

Catastrophic uterine rupture of an unscarred uterus following motor vehicle rollover – a case report

Rachel Tindal, Emily Pierce, Katelynn Collins, Samantha Simpson

Department of Gynecologic Surgery and Obstetrics, Brooke Army Medical Center, San Antonio, TX, United States

Abstract

A 22 year old female at 6 months gestation with no history of prior abdominal surgery or previous uterine procedures pre-

Correspondence: Samantha Simpson, Department of Gynecologic Surgery and Obstetrics, Brooke Army Medical Center, 3551 Roger Brooke Dr, JBSA Fort Sam Houston, TX 78234, United States.
Tel.: 210.916.5335 - Fax: 210.916.4073.
E-mail: Samantha.g.simpson.mil@health.mil

Key words: obstetric trauma, uterine rupture.

Contributions: RT, investigation, writing – original draft preparation; EP, KC, conceptualization, writing – revising and editing; SS, supervision, writing – original draft preparation, revising and editing.

Ethics approval and consent to participate: no ethical committee approval was required for this case report by the Department, because this article does not contain any studies with human participants or animals. Informed consent was obtained from the patient included in this study.

Patient consent for publication: the patient gave her verbal consent to use her personal data for the publication of this case report and any accompanying images.

Availability of data and materials: all data underlying the findings are fully available.

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Received: 12 April 2024.
Accepted: 28 August 2024.

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Licensee PAGEPress, Italy
Case Reports in Emergency Surgery and Trauma 2024; 2:30
doi:10.4081/crest.2024.30

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sented via air transport after highway motor vehicle rollover. Due to hemodynamic instability, the only preoperative imaging that was able to be obtained was bedside sonography, which confirmed free fluid in the upper quadrants and unfortunately, fetal demise. In the operating room, source of bleeding was noted to be multiple large uterine ruptures. Uterine rupture in trauma in the absence of prior uterine surgery is a rare event and has never been reported in the third trimester, however it should remain in the differential for a pregnant trauma patient presenting with hemodynamic instability.

Introduction

Trauma is the leading non-obstetric cause of maternal and fetal morbidity in pregnancy with a prevalence rate of nearly 8% attributed primarily to falls, assault, and motor vehicle collisions.¹ Uterine rupture is a rare outcome of trauma in pregnancy accounting for only 0.6% of traumatic injuries. While uterine rupture is widely discussed in the literature regarding women with a previously scarred uterus from cesarean section or abdominal myomectomy,²⁻⁵ it is not typically considered in women with an unscarred uterus.

Case Report

A 22-year-old G4P3002 at approximately 6 months gestation presented via air transport to our emergency department after a motor vehicle rollover at “highway speeds”. Patient history notable for three prior vaginal deliveries.

On arrival to the ED, Glasgow Coma Score was 14, abdomen was diffusely tender and the focused assessment with sonography in trauma exam was positive with free fluid in the left and right upper quadrants. Bedside ultrasound in the trauma bay confirmed intrauterine fetal demise at an estimated gestational age of 30 weeks by femur length measurement. Further imaging was aborted because the patient was hypotensive and tachycardiac despite receiving IV fluids, 2 units whole blood, and vasopressors.

The patient was taken for emergent exploratory laparotomy within 30 minutes of arrival to the emergency room. No diagnostic assessment was required due acuity to patient.

Upon abdominal entry via vertical midline incision, large volume hemoperitoneum was encountered as well as the umbilical cord and fetal parts. The uterus had three large rupture sites (two sites >10cm) with massive hemorrhage (Figure 1 and Figure 2). The largest rupture traveled diagonally across the anterior face of the uterus with a second large rupture at the fundus. The final rupture site was at the posterior lower uterine segment (Figure 3).

After delivery of the fetus, several attempts were made to control bleeding with uterine sparing methods including closure of the hysterotomy sites and O'Leary sutures. Ultimately, the damage was too great and necessitated supracervical hysterectomy. No other organ damage was noted after a complete survey by the trauma team. The patient had a planned return to the Operating Room (OR) approximately 8 hours after the first surgery. No active bleeding was seen and her abdominal incision was closed without complication. The patient was extubated in the OR and recovered in the surgical Intensive Care Unit (ICU). Total estimated blood loss was 3 liters. Resuscitation efforts included 7 units of whole blood, 2 units packed red blood cells, 3 units Fresh Frozen Plasma (FFP), 2 units of platelets, 1200 mL of plasma-lyte and 4g Ca²⁺ at the time of initial surgery. In the



Figure 1. Anterior uterus not reapproximated with cervix oriented toward bottom of picture.

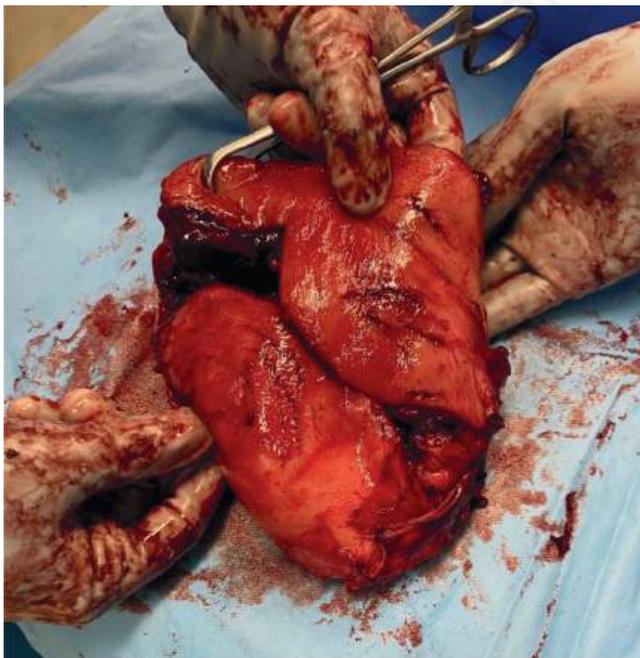


Figure 2. Anterior uterus reapproximated with cervix oriented toward bottom of picture.



Figure 3. Posterior uterus with cervix oriented toward bottom of picture.

surgical ICU she received an additional 2 units platelets and 1 unit of FFP.

The patient was discharged from the hospital on post operative day 5 and at 6-week follow-up had an uncomplicated recovery.

Discussion

Traumatic uterine rupture is a rare cause of a maternal morbidity especially in women with no prior history of uterine scarring, all other reported cases are in the second trimester.²⁻⁵ The case presented serves as a potent reminder that even in an unscarred uterus massive damage to the uterus can occur due to the sheer couple-contra couple forces generated during a high-speed collision. While the fundal and anterior defects were likely attributed to the hyperflexion after deceleration, the posterior defect appeared to correlate to impact against the patient's sacral promontory.

The patient did not wish to comment on her perspective but did give verbal informed consent.

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