

Uterine Rupture in Unscarred Uterus - An Obstetrician's Nightmare

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Abstract: *Unscarred uterine rupture is rare and disastrous situation for the mother and the foetus. It has been reported in each trimester of pregnancy and its presentation varies from silent uterine rupture to haemorrhagic shock. It may occur in prelabour stage, second stage or even in fourth stage of labour causing uncontrolled postpartum haemorrhage. Here, we report 2 cases of unscarred uterine rupture during labour. First case was of gravida 4, para 3 who came in shock following the attempt of forceps application during second stage of labour. Laparotomy revealed uterine rupture. Second case was of a primigravida who had cessation of uterine contraction after applying fundal pressure. Clinically, she was diagnosed with rupture uterus that was confirmed on laparotomy with delivery of still born baby. Both these cases were survived as a result of timely diagnosis and immediate laparotomy. Both of them received multiple blood transfusions and discharged in satisfactory condition. This case series tells us that high index of suspicion of an unscarred uterine rupture should be kept in mind irrespective of trimester or phase of labour. Immediate action must be taken to prevent major maternal and foetal morbidity.*

Keywords: hemoperitoneum, peripartum hysterectomy, postpartum haemorrhage, unscarred uterine rupture, uterine repair

1. Introduction

Ruptured uterus is a less likely but serious complication in obstetrical practice. Cesarean section being the most common predisposing factor for this catastrophic event and is usually reported during labor in patients with such a scarred uterus. Beside C-section, inappropriate prostaglandin and oxytocin usage, previous instrumental abortion, vacuum extraction delivery, and vigorous fundal pressure are the other risk factors for uterine rupture.^{1,2} But uterine rupture in an unscarred uterus is very rare entity.

The uterine fundal pressure manoeuvre is usually applied to assist the exclusive force and finish delivery quickly when a non-reassuring foetal status, failure to progress or maternal exhaustion occurs during the second stage of labour. Several complications associated with this manoeuvre have been reported, including pain and discomfort of the maternal abdomen, maternal rib fracture, maternal anal sphincter tears, amniotic fluid embolism, foetal fractures and brain damage^[3-6].

Although rare, rupture of an unscarred uterus is one of the most dangerous obstetric complications, resulting in maternal and foetal jeopardy. The objective of this case report is to make others aware of the dreaded complications associated with this delivery hastening manoeuvre that can result in an obstetrician's nightmare.

2. Case Series

Case 1: A 32-year-old gravida 4, para 3 at 39 weeks gestation was referred from periphery with hypotension and tachycardia following forceps application. Patient had undergone induction of labour with misoprostol followed by augmentation via oxytocin infusion. Foetal bradycardia was noted in second stage of labour so decision of forceps application was taken. A 3.4 kg male child was born with 2

loops of cord around neck. Her antenatal period was unremarkable and she had previous three normal vaginal deliveries.

On examination, severe degree of pallor was noted with pulse rate of 128 beats/minute, blood pressure was 80/56 mm of Hg and generalised tenderness was present all over the abdomen with loss of uterine contour. On per vaginal examination, gush of fresh blood was noted from uterine cavity. Cervical tears were noted at 3 and 9 o'clock position which was eventually repaired but bleeding continued. Clinical findings were suggestive of uterine rupture and were confirmed on ultrasonography. Following resuscitation, laparotomy was performed which revealed hemoperitoneum of around 4 L with blood clots. Rupture was seen on posterolateral wall of lower uterine segment that was extending to left lateral wall upto left fornix with a hematoma of 4 × 3 cm in left broad ligament. The rupture site was repaired in two layers with chromic catgut No-1 along with bilateral fallopian tubes ligation. Patient was transfused multiple units of blood and blood components. She was stable and discharged on day seven of surgery.

Case 2: A 24-year-old primigravida at 40+6 weeks of gestation referred with history of prolonged labour which was augmented with oxytocin. She gave history of cessation of labour pains after use of fundal pressure.

On admission she had severe pallor and tachypnea with pulse rate of 130 beats/min and blood pressure was 90/60 mm of Hg. There was tenderness all over the abdomen, foetal parts were palpable superficially and uterus was lying separately on left side, foetal heart rate was not audible with stethoscope. On per vaginal examination cervix was fully dilated, vertex at -2 station, no caput, no moulding and sutures were in Anterior-Posterior diameter. Ultrasonography confirmed uterine rupture and foetal demise. Following resuscitation, laparotomy was performed which revealed hemoperitoneum due to rupture of left lateral

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wall of uterus involving left fornix with cervix and left vagina. A 3.2 kg still born female baby was delivered from the abdominal cavity. Uterine repair was done followed by repair of vaginal tear. Patient was transfused three units of blood and four units of fresh frozen plasma. She was discharged in satisfactory condition on postoperative day eight.

