

Uterine Rupture In Primiparus: Case Report

Ruptura uterina em primípara: relato de caso

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ABSTRACT

Introduction: Uterine rupture is a serious complication, due to the risk of maternal and perinatal death. In developed countries, this obstetric complication affects 3.5/1,000 women with previous cesarean section and 6/10,000 pregnant women with no story of the operation, with the previous cesarean section being the main etiology. **Case Report:** Pregnant woman, 38 years old, G1P0A0, with a gestational age of 35 weeks and 5 days, was admitted to the maternity ward in premature labor. At the physical examination reinforced 3 metrosystoles in 10min/30" 30" 35", soft and thin cervix, with 3cm dilation, specular examination with the presence of clear liquid with lumps, broken bag for 6 hours and minor bleeding for 20 minutes. Cesarean delivery is indicated due to a story of hip dislocation. The diagnosis of uterine rupture was performed during operative delivery, with visualization of fetal parts. The case had a benign evolution for the mother and the newborn, without the occurrence of complications or sequelae, both were discharged from hospital in perfect health conditions. **Discussion:** A complete spontaneous uterine rupture occurred in the third trimester of pregnancy, without any identifiable underlying risk factors, except for advanced maternal age (over 35 years). **Conclusion:** This report contributes to a limited number of previous events that involve spontaneous rupture of a uterus without previous scarring in a primigravid patient.

Keywords: Premature Obstetric Labor; Primiparity; Pregnancy Complications.

RESUMO

Introdução: A ruptura uterina é uma complicação grave, devido ao risco de morte materna e perinatal. Em países desenvolvidos, essa complicação obstétrica afeta 3,5/1.000 mulheres com cesárea anterior e 6/10.000 grávidas sem antecedentes da operação, sendo a incisão cesariana prévia a etiologia principal. **Relato de Caso:** Gestante, 38 anos, G1P0A0, com idade gestacional de 35 semanas e 5 dias, deu entrada na maternidade em trabalho de parto prematuro. Ao exame físico apresentando 3 metrossístoles em 10min/30" 30" 35", colo uterino amolecido e fino, com dilatação de 3 cm, exame especular com presença de líquido amniótico claro, bolsa rota há 6 horas e pequeno sangramento há 20 minutos. Foi indicado parto cesáreo devido ao histórico de luxação de quadril. O diagnóstico de ruptura uterina foi realizado durante o parto operatório, com visualização de partes fetais. O caso teve evolução benigna para a mãe e o recém-nascido, sem a ocorrência de complicações ou sequelas, ambos tiveram alta hospitalar em perfeitas condições de saúde. **Discussão:** Configurou-se uma ruptura uterina completa espontânea no terceiro trimestre gestacional, sem quaisquer fatores de risco subjacentes identificáveis, exceto pela idade materna avançada (maior que 35 anos). **Conclusão:** Este relato contribui para um número limitado de ocorrências descritas que envolvem ruptura espontânea de um útero sem cicatriz prévia em uma paciente primigesta.

Palavras-chave: Trabalho de Parto Prematuro; Primiparidade; Complicações na Gravidez.

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Conflict of Interest:

No

Received: 19/05/2021.

Approved: 21/07/2021.

Publication Date: 23/09/2021.

DOI: 10.5935/2238-3182.20210049

INTRODUCTION

Uterine rupture is the total or partial rupture (intact visceral peritoneum) of the myometrium, communicating the uterine cavity to the abdominal cavity. It can occur during pregnancy or in labor. It is the most serious obstetric episode, due to the risk of maternal and perinatal death¹⁻³.

The worldwide incidence of uterine rupture is 5.3/1.000 cases. In developed countries, this obstetric complication affects 3.5/1.000 women with previous cesarean section and 6/10.000 pregnant women with no story of the operation, with the previous cesarean section being the main etiology. In developing countries, uterine rupture is the most relevant cause of maternal death and the most frequent etiology is obstructed labor^{2,4}.

The risk factors that predispose to the occurrence of uterine rupture include intrinsic factors of the woman, gynecological and obstetric antecedents, inadequate obstetric procedures and traumatism. The greatest risk factor for both forms of uterine rupture is anterior cesarean section^{2,5-8}.

