GORING TRAUMA IN A PREGNANCY RESULTING UTERINE RUPTURE:
A CASE REPORT

Ermias Abate Tinkishea, MD\textsuperscript{1}, Hale Teka, MD\textsuperscript{1}, Teweldebirhan Awash, MD\textsuperscript{2}, Solomon Gebre\textsuperscript{3}

ABSTRACT

BACKGROUND: Trauma in pregnancy is the leading cause of non-obstetric maternal mortality, with 20% of maternal deaths directly attribute to the injuries. The most common cause of trauma in pregnancy is motor vehicle accident and domestic violence. Other causes of trauma in pregnant patients are penetrating injuries and falling down accidents. The incidence of maternal visceral injury with penetrating abdominal trauma is only 15% to 40% compared with 80% to 90% in non-pregnant women. Goring injury during the pregnancy is the least reported cause of trauma in pregnancy.

CASE PRESENTATION: 42-year-old Gravid V Para IV mother with gestational age of 30 weeks +2 days referred from primary hospital with a diagnosis of 2nd trimester pregnancy and blunt abdominal trauma. She complained goring injury to the lower abdomen of 15 hours duration. On physical examination, she was acutely sick looking with tender abdomen but superficial lacerations or bruises. Focused Abdominal Sonography for Trauma showed ruptured uterus with significant peritoneal collection. With the impression of uterine rupture she was operated at Axum Comprehensive specialized hospital with intraoperative finding of intact skin with bridged fascia. The uterus completely ruptured on the anterior lower uterine segment (10 cm) with freshly dead fetus in the peritoneal cavity. Following standard procedures uterus was repaired in two layers and patient’s post operative course was unremarkable.

Conclusion: Trauma in pregnancy is a common phenomenon; however, it is unusual to find goring injury in pregnancy. It is one of the penetrating types of trauma with catastrophic complication to the mother and fetus. So, we need to have high index of suspicion of uterine rupture in case of such kind of circumstances.

KEYWORDS: trauma, pregnancy, goring injury, uterine rupture

(Ethiopian Journal of Reproductive Health; 2019; 11;2:61-65)
INTRODUCTION

Trauma during pregnancy is the leading cause of non-obstetric maternal mortality, with 20% of maternal deaths directly attributable to the injuries. The most common cause of trauma in pregnancy is motor vehicle accidents and domestic violence. Other causes of trauma in pregnant patients are penetrating injuries and falling down accidents.

The incidence of maternal visceral injury with penetrating abdominal trauma is only 15% to 40% compared with 80% to 90% in non-pregnant women. A report by the National Trauma Data Bank (2001–2005) indicated that trauma-related mortality among pregnant women is lower than that among non-pregnant women. This difference has been attributed to protective hormonal and physiologic effects of pregnancy as well as a higher likelihood of hospital admission of pregnant versus nonpregnant trauma victims.

Abruption of the placenta is a major complication of maternal trauma, occurring in 5-50% of cases, depending on the severity of injury. Placental abruption may culminate in preterm labor in 20% of cases. Preterm premature rupture of membranes is also associated with preterm labor. Regardless of the mechanism, trauma (even with minor injuries) is associated with a 2-fold higher risk of preterm delivery. Direct fetal injury is seen in less than 1% of blunt maternal trauma. The gravid, abdominal uterus provides protection to the abdominal viscera; it is susceptible, along with the fetus, to direct injury. According to Buchsbaum, the uterine musculature absorbs a great amount of the projectile’s velocity and diminishes its ability to damage the viscera. Therefore, depending on the gestational age and the size of the uterus, the fetus is much more likely than the mother to sustain significant injury (and to die) after a penetrating abdominal trauma.

In general, the fetus sustains injury in 60% to 70% of cases, while visceral maternal injuries are seen only in 20% of penetrating abdominal trauma. Post-trauma uterine rupture is rare (0.6% of all maternal injuries), but seen more frequently with a scarred uterus or with direct abdominal impact during the latter half of pregnancy. Most (75%) uterine ruptures involve the fundal area. Maternal mortality has been described with traumatic uterine rupture and fetal mortality is almost universal. It is the cause of motor vehicle crash (MVC) related perinatal death in 17.5% of the cases. Suspected uterine rupture with maternal and/or fetal compromise should prompt urgent laparotomy to control bleeding and facilitate resuscitation.

