

## Traumatic Fundal Rupture of unscarred Uterus in a Primigravida

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**Background:** Uterine rupture is an infrequent but life threatening obstetric emergency. Rupture of previously scarred uterus is often encountered especially in multiparous women, but the traumatic rupture of an unscarred primigravid uterus as presented here is a relatively rare event. We report a case of rupture of an unscarred uterus at 37 weeks in a primigravidae due to blunt abdominal trauma.

**Case report:** We present a case of a primigravida with no previous uterine surgery who had uterine rupture following trauma at 37 weeks of pregnancy. She was resuscitated with intravenous fluids and blood transfusion. The uterine rupture was repaired.

**Conclusion:** Rupture of an unscarred uterus in a primigravida although uncommon can occur. Pregnant woman with history of blunt abdominal trauma should be watched for signs of rupture uterus

### Introduction

Uterine rupture is one of the most catastrophic complications of pregnancy associated with considerable perinatal and maternal mortality and morbidity. The main cause of rupture of unscarred uterus is traumatic rupture or spontaneous rupture in obstructed labor<sup>1</sup>. Although the uterus is surprisingly resistant to blunt trauma, pregnant woman sustaining such trauma to the abdomen should be watched carefully for signs of rupture uterus as well as placental abruption<sup>2</sup>. Incidence of traumatic rupture is around 10% among all cases of rupture uterus<sup>3</sup>. Here we present a case of rupture uterus following blunt trauma.

### Case Report

Mrs. A aged 23 years old, unbooked primigravida presented with amenorrhea of thirty seven weeks, pain abdomen and loss of fetal movement for the past six hours, after a wall collapsed on her. At the time of admission, her pulse rate was 110 beats per minute, blood pressure was 100/70mm Hg and she was pale. Her respiratory rate was 24 per minute and cardiovascular examination was normal. She had an abrasion on forehead and right knee joint. On per abdomen examination, there was no sign of external injury except a contusion on right iliac region. Uterus was enlarged to 32 weeks size; tense, tender and fetal heart sound could not be auscultated. On per vaginum examination- cervical os was closed, posterior and there was no bleeding. Abdominal paracentesis revealed blood. Ultrasonography revealed the presence of free fluid with internal echoes in peritoneal cavity and absence of fetal heart sound. Laparotomy was performed in view of rupture uterus. At operation, about 1 litre of haemoperitoneum was present, fetus with placenta was lying in peritoneal cavity. Fetus, placenta and membranes were removed completely. There was a complete anterior fundal tear of about 8x6 cm. between the insertions of fallopian tubes. Edges of tear were fresh and bleeding actively (Figure 1). Ruptured part of the uterus was repaired in 3 layers with 1 no.vicryl. Other uterine pathology such as fibroid and adenomyosis were ruled out. Liver and spleen were found normal. Three units of blood and 2 units of FFP were transfused.

Postoperative period was uneventful and patient was discharged with advice to avoid pregnancy for at least 2 years, contraception counseling, antenatal care and have elective cesarean at 36 completed weeks in next pregnancy.



**Figure 1.** Ruptured Uterus

## Discussion

Trauma complicates pregnancy in approximately 6-7 % of cases and is the leading cause of nonobstetric maternal death<sup>1</sup>. Blunt trauma during pregnancy may be the result of motor vehicle accidents, accidental falls and physical violence. Some authors suggest that the pregnant woman is at increased risk for trauma due to the clumsiness associated with alterations of body habitus and the centre of gravity.

A number of injuries can occur secondary to blunt abdominal trauma in pregnancy, ranging from no damage to catastrophic organ damage. Retroperitoneal hemorrhage, uterine rupture or laceration, abruptio placentae, renal injury and upper abdominal injuries such as liver and spleen laceration are possible. The blood supply to the pelvic organs is greatly increased during pregnancy, and the enlarged uterus is more susceptible to injury. The uterus is relatively elastic compared with the placenta, and force directed to the uterus can cause shearing of the "inelastic" placenta, producing placental abruption or uterine rupture. Abruption placentae are estimated to occur in 40 to 50 percent of patients with major traumatic injuries and in up to 5 percent of patients with minor injuries<sup>2,3</sup>.

Fetal trauma during maternal abdominal trauma is most common in the third trimester, when the fetal head is engaged in the pelvis. Severe maternal pelvic trauma may result in fetal skull fracture and significant intracranial damage<sup>4</sup>. The fetus may also be injured as a result of hypoxia from blood loss or abruption, with resultant neurologic sequelae or death.

Trauma of sufficient force may cause a rupture in a healthy uterus, yet the multiparity, previous curettage, placenta previa and intramural fibroid would increase the chances of rupture resulting from external violence. Sometimes even patient may conceal information of previous D&C or instrumental pregnancy termination for social reasons. Traumatic rupture of uterus tends to occur at the fundus. Rupture following trauma is always the result of sudden increase of the intrauterine pressure, caused by the sudden compression of the abdominal contents. This pressure spreads equally in all directions in uterine cavity. The tear occurs at the weakest point of the uterine wall. At the end of the pregnancy that point is at the fundus, which moreover lacks the protection of bony pelvis. In many cases it appears that the placental site is especially weak because of the increased vascularity<sup>5</sup>.

The propensity of the uterine rupture increases with advancing gestational age and the severity of the direct traumatic abdominal force. Unless there is high clinical suspicion and meticulous examination it is difficult to diagnose the rupture of unscarred uterus following blunt injury even with sophisticated radiological imaging. Computerized tomography can help in screening of injured pregnant women. There have been case reports of rupture of uterus due to blunt trauma. Miller and



Paul reported only three cases due to trauma out of 150 cases with rupture uterus<sup>6</sup>. A traumatic transverse fundal uterine rupture with fetal death followed by recurrent rupture during the subsequent pregnancy with favorable outcome has been reported by Catanzarite et al<sup>7</sup>. Review of literature has shown a fair maternal outcome and high perinatal mortality of 78-80% even with urgent and immediate intervention<sup>8,9</sup>. In the present case, the blunt trauma has resulted in uterine fundal rupture at 37 wks. Though blunt trauma results in uterine rupture in less than 1% of severe cases, but pregnant woman with history of blunt abdominal trauma should be watched for signs of rupture uterus and should be advice elective cesarean section in next pregnancy in cases of fundal rupture.

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