The bibliographic review of the last 15 years has evidenced the lack of clinical reports on uterine rupture in primiparous women without risk factors for the event. Few cases have been described in the literature among primiparous women, and these presented some of the risks already mentioned. Among the articles visited, this complication was related to term or post-term pregnancies, prolonged labor (> 12h), advanced maternal age (> 35 years), induction of labor with oxytocin and, in most of them, resulted in hysterectomy and/or fetal death. Given the above, it is evident the precariousness of scientific subsidies about the conduct of rare cases and the need to exchange experiences⁴⁻⁸.

The objective of this descriptive study of qualitative analysis is to report a rare case of complete uterine rupture, during premature labor, in primiparous women with only one predisposing risk factor: maternal age over 35 years. This is an unusual clinical case of great scientific relevance. The information was obtained through the collection of data from medical records and anamnesis of the puerperal woman, by means of clarifications, consent and signature of the Free and Informed Consent Term, in addition to approval by the Regional Human Research Ethics Committee, according to the Resolution of the Health N. 466/2012.

CASE PRESENTATION

Pregnant woman, 38 years old, white, G1P0A0, with gestational age (GA) of 35 weeks and 5 days, date of last menstruation on 09/09/2019, A positive blood type, previously healthy, with 10 prenatal consultations, arrived into the emergency department of the maternity in premature labor, with spontaneous rupture of ovular membranes for approximately 06 hours and minor bleeding for 20 minutes, 03 metrosystoles in 10min/30" 30" 35", 03 cm of cervical dilation, thin cervix, soft consistency, posterior position, with presentation of the cephalic pole and presence of clear amniotic fluid on specular examination; blood pressure 100/60mmHg (in left lateral decubitus); heart rate 88 bpm, respiratory rate 18 rpm, afebrile, 98% oxygen saturation, capillary glycemia 92 mg/dL, abdomen flaccid and without signs of peritoneal irritation, uterine fundus height of 28 cm, good fetal movement, fetal heartbeat 140 bpm. The relevant points during pregnancy were: presence

of notches in the right and left uterine arteries on doppler ultrasonography (*Doppler US*) with GA of 12 weeks and 2 days, using acetylsalicylic acid (ASA) 100 mg for 04 months, until the Doppler US subsequent presentation of normal dopplervelocimetry; mild anemia (hemoglobin of 10.7 g/dL on 04/05/2020) using iron chelate 300 mg/day. Indicated for cesarean delivery due to a story of hip dislocation 04 years ago. The diagnosis of complete silent uterine rupture was performed during operative delivery. At the moment of opening of the rectus abdominis muscle, a complete rupture of the anterior body wall of the uterus was observed, with visualization of fetal parts and splintering of the edges at the site at the surgeon's touch, laceration of 7 cm in its largest diameter. Uterine repair was performed in a simple suture with chrome catgut thread. The photographic record was performed by a member of the surgical team, after hemodynamic stabilization of the mother and baby, so it did not capture the initial moments of urgency. The case had a benign evolution for the mother and the newborn, without the occurrence of signs of complications or sequelae, both were discharged in perfect health conditions.

The possibility of fortuitous laceration of the uterine wall was ruled out, since the dissection of the serosa and the transverse uterine incision were performed in the midline of the lower segment of the uterus, and there was no manipulation of the anterosuperior uterine wall.

A complete spontaneous uterine rupture was formed in the third trimester of pregnancy, without any identifiable underlying risk factors, except for advanced maternal age (greater than 35 years).

DISCUSSION

Spontaneous rupture of the uterus without previous scarring in primiparous women is an extremely rare event, difficult to diagnose, and constitutes an obstetric emergency with significant maternal-fetal morbidity and mortality. In most cases, it is totally unexpected, as the clinical characteristics of the rupture may be absent⁹⁻¹².

