Uterine rupture: an unpredictable case of unscared uterus
Rotura Uterina: Um caso imprevisível num útero sem cicatriz

Rita Dunkel[1], Maria Oliveira[1], Margarida Figueiredo[1], Sílvia Fernandes[2], Helena Nascimento[1]
Centro Hospitalar do Baixo Vouga

Abstract

Uterine rupture in pregnancy is a rare but serious condition. It commonly occurs in uterus with a previous scar, but in rare cases in can happen in unscared uterus. The authors report a case of a pregnant women, with a prior vaginal delivery and no history of uterine surgery, that develops a hypovolemic shock after birth. After a abdominal ultrasound showing a massive hemoperitoneum, an exploratory laparotomy was performed and an uterine rupture detected. The defect was corrected and hysterectomy was not necessary. This article aims to draw attention to this condition because early diagnosis can save mother's life.

Keywords: Pregnancy; Uterine rupture; Shock.

Resumo

A rotura uterina que acontece na gravidez é uma situação rara, mas grave. Ocorre normalmente em úteros com cicatrizes prévias, mas raramente, pode acontecer em úteros sem cicatriz. Os autores apresentam o caso de uma grávida, com um parto vaginal anterior e sem história de cirurgia uterina prévia, que desenvolveu um choque hipovolémico após parto. Após a ecografia abdominal demonstrar um hemoperitoneu massivo, realizou-se uma laparoscopia diagnóstica onde se encontrou uma rotura uterina. O defeito da parede uterina foi corrigido não sendo necessária uma histerectomia. Assim é importante estar alerta para esta situação, pois o diagnóstico precoce pode salvar vidas.

Palavras-chave: Gravidez; Rotura Uterina; Choque.

INTRODUCTION

Uterine rupture in pregnancy is a rare and serious condition. It can result in catastrophic outcomes for both the mother, such as haemorrhagic shock, the need of peripartum hysterectomy and death; and the child, such as hypoxic ischaemic encephalopathy, permanent brain injury and even death[1]. In general, the rate of uterine rupture ranges from 1 in 1235-4366 pregnancies[2], being that the majority occurs in uterus with a previous scar. The cases reported in unscarred uterus are much lower, with incidence being reported as 1 in 16,840 - 19,765, where the prognosis is even worse[3,4]. Other risk factors associated with this condition are malpresentation, second-stage dystocia, sequential labour induction with prostaglandins/oxytocin and augmentation of labour with oxytocin[5,6].

Cases with insidious onset of disease and lack of specific symptoms lead to a misdiagnosis or a delayed diagnosis. Nevertheless, a quick and accurate diagnosis followed by definitive treatment plays a critical role in lowering morbidity and mortality.

1. Centro Hospitalar do Baixo Vouga.
2. Centro Hospitalar Universitário de Coimbra.

Here, we are reporting an unusual case of spontaneous posterior wall rupture in a woman without any apparent risk factors.

CASE REPORT

We present a case of a 34-year-old, gravida 2 para 1, at 40^{+2} weeks, admitted in our centre in spontaneous labour. Her medical history was unremarkable and her obstetric history included a regular pregnancy with spontaneous vaginal (forceps) delivery 4 years before. Routine third trimester ultrasound revealed a fetus in P50 of growth, and all other exams demonstrated a normal pregnancy course.

At arrival, mother vital signs were stable and the cardiotocograph performed during labour showed a normal fetal heart rate. No labour augmentation with oxytocin was used. An assisted vaginal delivery with outlet forceps was performed due to mother exhaustion, and a 3096 g baby was born with an Apgar score of 9/10 at 1st and 5th min, respectively. An episiotomy was done and then repaired.

Thirty minutes after birth, the mother developed signs of hypovolemic shock: refractary hypotension and a drop in hemoglobin from 11 g/dL to 7 g/dL. An abdomino-pelvic ultrasound was performed showing an empty uterus and no signs of hemoperitoneum. Birth canal injuries were ruled out. The patient was placed in Trendlenburg position and started a 2 U red blood cell transfusion with a Ringer's Lactacte solution perfusion.

