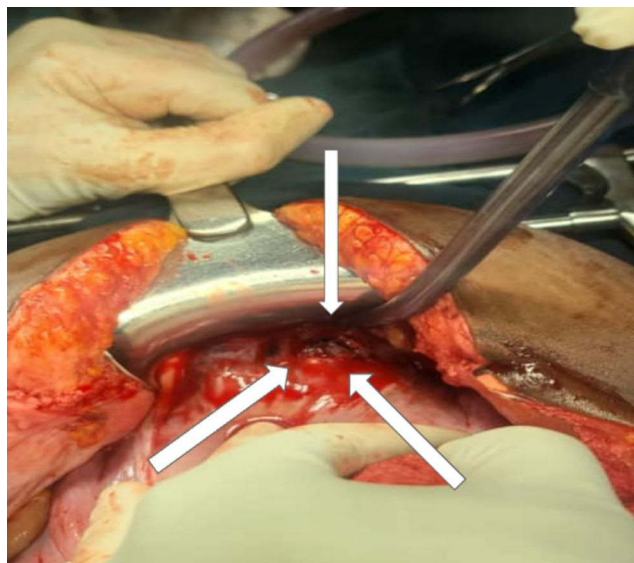


Figure 2 Laceration in the lower uterine segment (white arrows).

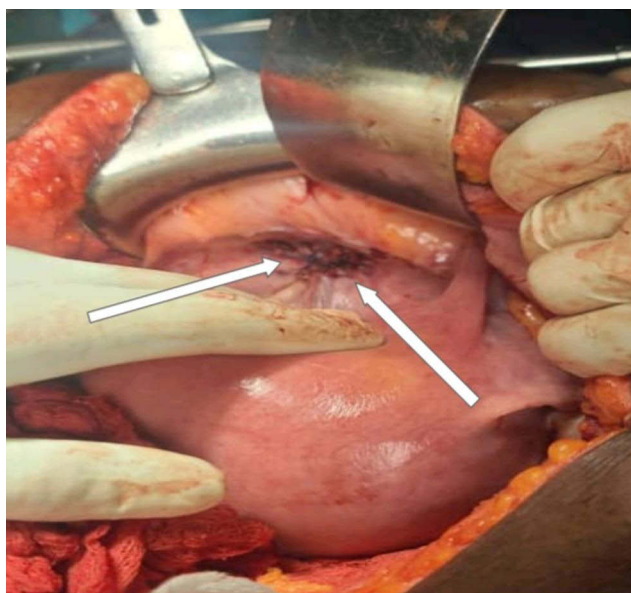


Figure 3 Repaired gravid uterus (white arrows).

outpatient clinic for 3 weeks without complications. Then, routine antenatal care with routine obstetrical ultrasound scans was continued at the antenatal care department. Placenta previa was noted on the ultrasound scan; thus, extra precautions were given to the patient. An elective cesarean section was done at 38 weeks and 2 days, delivering a live male baby with a birth weight of 3.29 kilograms. The patient lost approximately 1.5 liters of blood due to morbidly adherent placenta; a B-lynch was used in achieving hemostasis, and the mother was transfused with 2 units of whole blood. Mother and baby were discharged from the hospital on the 4th day after the cesarean section, all in good condition.

Discussion

Trauma is the leading non-obstetrical cause of maternal death.¹ Traumatic rupture of the uterus usually results from the most violent accidents, domestic violence and falls and generally results in fetal death, severe maternal hemorrhage, or other severe maternal morbidity or mortality.¹ In a case report and literature review in Niger, it was noted that many traumatic uterine rupture cases occurred in the third trimester. The majority resulted in the delivery of the fetus at the time of surgical evaluation, and only one case resulted in a live baby.⁵ In our case, the traumatic uterine rupture occurred at 18 weeks; thus, traumatic uterine rupture should be highly suspected in all forms of maternal trauma and mothers with risk factors for uterine rupture such as previous uterine scars, use of uterotonics, among others, regardless of the gestation age. The neonatal outcomes in the pregnancies that are delivered during traumatic uterine rupture admissions were poor, as approximately one in three ended in perinatal death.⁶ Traumatic uterine rupture requires swift action toward delivery to prevent immediate fetal death in most cases.⁷ Fortunately, in our case, the pregnancy was able to continue to term, and a healthy male baby with birth weight of 3.29kg was delivered without complications. Based on the location of a traumatic uterine rupture, the hemodynamic state of a patient, availability of blood products, future fertility desire, the experience of the surgical team; hysterectomy, or repair of the laceration can be contemplated to manage traumatic uterine rupture.⁸

Postoperatively, antispasmodic is crucial, which informed our decision to give IV Drotaverine to reduce stress and pain on the uterine scar. Women who sustain fundal uterine rupture need close monitoring during subsequent pregnancies due to a higher risk of recurrent uterine rupture.⁹ In our case, the traumatic uterine rupture was transverse in the lower segment. It is unknown if the direction of uterine laceration (transverse or longitudinal) in the lower segment impacts the chance of uterine scar rupture.

Conclusion

Rupture of the gravid uterus remains a catastrophic complication of trauma, and in many cases, fetal death occurs. In this case, the pregnancy continued with live birth following the repair of a traumatic uterine laceration at 18 weeks; thus,

uterine rupture should be highly suspected in all forms of maternal trauma regardless of the gestation age, although it is more common in later stages of pregnancy. This case shows that a good outcome can be obtained with a swift multidisciplinary approach to a pregnant trauma patient, thoughtful and careful repair of a traumatic uterine laceration.

Data Sharing Statement

Data used in this case report are available upon request from the corresponding author.

Patient Perspective

The patient was very happy with the care, follow-up, and successful outcomes of the surgeries.

Human Ethics

Written informed consent was obtained from the patient for publication of this case report and accompanying images. A copy of written consent is available for review by the Editor-in-Chief of this journal on request. Institutional approval was not required for the publication.

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Disclosure

The authors report no conflicts of interest in this work.

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