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Case Report

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Complete uterine rupture: a case report

Abstract

Uterine rupture is a very rare obstetrical complication of the intrapartum period which can occur during either vaginal or cesarean delivery. Rupture is more commonly associated with a trial of labor after previous cesarean delivery (TOLAC) than with an elective repeat cesarean delivery after a prior cesarean section (ERCD). The overall incidence of such an event is less than 1%. Associated maternal and neonatal morbidity or mortality is minimal. Guidelines exist regarding the mode of delivery in the case of a previous cesarean section and, when followed, have greatly reduced the chances of uterine rupture. A case report of complete uterine rupture in a parturient admitted to our labor ward for TOLAC is presented.

Keywords: uterine rupture, maternal and neonatal morbidity/mortality, obstetric anesthesia

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Introduction

Uterine rupture remains an exceptional but life threatening event during the peripartum period. Rates vary worldwide from 0.012 to 0.3 %, with higher incidence in developing countries.[1,2] Among the several predisposing factors, a history of previous cesarean delivery remains the most important etiological factor.[3] Neonatal mortality is higher in women who present with uterine rupture when compared with the general obstetrical population, at rates of 51/1000 and 1.4/1000 respectively.[3] Incidence of maternal mortality rate after trial of labor with prior cesarean delivery (TOLAC) or post repeat elective cesarean delivery (ERCD) is around 7/100000 births and marginally higher in the former group.[4,5] The rate of cesarean deliveries has increased over the past two decades in most countries, varying from 15 % to 40 % of deliveries, with Northern European countries having the lowest rates.[6] Uterine rupture is more frequent with TOLAC than ERCD.[7]

Case report

A 36 year old woman presented with a history of previous cesarian section 4 years ago, was admitted to the maternity ward at 40 weeks of gestation with spontaneous onset of labor. She was considered for a trial of labor. She had no medical problems and was not on any medications. She was a non-smoker and teetotaller. Her body mass index was 24.8kg/m^2. On admission to the labor ward, epidural catheter was placed. Monitoring during labor consisted of fetal electrocardiogram, tocometer, non-invasive blood pressure, ECG and pulse oximetry. An oxytocin infusion containing 5 units in 49 milliters of a glucose solution according to the local protocol was set up (5.436 units of oxytocin were admininstered over the entire labor) and after twelve hours of labor a baby boy weighing 2.994 kilograms (kg) was delivered using outlet forceps. The newborn had an Apgar score of 4/7/9/10 at 0,1,5 and 10 minutes. Three minutes after delivery, the parturient developed profuse vaginal bleeding with severe hypotension, tachycardia, intense abdominal pain, and obtunded consciousness. Suspecting uterine rupture, the patient was wheeled to the operation room for surgical exploration under general anaesthesia. Three 18 gauge intravenous cannulaes were secured and one litre Ringer lactate infused rapidly prior to induction of anaesthesia. Induction was done with 100mg ketamine and 100mg celocurine intravenously and rapid sequence tracheal intubation done employing the Sellick's manouvre. Anesthesia was maintained with oxygen, air and 2% sevoflurane. The abdomen was opened by a Pfannenstiel incision and moderate hemoperitoneum encountered. The previous cesarean section scar was completely ruptured. The rent was closed in layers and peritoneal toilet done. A large hematoma along the anterior wall of the uterus was also evacuated. Hysterectomy was not considered and 500 micrograms of sulprostone was infused over a period of one hour followed by another dose of 500 micrograms over five hours. Blood loss was estimated at 1500 mililiters (ml). The patient received 3 units of packed red blood cells, 2 units of fresh frozen plasma, 3 grams of fibrinogen, 1500 ml of lactate ringer and 2000ml of 6% 130/0.4 hydroxyethyl starch. Vital signs, hematocrit, platelet count and fibrinogen levels, prothrombin time, partial thromboplastin time, lactate levels as well as arterial gas and pH analyses were within the normal range during and after surgical exploration. Two hours after surgery she was extubated in the recovery room and transferred to the intensive care unit for surveillance. Postoperatively the patient developed signs and symptoms of post traumatic shock disorder with delirium, sinking feeling and fear of imminent death for which she received specialized psychological counselling. The patient made an uneventful and complete recovery and was discharged home after 5 days with a live and healthy baby.

Discussion

Uterine rupture with hemorrhagic shock is an anesthetic challenge as resuscitation and anesthetic technic in a setting of unstable hemodynamics requires judicious care and experience. Multiple wide bore intravenous access for rapid infusion, transfusion and administration of vasoactive drugs is vital. Induction of anaesthesia after stabilization is best done with intravenous ketamine. Etomidate is a good alternative. Topping up of the epidural would be contraindicated in this setting for obvious reasons. Urgent surgical exploration to achieve hemostasis is a necessity. A conservative approach avoided hysterectomy in this case.

The major risk factors predisposing to uterine rupture are history of previous cesarean delivery, trial of labor with high dose oxytocin and vaginal prostaglandins, maternal age more than 35 years, body mass

index (BMI) greater than 50kg/m^2, tobacco use, birth weight more than 4000 grams, post maturity past 42 weeks gestation, instrumental vaginal delivery, interval between 2 successive pregnancies less than 6 months and low socio-economic status.[8-10] In the case reported the patient had several predisposing factors like prior cesarean delivery, age more than 35 years old, instrumental vaginal delivery, prolonged labor and use of oxytocin during TOLAC.

Existing guidelines are essentially based on risks of each mode of delivery

TOLAC versus ERCD.[8] Maternal death (7/100000 deliveries), surgical complications, hysterectomy (<1%), transfusion rates (0.9-1.2%) and hospital length of stay are higher with ERCD than with TOLAC. Uterine rupture (<1%) and neonatal complications (<1%) are more frequent with TOLAC than ERCD. Postpartum infection and thromboembolic events rates (<1/1000) are identical in TOLAC and ERCD. ERCD is recommended when there is a history of three or more cesarean deliveries, corporeal uterine scar, BMI of more than 50 kg/m2, birth weight greater than 4500 grams. Oxytocin and vaginal prostaglandins enhance the risk of uterine rupture in the setting of prior caesarean section by 1% to 2% respectively. In a retrospective study involving more than one million parturients, the incidence of uterine rupture was observed to have increased over the last four decades because of the above mentioned risk factors.[9] Overall, uterine rupture remains a rare obstetric emergency with less than 1% incidence and often associated with maternal and neonatal death. Maternal and neonatal mortality and morbidity has remained low due to better intrapartum monitoring, advances in medical care and a multidisciplinary approach and team work between anesthesiologists, obstetricians, neonatologists, intensivists, other medical and surgical specialities.

Ethical approval

The patient gave permission and informed consent concerning the publication of this case report for scientific purpose.

Acknowledgments

None.

Conflicts of interest

Authors declare that there is no conflict of interest.

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