Four hours later, because of the patient's sustained condition (hypotension, same level of hemoglobin and beginning of nausea, dyspnea and abdominal pain) another abdomino-pelvic ultrasound was done where a massive hemoperitoneum was found in the right hypochondrium. Suspecting of an abdominal organ injury, an urgent abdominal laparotomy was performed and revealed a massive hemoperitoneum caused by a complete posterior uterine wall rupture which was actively bleeding. The wall defect, with 6cm, that extend from the midline throughout the whole right broad ligament was repaired with a 2-layer seromuscular suture with uninterrupted stitches.

The patient's postoperative course was regular, and she was discharged 8 days after intervention.

DISCUSSION

Uterine rupture occurs in less than 1% of pregnancies with a previously scarred uterus, being the incidence in unscarred uterus even lower.[3]

A wide range of risk factors involves labour induction, with particular attention to the use of oxytocin and/or prostaglandins and augmentation of labour with oxytocin[6,7]. Connective tissue diseases like Ehlers-Danlos syndrome, chronic steroid use, cocaine abuse[1], grand multiparity leading to weakened muscle fibres, instrumental delivery and congenital malformations are all predisposing factors for uterine rupture[8].

The diagnosis can be challenging due to the vast clinical presentation that may vary from nonspecific signs and symptoms like abdominal pain, hypovolemia and tachycardia[9] to more specific but non pathognomonic signs like fetal compromise in CTG, changes in fetal presentation, loss of uterine contour or vaginal bleeding[1]. Therefore, it is important to maintain a high index of suspicion, mainly in the absence of the major risk factor – uterine scar – in order to avoid delayed diagnosis and intervention[10].

The event can occur antepartum, intrapartum and postpartum. Antepartum, towards an abdominal pain, that is the most common clinical symptom[11], an exploratory laparotomy may be performed to repair the defect and continue the pregnancy[12].

Postpartum, uterine rupture may present with abdominal pain, postpartum hemorrhage and unexplained clinical shock. A delayed diagnosis towards an unexplained clinical shock may occur in the absence of risk factors[10].

Iqbal Al Zirqi, et al.[13] argues that the majority of ruptures occur beside the lower uterine segment in unscarred uterus and within the lower uterine segment in scarred ones. Ruptures beside the lower segment occurred mostly in the anterior and posterior corpus and within the lateral side, involving the broad ligament[4]. Ruptures in the fundus may have a delayed diagnosis because blood collects in the intra-peritoneal cavity. Another study also found out that cervical involvement was significantly more prevalent in the rupture of an unscarred uterus[5]. Ruptures in unscarred uterus also carry more catastrophic maternal outcome, including the need of hysterectomy[13].

Uterine rupture demands urgent resuscitation and exploratory laparotomy where the importance of immediate senior involvement and teamwork cannot be despised. The goal of the intervention is to stop the hemorrhage, repair the anatomic damage, and reduce morbidity. The decision of surgical repair or a hysterectomy must be based on several factors such as the size of the uterine defects, the degree of bleeding, patient age, parity and comorbidities.

The risk of rupture in a future pregnancy is related to the site of the rupture – if it is confined to lower segment, the risk is 6% while if it involves the upper segment it increases to 32%[1]. For women who had a previous uterine rupture or dehiscence, it is recommended to give birth by repeating a caesarean section prior to the onset of labour or immediately at the onset of spontaneous preterm labour[14]. To minimise unnecessary interventions, resulting in the delivery of extremely premature infants, it is cardinal to recognise risk factors and signs of uterine rupture.