Table 1 below presents the risk factors for a uterine rupture that includes both spontaneous and traumatic

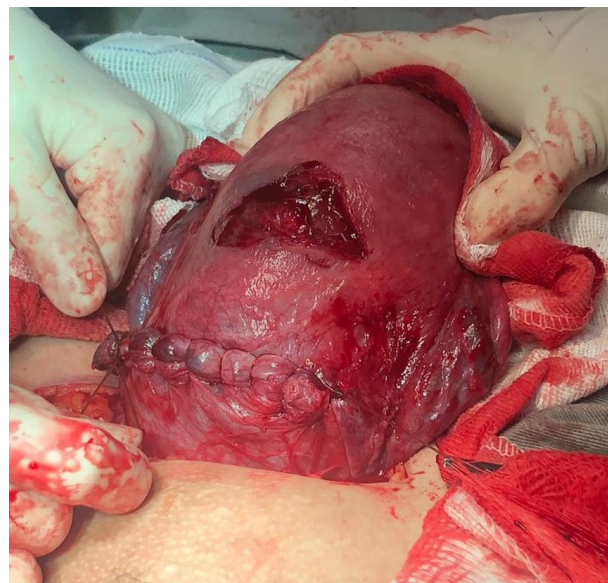


Figura 1. Ruptura espontânea em parede anterior do útero.

Table 1. Main risk factors for uterine rupture.

RISK FACTORS FOR UTERINE RUPTURE		
SPONTANEOUS CAUSES	TRAUMATIC CAUSES	IATROGENIC CAUSES
<ul style="list-style-type: none"> • Previous scar area: <ul style="list-style-type: none"> - Caesarean - Myomectomy - Salpingectomy - Metroplasty • Pathological areas of the matrix with reduced resistance: <ul style="list-style-type: none"> - Inflammation, necrosis - Endometriosis - Adenomyosis - Gestational Trophoblastic Disease - Placental accretism - Pathological secondary - Previous placenta - Placental abruption • Obstructed labor: <ul style="list-style-type: none"> - Cephalopelvic disproportion (pelvic vices, fetal macrosomia) - Anomalous presentations - Uterine tumors - Uterine malformations • Prolonged labor • Uterine anomaly (pregnancy in rudimentary uterine horn, bicornate uterus, uterine septum) • Multiparity (thinning of myometrial fibers) • Twins and Polyhydramnios (uterine overdistention) • Inappropriate use of uterotonics (exaggerated increase in uterine contractility) • Cocaine abuse • Maternal age > 35 years old 	<ul style="list-style-type: none"> • Falls on the belly • Injury from domestic violence • Car accidents • Penetrating wounds by stab or firearm • Handling the uterine cavity: <ul style="list-style-type: none"> - Neck dilation and curettage - Implantation of an intrauterine device - IUD - Uterine trauma due to curettage or induced abortion • Obstetric maneuvers with excessive pressure on the fundus of the uterus: <ul style="list-style-type: none"> - External, internal and foot extraction version - Kristeller's maneuver 	<ul style="list-style-type: none"> • Uterine exposure to diethylstilbestrol • Chronic use of corticosteroids • Childbirth after 42 weeks of pregnancy • Use of assisted reproductive technology - ART (ovulation induction, intrauterine insemination, in-vitro fertilization, intracytoplasmic sperm injection)

Adapted from Montenegro and Rezende Filho, (2018)²; Dadi and Yarinbab, (2017)⁵; Gebretsadik, Hagos and Tefera, (2020)⁶; Veena, Habeebullah and Chaturvedula, (2012)⁷; Kaczmarczyk et al, (2007)⁸; Sun, Huang and Kong, (2019)⁹; Chen and Du, (2019)¹².

causes. Iatrogenic factors must also be considered, as described in a literature review by Sun et al, in 2019⁹.

Adapted from Montenegro and Rezende Filho, 2018; Dadi and Yarinbab, 2017; Gebretsadik, Hagos and Tefera, 2020; Veena, Habeebullah and Chaturvedula, 2012; Kaczmarczyk et al, 2007; Sun, Huang and Kong, 2019; Chen and Du, 2019.

Spontaneous rupture usually results from a slow, progressive and asymptomatic process². It occurs mainly during labor in the context of an anterior uterine scar, with 90% of the ruptures occurring during a previous cesarean section^{13,14}. Such cases have been described as significantly more severe than the rupture of a uterus with previous scarring, with higher rates of maternal and fetal morbidity¹⁴.

