Case Report

Intrauterine Bowel Rupture of Fetus from Stab Wound Injury in a Pregnant Woman: A Case- Report

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Abstract

Background: Penetrating injuries of the uterus are rare complications during pregnancy which happen most by stab and gunshot wounds. Although the fetus is enclosed within the protective shield of the uterus, it is vulnerable to forceful trauma to the maternal abdomen.

Cases Report: Following an upper abdominal stab wound to the 18-week pregnant mother, fetal death had occurred in the uterine. She was resuscitated and underwent exploratory laparotomy and hysterotomy. The patient had a 3cm laceration on the upper anterior fundus, which has caused the rupture of membrane, leading to fetal death and protruding of bowel loops. After surgery, she was transformed into the recovery room with stable hemodynamic status.

Conclusion: Trauma during pregnancy is a significant burden due to morbidity and mortality that follows mother and fetus for developed countries. The ultimate purpose is to provide optimal care for a mother and fetus.

Keywords: Pregnancy, Stab Wound, Fetus, Trauma

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Introduction

Penetrating injuries of the uterus are rare complications during pregnancy which happen most by stab and gunshot wounds[1]. Although the fetus is enclosed within the protective shield of the uterus, it is vulnerable to forceful trauma to the maternal abdomen. However, it is rare for a maternal death from uterine injury since the uterus is not a vital organ. Even if the uterus can protect the abdominal contents, there is a high risk of fetal death in gunshots and stab wounds[2]. In either situation, both mother and fetus require careful assessment and management. Herein, we report the death of a fetus after a knife stab wound.

Case Report

A 20-year-old woman, gravida 1 para 0, in the second trimester of pregnancy (18 weeks), was moved to the trauma unit at Shohada- E- Tajrish medical center (Tehran, Iran) by emergency medical services (EMS) with a single stab wound. On examination, the woman was found to have a single stab wound with a length of 3cm in the epigastric part of the abdomen, and an omentum was seen. She had no signs of acute peritonitis. The abdomen was tender with active

bleeding. There were no signs of pneumothorax. Her vital sign was; blood pressure: 130/70, the pulse rate: 86, respiratory rate: 16, and O2 saturation: 97%. After resuscitation, emergency laparotomy was performed using a lower abdominal vertical midline incision. There were no injuries to the stomach, spleen, liver, and bowel. It was necessary to rule out the diaphragmatic injury that was normal. Adnexa and fallopian tubes were intact. A 3cm stab wound was noted in the upper anterior fundus causing the rupture of the membrane that because of this, the hysterotomy was performed. The dead fetus was delivered from a transverse incision on the lower segment of the uterus. The stab's trauma led to the rupture of the anterior wall of the fetus's abdomen, and loops of the bowel protruded through the ventral stab wound (Figure 1). The placenta was intact, and there was no injury to major vessels of the placenta.

Myometrium was sutured with the continuous method. The abdomen was sutured with nylon 1.0 with the Smead-Jones technique and intradermal cutaneous sutured with different stitches using nylon 3.0. The bleeding volume during surgery was 500 cc, and the patient received 1 unit packed cell during surgery. She was transferred to a recovery room with stable hemodynamic status. The patient was transferred to the intensive care unit (ICU) to control the vital sign. The patient's Hemoglobin before surgery was 9.7 g/dL that after surgery and packed cell transfusion was 10 g/dL. For antibiotic therapy, Clindamycin, Gentamicin, and Ampicillin were administered after surgery as a prophylactic antibiotic regime. She received low molecular weight heparin 24 hours after surgery for thromboprophylaxis. She was discharged from the hospital in good condition after four days.