3. Discussion

The association between previous uterine surgery and uterine rupture is well known.⁷ However, intrapartum rupture of the unscarred uterus is an uncommon event. Instrumental delivery is associated with uterine rupture³, and the possibility of a strong association between the application of uterine fundal pressure, as well as the concomitant use of instrumental delivery, with uterine rupture is supposed. Uterine rupture is a life-threatening condition and may lead to near miss mortality to maternal mortality. Maternal and foetal complications can be avoided if uterine rupture is detected timely. The present case series of uterine rupture happened in unscarred uterus which were avoidable and hence emphasises us to treat each and every woman during labour with utmost care along with anticipation of any complication, most worst being uterine rupture.

Rupture of unscarred uterus has been reported in 4.54 per 100,000 deliveries.⁸ Although, the incidence of rupture in both scarred and unscarred uterus has increased in recent decades but unscarred uterine rupture is more disastrous for both the mother and foetus.⁸ There are two types of rupture: 1) complete, where the whole thickness of the uterine wall is involved, usually occurring in an unscarred uterus; and 2) incomplete, where the visceral peritoneum remains intact, as seen in scar dehiscence.⁹

Congenital weakness of uterus due to Ehlers-Danlos Type IV syndrome have been reported as a cause of unscarred uterine rupture.¹⁰ Whereas, acquired weakness of the myometrium may also occur from the use of uterotonic drugs like misoprostol and oxytocin which causes unscarred uterine rupture by prolonged stress on myometrium.¹¹ The unscarred uterine rupture even in prelabour stage has been reported in placenta increta and also in rudimentary horn pregnancy.^{12,13} Case report of unscarred uterine rupture in second trimester with unknown factor too has been reported.¹⁴ During labour, factors like grand multiparity, malpresentation, uterine anomalies, multiple gestation, short interpregnancy interval, previous cervical encirclage and use of drugs like cocaine, in-utero exposure to diethylstilbesterol and steroids have been reported as causes of unscarred uterine rupture.^[15-22] Rupture of unscarred uterus during second stage has been seen after use of fundal pressure, inappropriate application of vacuum or forceps, and obstructed labour.^{15,23} This stage was found to be most common stage for unscarred uterine rupture as reported by Aggarwal P et al.²⁴

There are variable clinical presentations of uterine rupture from silent uterine rupture with features of intestinal obstruction to haemorrhagic shock.²⁵ Although, bradycardia is the most common clinical appearance of uterine rupture

that may be preceded by variable or late decelerations but no foetal heart rate is specific to rupture of uterus. However, when patient undergoes induced or augmented labour under optimal care, there are some sequential events when detected in time that can prevent major catastrophic events to both mother and foetus.

Resuscitative management protocol of rupture uterus is similar as in haemorrhagic shock. General anaesthesia is recommended as acute foetal distress, maternal shock, impending coagulopathy are contraindications to spinal anaesthesia. Abdomen must be opened by midline skin incision which provides better exposure of upper abdomen along with pelvis and shortened incision-to-delivery interval to three minutes from four minutes for Pfannenstiel incisions.²⁶ Although, timely intervention will not always effectively prevent adverse maternal and foetal outcome because outcome is directly related to the extent of placental separation.

Hysterectomy has been done in haemodynamically unstable patient requiring multiple blood transfusions and in irreparable uterine laceration extending into the cervix or otherwise rupture site can be repaired by skilled surgeon taking care of ureter.²⁷ Bilateral fallopian tube ligation is to be decided according to the risk of reoccurrence of uterine rupture in subsequent pregnancy if desired after consulting the relatives. Adequate haemostasis is to be achieved by two to three layers closure of rupture site with an absorbable suture and consultation with urologist should be sought during operation. If unscarred uterine rupture occurred in previous pregnancy, elective caesarean section should be planned at 34 weeks in subsequent pregnancy after corticosteroids cover for foetal lung maturation. Recurrent rupture is less with a prior lower uterine segment rupture; henceforth plan of caesarean delivery can be delayed till 36 to 37 weeks of gestation in these cases.

4. Conclusion

Unscarred uterine rupture demands high index of suspicion and stresses upon the need for qualified, trained medics and paramedics in the background of good obstetric practice, with an exhaustive experience in dealing such precarious labour complications. The delivery centres should have the capability as well as the facility for monitoring and titration of drugs like oxytocin and prostaglandins along with timely surgical interventions in high-risk cases. Since uterine fundal pressure manoeuvre may cause potential serious injury to either mother and/or neonates, its indication of the use of this manoeuvre needs to be carefully determined.

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