The case reported is that of a primigravida, who had no story of previous uterine scarring, there was no obstructed labor, no uterotonics or obstetric maneuvers were used, the pregnant woman did not have any anatomical uterine atypia

or in the placentation, denies a story of trauma during pregnancy. That is, the patient did not present any of the risk factors already reported in the literature that would justify uterine rupture, except for the maternal age greater than 35 years.

It is important to note that the patient used aspirin on medical advice due to ultrasound changes (presence of notches in the right and left uterine arteries in Doppler US with 12 weeks and 2 days of gestational age), but there is no evidence in the literature of a causal relationship between the use of ASA during pregnancy and the risk of uterine rupture.

The literature points out as possible rupture sites the posterior uterine wall, the anterior wall, the lateral face of the uterus, the fundus and the lower uterine segment¹⁴. In general, ruptures are funicular, excluding cesarean scar dehiscences in the lower segment or on the ventral surface of the body^{2,6}. In the case presented, the rupture occurred in

the anterior body wall of the uterus, which is not the most common site of rupture, contributing to its uniqueness.

Uterine ruptures that occur in early pregnancy have a clinical picture of severe pain, vaginal bleeding, signs of internal bleeding with peritoneal irritation and hypovolemic shock. Differential diagnosis is made with ectopic pregnancy and the diagnosis is only confirmed after laparotomy².

During pregnancy, uterine rupture is more frequent in the second half of pregnancy. In this case, the symptoms are generally more discreet, with abdominal pain and vaginal bleeding, as the rupture progresses slowly and, even when complete, the extrusion of the fetus into the abdominal cavity is progressive. It may be preceded by the imminent signs of uterine rupture of Bandl-Frommel Syndrome, with an abdominal wall at the level of the umbilical scar with relief of the ring that separates the uterine body from the lower segment (hourly-shaped uterus), due to uterine distention and of round ligaments².

Consummated uterine rupture is characterized by sudden, excruciating pain in the hypogastric region, uterine hyperstimulation, immediate interruption of metrosystoles, hemoperitoneum producing diaphragmatic irritation with referred pain in the chest, vaginal bleeding, subcutaneous

emphysema (Clark's sign), pain referred in the shoulder, perception increased presentation through vaginal touch (Reasens sign) and severe fetal distress. The most common sign of uterine rupture is a fetal heart rate pattern with variable decelerations that can progress to late decelerations, bradycardia and death. The fetal prognosis is death and the maternal one is very serious^{1,15,16}.

Silent uterine rupture is very rare and easy to ignore due to nonspecific clinical symptoms, unexplained reduction in hemoglobin and hemoperitoneum, but these features prompt us to consider uterine rupture more closely in this patient.

In a retrospective study conducted by Guiliano and collaborators in 2014, from 1987 to 2008, 97,028 births were evaluated, with 52 ruptures seen: 25 complete and 27 partial. In complete ruptures, abnormal fetal heart rate was the most frequent sign (82% of cases), while the complete triad of abnormal fetal heart rate, abdominal pain and vaginal bleeding was present in only 9%. In partial ruptures, 48% of the cases were asymptomatic, and when symptomatic, they were discovered more frequently due to postpartum hemorrhage, abdominal pain or vaginal bleeding during labor¹⁷.

Table 2. Clinical picture of uterine rupture..