We report this case in order to call attention to the fact that, despite being very rare in women without risk factors, a primary rupture in an unscarred uterus may occur. In women presenting severe abdominal pain and hemodynamic instability, uterine rupture should be considered, as a differential diagnosis. An increased awareness to this entity, a life-threatening condition, may allow earlier diagnosis and prompt treatment resulting in optimal outcomes and no severe complications.

REFERENCES

1. Manoharan M, Wuntakal R, Erskine K. Uterine rupture: a revisit. Obstet Gynecol. 2010;12(4):223-30.

2. Gibbins KJ, Weber T, Holmgren CM, Porter TF, Varner MW, Manuck TA. Maternal and fetal morbidity associated with uterine rupture of the unscarred uterus. Am J Obstet Gynecol 2015;213(3):382.e1-.e6.

3. Justus Hofmeyr G, Say L, Metin Gülmezoglu A. Systematic review: WHO systematic review of maternal mortality and morbidity: the prevalence of uterine rupture. BJOG. 2005;112(9):1221-8.

4. Chang YH. Uterine rupture over 11 years: A retrospective descriptive study. Aust N Z J Obstet Gynaecol 2020;60(5):709-13.

5. Ofir K, Sheiner E, Levy A, Katz M, Mazor M. Uterine rupture: differences between a scarred and an unscarred uterus. Am J Obstet Gynecol 2004;191(2):425-9.

6. Al-Zirqi I, Daltveit AK, Forsén L, Stray-Pedersen B, Vangen S. Risk factors for complete uterine rupture. Am J Obstet Gynecol 2017;216(2):165.e1-.e8.

7. Wang Y-L, Su T-H. Obstetric uterine rupture of the unscarred uterus: a twenty-year clinical analysis. Gynecol Obstet Invest. 2006;62(3):131-5.

8. Nahum G. Uterine rupture in pregnancy: overview, rupture of the unscarred uterus, previous uterine myomectomy and uterine rupture [Internet]. Medscape [citado 4 Jun 2018].

9. Zhao Y, Tian B, Xu Y, Dai H. Spontaneous prelabor unscarred uterine rupture in primigravida: a case report and review of literature. Int J Clin Exp Med. 2017;10(4):7296-303.

10. Rottenstreich M, Rotem R, Hirsch A, Farkash R, Rottenstreich A, Samueloff A, et al. Delayed diagnosis of intrapartum uterine rupture–maternal and neonatal consequences. J Matern Fetal Neonatal Med. 2021;34(5):708-13.

11. Turner MJ. Uterine rupture. Best Pract Res Clin Obstet Gynaecol. 2002;16(1):69-79.

12. Patrício L, Martins D, Henriques A, Ferreira H, Clode N. Repaired uterine rupture at mid gestation. Arch Gynecol Obstet. 2013;288(2):457-8.

13. Al Zirqi I, Daltveit AK, Vangen S. Maternal outcome after complete uterine rupture. Acta Obstet Gynecol Scand. 2019;98(8):1024-31.

14. Chibber R, El-Saleh E, Fadhli RA, Jassar WA, Harmi JA. Uterine rupture and subsequent pregnancy outcome–how safe is it? A 25-year study. J Matern Fetal Neonatal Med. 2010;23(5):421-4.

AUTHORS' CONTRIBUTIONS

Rita Dunkel has contributed substantially to the collection of data, writing of the manuscript and final approval of the version to be published.

Maria Oliveira and Margarida Figueiredo have contributed to the collection of data and writing of the manuscript

Sílvia Fernandes and Helena Nascimento have contributed to the critical review of the manuscript and final approval of the version to be published.

ACKNOWLEDGMENT

Informed consent was obtained after exposing our publication objective to the patient.

AUTHORS DISCLOSURE

The authors do not have any conflict of interest to declare.

CORRESPONDENCE TO:

Rita Dunkel
E-mail: rita_dunkel@hotmail.com
https://orcid.org/0000-0001-8622-6163

RECEIVED: 14/12/2021
ACCEPTED: 11/03/2022