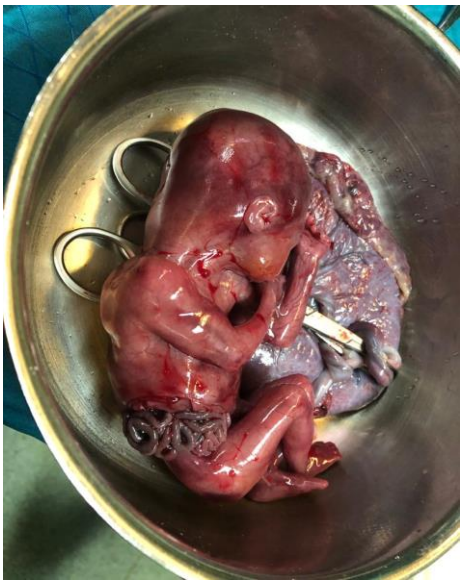

Figure 1. Dead fetus with protruding loops of bowel due to stab wound injury.

Discussion

Most pregnancy injuries are due to blunt trauma. Less common than blunt trauma, penetrating abdominal wounds during pregnancy have a higher risk of injury to the maternal viscera and fetus[3]. Less common than bullet wounds, stab wounds have a better prognosis due to the absence of shock waves, the ability of visceral organs to slide away from the knife blade, and the protective effect of the uterus.

Stab wounds of the pregnant uterus are rare; however, fetal injury and perinatal mortality are high. The basic management is regarding the exploratory laparotomy and cesarean delivery. In this case, an exploratory laparotomy was done due to visceral penetration. Based on studies using diagnostic peritoneal lavage has been mentioned for evaluating the need for exploration.[4,5] Studies offer not enough data from pregnant women to support this conservative approach to lower abdominal wounds in pregnancy.[3]

In Moss et al. review, stab wounds occur three times more frequently in the upper than lower abdomen. Omentum protruding is common in upper abdomen injuries.[6] A major reason is that protruding the bowel into the upper abdomen increases the chance of extra-uterine visceral injury. To have optimal exposure, the laparotomy incision went through a vertical incision. Moreover, exploratory laparotomy in upper abdomen injuries for ruling out lacerations of the diaphragm is necessary.

In approaching the uterus, it should be left intact unless it is advantageous for the maternal and fetus to undergo hysterotomy. If the uterus has not been perforated, it should be repaired and left intact. In the perforating uterus, the amniotic fluid will be discharged, increasing the chance of mothers' emboli. Few cases are reporting premature and alive fetuses left in the repaired uterine until labor time[7,8].

When the fetus is dead in the uterine, vaginal delivery and hysterectomy can be done based on uterus limit exposure.[2] In an alive fetus, fetal distress is an indication for immediate cesarean in a stable mother. However, there is no chance of neonatal survival in a pregnancy less than 25 weeks based on the literature. Such a fetus should be managed nonoperatively if the mother's condition is stable and intraperitoneal hemorrhage or bowel perforation are excluded, and there is no fetal compromise.[9, 10] Emergency delivery by hysterotomy offers not enough benefit for both fetus and mother. Therefore, the fetus should be kept in the uterine. As said above, if fetus death occurs, it is necessary to wait for labor. Maternal death or complications such as hypotension and amniotic fluid embolism increase fetal and maternal mortality.[10] In cases like this patient, to have the best outcome for the mother, a multidisciplinary rapid response team with training in the resuscitation of a pregnant patient is always mandatory.

This report was carried out according to the Declaration of Helsinki. Also, the written informed consent for publication of the manuscript and the related individual data were obtained from the patient.

Conclusion

Trauma during pregnancy is a significant burden to both maternal and fetal morbidity and mortality in developed countries. The ultimate purpose is to provide optimal care for a mother and fetus. In this patient, grossly bloody amniotic fluid suggested that the peritoneal cavity and uterus had been penetrated. Because there was evidence of omentum injury, an exploratory laparotomy was done. This case supports the recommendation in the literature that injuries known to penetrate the uterus may be managed with both exploratory laparotomy and hysterotomy if there is evidence of fetal death or uterus limit exposure.

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