SIGNS AND SYMPTOMS SUGGESTIVE OF UTERINE RUPTURE	
Uterine Rupture in Pregnancy	Uterine Rupture in Childbirth
<p>In early pregnancy:</p> <ul style="list-style-type: none"> • Intense pain; • Vaginal bleeding; • Signs of internal haemorrhage with peritoneal irritation and hypovolemic shock. <p>In the second half of pregnancy:</p> <ul style="list-style-type: none"> • Mild symptoms with slow evolution; • Pains in the belly; • Vaginal bleeding; • Two distinct masses on palpation (matrix and fetus); • inaudible fetal heart rate; • Gradual shock and infection. 	<p>Imminence of rupture:</p> <ul style="list-style-type: none"> • Energetic and excessively painful contractions, subintrauterine, especially in the hypogastric region; • Bandl-Frommel syndrome (hourglass-like uterus): <ul style="list-style-type: none"> - Bandl's sign: close to or adjacent to the umbilical scar, there is a relief of the ring that separates the uterine body from the lower segment - Frommel's sign: round ligaments strained on palpation, deviated to the anterior surface of the uterus <p>Completed uterine rupture:</p> <ul style="list-style-type: none"> • Sudden, stabbing pain in the hypogastric region; • Labor stoppage (early symptom, in complete lesions the uterus retracts, in incomplete lesions there may continue almost imperceptible contractions); • Mild or profuse bleeding (due to vaginal or occult loss with intracavitary, cul-de-sac, pelvis and abdominal viscera hematomas); • Referred pain in the chest or shoulder; • Shock. <p>On physical examination:</p> <ul style="list-style-type: none"> • Inspection: two bumps (empty uterus and fetus); • Palpation: Clark's sign (crackling on abdominal palpation suggesting subcutaneous abdominal emphysema); there may be dullness on the flanks that varies with decubitus (hemoperitoneum due to profuse hemorrhage); • Touch: fetal presentation that was previously fixed to the area of the upper strait or embedded is no longer noticeable (ascension of the presented pole is pathognomonic sign, Reasens sign); • Auscultation: severe fetal distress, variable decelerations, late decelerations, bradycardia or negative auscultation.

Adapted from Montenegro and Rezende Filho, 2018.²

Table 2 below summarizes the main signs and symptoms that should lead to suspicion of uterine rupture in the early or second half of pregnancy or at the time of labor.

An acute abdomen during pregnancy usually presents atypically, it can be difficult to distinguish a tense abdomen from a normal pregnancy and to detect it only on the basis of clinical and physical examination¹⁰. In patients with atypical story, the diagnosis may be delayed or even established at the time of laparotomy or cesarean section, increasing maternal and fetal morbidity and mortality¹⁶. Early diagnosis and surgical intervention result in better chances of maternal and fetal outcome¹⁴.

Contrary to previous findings, the patient in the case had normal labor, with moderate intensity metrosystoles with the ability to modify the cervix and the presence of minor vaginal bleeding.

Although less common, when the rupture occurs in an intact uterus, the complications are more serious. Maternal death can be caused by hemorrhagic shock, coagulation dysfunction, sepsis, pulmonary embolism, paralytic ileus and renal failure¹⁴. It is considered a rare complication (0.23%), while fetal death is reported in the range of 11 to 26% of rupture cases¹⁵. Contrary to the findings in the literature, the reported case did not show more exuberant bleeding and none of the predicted complications. The repair, in this case, was performed by simple suture, being sufficient to contain the bleeding and in order to maintain the reproductive possibility. The puerperal woman was informed about the risks of a new pregnancy.

Early surgical intervention and resuscitation of the mother and fetus are essential for the successful treatment of uterine rupture and good maternal-fetal prognosis, especially for patients in the third trimester^{12,17}. The goal of treatment should be to stop bleeding, repair anatomical damage and decrease maternal and fetal morbidity and mortality. Surgical repair is preferable to hysterectomy for patients who expect to have a subsequent pregnancy. However, depending on the patient's clinical conditions and extent of the rupture, hysterectomy may be necessary⁹.

Regarding the prognosis, women with a story of uterine rupture should be advised as to the possibility of these complications occurring before planning future pregnancies. In addition, it is recommended that they undergo elective cesarean section as soon as fetal lung maturity is reached, as uterine rupture in a previous pregnancy is a potential risk factor for premature birth, low birth weight, recurrence of uterine rupture (risk of 4 to 19%) and dehiscence of the uterine scar in the next pregnancy^{9,18}.

CONCLUSION

This is an extremely rare case of spontaneous rupture of the uterus in a primigravida without previous scarring that was anatomically normal, with no story of uterine instrumentation and not exposed to the use of oxytocin or prostaglandin. There was no current known placental abnormality, abnormal amniotic fluid volume, poor fetal presentation, personal story of connective tissue disorder or adenomyosis, without obstructed labor, or trauma or use of illicit drugs.

This case report contributes to a limited number of reported events that involve spontaneous rupture of a uterus without previous scarring in a primigravid patient. This is

the first report of total spontaneous rupture of the uterus without previous scarring in a primigravida, without a characteristic clinic, occurring in the anterior body wall and with good maternal-fetal results.

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