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

Ermias Abate Tinkishea, MD[1], Hale Teka, MD[1], Teweldebirhan Awash, MD[2], Solomon Gebre[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)

1 Department of Obstetrics and Gynecology, College of Health Sciences, Ayder Comprehensive Specialized Hospital, Mekelle University, Mekelle, Ethiopia
2 Department of Obstetrics and Gynecology, Comprehensive Specialized Hospital, Axum University, Axum, Ethiopia
3 Department of Integrated Emergency Surgery and Obstetrics, Maiani General Hospital, Northern Ethiopia

INTRODUCTION

Trauma during 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 violence1,2Other causes of trauma in pregnant patients are penetrating injuries and falling down accidents3,4.

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 victims5,6.

Abruption of the placenta is a major complication of maternal trauma, occurring in 5-50% of cases, depending on the severity of injury7,8. 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 delivery9. 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 (10).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 pregnancy11. 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 veihcle crash (MVC) elated perinatal death in 17.5% of the cases. Suspected uterine rupture with maternal and/or fetal comprise should prompt urgent laparotomy to control bleeding and facilitate resuscitation12.

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 fall 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 sensationn.

The physical examination revealed stable vital signs. The abdominal examination showed intact abdominal skin, palpable fetal parts, tenderabdomen 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 counsled for surgery and after infomred consent was

obtained patient was taken to the operation theature 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 abominal wall was closed layer by layer. Hemostatsis 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

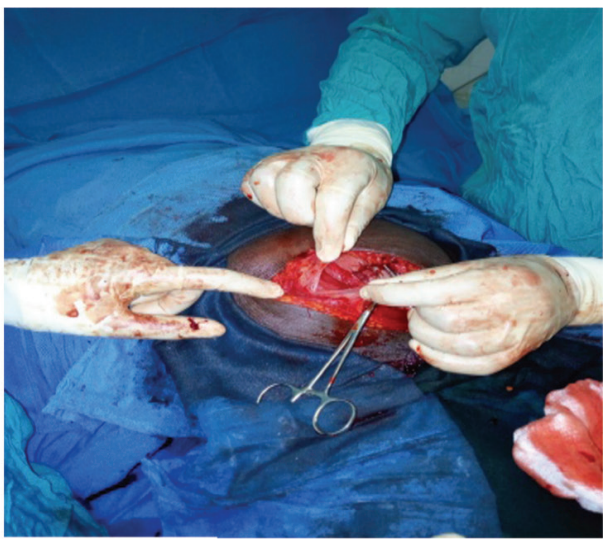

Figure 2: 6 cm transverse lower uterine segment full thickness defects without extension to uterine artery

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 gorring 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 less13.

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 hysterotomy14,15.

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

REFERENCES

1. Kuhlmann RD, Cruikshank DP. Maternal trauma during pregnancy.ClinObstetGynecol 1994;37:274–93.
2. 2. Mendez-Figueroa H, Dahlke JD, Vrees RA, Rouse DJ. Trauma in pregnancy: an updated systematic review. Am J ObstetGynecol 2011; 209:1–10.
3. 3.Petrone P, Talving P, Browder T, Teixeira PG, Fisher O, Lozornio A, et al. Abdominal injuries in pregnancy: a 155-month study at two level 1 trauma centers. Injury 2011; 42:47–9.
4. 4. Poole GV, Martin JN Jr, Perry KG Jr, Griswold JA, Lambert CJ, Rhodes RS. Am J ObstetGynecol 1996; 174:1873–8.
5. 5. John PR, Shiozawa A, Haut ER, Efron DT, Haider A, Cornwell EE 3rd, et al. An assessment of the impact of pregnancy on trauma mortality. Surgery 2011; 149:94–8.
6. 6.Sela HY, Weiniger CF, Hersch M, Smueloff A, Laufer N, Einav S. The pregnant motor vehicle accident casualty: adherence to basic workup and admission guidelines. Ann Surg 2011;254(2):346–52.
7. 7. Pearlman MD, Tintinalli JE, Lorenz RP. A prospective controlled study of outcome after trauma during pregnancy. Am J ObstetGynecol 1990; 162:1502–10
8. 8. Goodwin TM, Breen MT. Pregnancy outcome and fetomaternal hemorrhage after noncatastrophic trauma. Am J ObstetGynecol 1990; 162:665–71.
9. 9. Sperry JL, Casey BM, McIntire DD, Minei JP, Gentilello LM, Shafi S. Long-term fetal outcomes in pregnant trauma patients. Am J Surg 2006; 192:715–21
10. 10. Buchsbaum HJ. Accidental injury, complicating pregnancy. Am J ObstetGynecol 1968; 102:752–69
11. Williams KJ, McClain L, Rosemurgy AS, Colorado WM. Evaluation of blunt abdominal trauma in the third trimester of pregnancy: maternal and fetal considerations. ObstetGynecol 1990; 75:33–7
12. Kvarnstrand L, Milsom I, Lekander T, Druid H, Jacobsson B. Maternal fatalities, fetal and neonatal deaths related to motor vehicle crashes during pregnancy: a national population-based study. ActaObstetGynecolScand 2008; 87:946–52
13. Stone IK. Trauma in the obstetric patient.Obst and GynecolCl N Am 1999; 26: 459-67.
14. Rudra A, Ray A, Chatterjee S, Bhattacharya C, Kirtania J, Kumar P, Das T, Ray V. Trauma in pregnancy. Indian J Anaesth 2007; 51: 100
15. Mahoney B, Schwaitzberg SD, Newton ER. Trauma and pregnancy. Medscape references