Penetrating injuries in pregnant trauma patients are managed in essentially the same way as in non-pregnant patients. The standard of care is to prioritize the emergent treatment of the gravid patient above that of her fetus. The hemodynamically stable patient should be assessed by non-invasive diagnostic methods such as ultrasound.

In this article we report a rare case of goring abdominal trauma in a pregnant woman resulting in abdominal wall fascial tear with an intact skin, uterine rupture and fetal death.

CASE PRESENTATION

This is a 42 years old Gravida V para IV mother with gestational age of 30 weeks +2 days referred from primary hospital with a diagnosis of 2nd trimester pregnancy and blunt abdominal trauma. She sustained horn injury to the lower abdomen of 15 hours duration. After the goring injury she fell down on her back but had no vaginal bleeding, abdominal pain or loss of consciousness immediately after the injury. She started to complain crampy lower abdominal pain four hour after the trauma. She experienced minimal vaginal bleeding just one hour prior to arrival of the hospital. Otherwise she has no injury to other site of her body or other danger sign of pregnancy, leakage of fluid pre vagina or pushing down sensation.

The physical examination revealed stable vital signs. The abdominal examination showed intact abdominal skin, palpable fetal parts, tender abdomen and positive shifting dullness. Fetal heart beat was negative. Uterus with palpable separately and measures 28 weeks. The cervix was closed with blood on examining finger.

Hemoglobin was 11.2 mg/dL preoperatively. Focused Abdominal Sonography for Trauma showed significant peritoneal collection with empty uterus with fetus in the peritoneal cavity.

With the impression of uterine rupture patient was counseled for surgery and after informed consent was
obtained patient was taken to the operation theatre and exploratory laparatomy was done. The intraoperative findings were: intact abdominal skin; a 4 cm transverse fascia tear (where), 500 ml hemoperitoneum, a 1700gm freshly dead fetus and the placenta in the peritoneal cavity and 10 cm complete transverse lower uterine wall defect with minimal oozing from the edge. Uterus was repaired in two layers and abdominal wall was closed layer by layer. Hemostasis was secured and patient left operation room stable. (figure 2)

Figure 1: 3 cm transverse facial defects over the suprapubic area after an incision of intact skin was made

Figure 2: 6 cm transverse lower uterine segment full thickness defects without extension to uterine artery

DISCUSSION
This is a rare form of trauma in pregnancy presentation. We encountered this patient in Axum comprehensive specialized hospital, northern Ethiopia with dilemma of reaching a diagnosis. Penetrating trauma during pregnancy occurs due to gunshot and stab wounds. Penetrating trauma due to goring injury resulting in abdominal wall fascial tear and uterine rupture, however, is rare and this is the first published case report to the knowledge of the authors in the Ethiopian setting. Fetal and maternal morbidity and mortality are significantly different in different types of penetrating abdominal injuries in pregnancy. As the pregnancy progress there is a change in the position of intraabdominal organs - the bowel is pushed up and enlarging uterus occupies most of the abdomen. During the third trimester, injuries to the lower quadrants of the abdomen almost exclusively involve the uterus. Because the uterus and the amniotic fluid absorb most of the energy of the penetrating object, organ destruction is less.

Exploratory laparotomy in trauma is indicated in cases with positive findings on lavage, free air under the diaphragm (before lavage), progressive abdominal distention with a declining hematocrit, or abdominal wall disruption or perforation. Intraoperative management depends on the type of injury. Where such an injury is present and gestation is more than 25 weeks with evidence of fetal compromise, caesarian section is indicated. Penetrating uterine injury at less than 25 weeks gestation should be treated conservatively due to 100% neonatal mortality. Fetal fractures stab or bullet wounds may heal in utero. Maternal hemorrhage or fetal death in association with a uterine laceration that would preclude labor (eg. a large fundal laceration) may require hysterotomy.
CONCLUSION

Trauma in pregnancy is a common phenomenon; however, it is unusual to find goring injury in pregnancy. It is one of the penetrating types of trauma with catastrophic complication to the mother and fetus. So, we need to have high index of suspicion of uterine rupture in case of such kind of circumstances.

CORRESPONDING AUTHOR:
Ermias Abate Tinkishea
Department of Obstetrics and Gynecology, College of Health Sciences, Ayder Comprehensive Specialized Hospital, Mekelle University
Email: erab1998@gmail.com
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