



# UTERINE RUPTURE IN THIRD TRIMESTER OF PREGNANCY FOLLOWING CORNUAL RESECTION DUE TO ECTOPIC PREGNANCY

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**SUMMARY** – Uterine rupture during pregnancy is a critical obstetric complication associated with maternal and fetal mortality and morbidity. The risk is increased in patients with a history of previous uterine surgery including cesarean section, myomectomy, salpingectomy, as well as uterine and placental anomalies and polyhydramnios. It can also occur spontaneously. We present a case of uterine rupture in the early third trimester in a woman who had undergone previous laparoscopic removal of the left fallopian tube due to sactosalpinx and laparotomic removal of left uterine horn due to ectopic pregnancy.

**Key words:** *Pregnancy; Third trimester; Uterine rupture; Cornual resection; Salpingectomy*

## Introduction

Uterine rupture can occur at any time during pregnancy with increased risk in patients with a history of previous uterine surgery including cesarean section, myomectomy, uterine and placental anomalies, polyhydramnios, and in rare cases, occurring spontaneously<sup>1-5</sup>. This event is rare, life threatening and estimated at 0.03% of pregnancies in developed countries<sup>6</sup>.

It is a serious obstetric complication associated with maternal and fetal morbidity and mortality. Early diagnosis and treatment are crucial for appropriate and timely action. Multidisciplinary approach is needed in order to achieve better results<sup>3</sup>.

We present a case of spontaneous uterine rupture that occurred in the early third trimester in a woman who had previously undergone laparoscopic removal of the left fallopian tube due to sactosalpinx and laparotomic removal of left uterine horn due to ectopic pregnancy.

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## Case Report

A 27-year-old secundigravida was admitted to our department in 32<sup>nd</sup> week of pregnancy, presenting with left abdominal pain initially attributed to urinary infection. In 2009, she underwent laparoscopic left sided salpingectomy due to sactosalpinx. Five years later, laparotomy with cornual resection was performed due to interstitial ectopic pregnancy. After the initial laboratory assessment indicated increased inflammatory parameters and possible urinary infection, intravenous antibiotic treatment was started. She was examined by a urologist who diagnosed mild right-sided hydronephrosis with normal findings contralaterally. Due to gestational diabetes, diabetic diet was introduced, and her glycemic profile was normal. On day 8 of hospitalization, she started to complain of irregular contractions and intravenous tocolysis was administered. Cardiotocography (CTG) revealed bradycardia up to 70 beats *per* minute. The patient was then monitored continuously by CTG, which showed fetal tachycardia up to 170 beats *per* minute, with early decelerations up to 130 beats *per* minute. Since CTG findings were non-specific, additional diagnostic workup followed. Ultrasound examination showed a collection of fluid in the

upper right abdomen accompanied by tenderness in the previous scar area upon external manual compression of the uterus. Urgent cesarean section was performed due to suspected uterine rupture. Intraoperatively, a 6 cm long crater shaped uterine rupture was found (Fig. 1) on the uterine fundus. A preterm male newborn weighing 1930 grams, 41 cm long and Apgar score 6 and 7 was delivered. Uterine rupture was reconstructed with two-layer single sutures. On postoperative day 3, surgical drain was removed and on postoperative day 4 the patient was discharged with recommendation of oral iron replacement therapy.

## Discussion

It is difficult to compare the pregnancy related uterine transformation with functional or morphological changes in any other organ. In a non-pregnant woman, the uterus weighs approximately 70 grams and is almost solid, except for a cavity of 10 mL or less, but at term this organ weighs nearly 1100 grams, with a total volume including amniotic fluid, placenta and fetus reaching almost 5 liters. In extreme cases, such as multiple pregnancies or pregnancies complicated by polyhydramnios, the volume may be 20 liters or more<sup>7</sup>. This represents a capacity increase of 1000 times compared to the non-pregnant state. This can cause significant complications when previous structural damage to the uterine tissue has been incurred through surgery.

It is reported that spontaneous rupture of an unscarred uterus occurs in 1 *per* 15,000 pregnancies<sup>8</sup>. It is often related to high parity, abnormal placentation, uterine anomalies, obstetric maneuvers, malpresentation, tachysystole, injudicious use of oxytocin, uterine diverticula, and chronic corticosteroid use<sup>3-5,9,10</sup>. Ruptures can occur spontaneously, although they occur more often during contractions. In most cases, it occurs in advanced pregnancy<sup>3,11</sup>. Nonspecific pain episodes, fetal asphyxia and abnormal CTG findings occurring in third trimester may easily be attributed to numerous other pathologic conditions even in a hospitalized patient due to diverse and misleading symptom presentation. Cornual pregnancy (implantation near the utero-tubal junction) is a rare type of ectopic pregnancy and may cause uterine cornual dilatation<sup>12</sup>.

Standard surgical therapy for interstitial pregnancy is laparotomy followed by resection of the cornual por-

tion of the uterus or hysterectomy<sup>13</sup>. The latest advances in laparoscopic surgery have enabled this condition be resolved laparoscopically as well. Methotrexate pharmacotherapy is also available<sup>14-18</sup>. Hysteroscopic methotrexate injection under ultrasonographic guidance has also been described as a treatment option<sup>19</sup>.

Laparoscopy has become the gold standard in various uterine pathologic conditions. However, uterine rupture during subsequent pregnancies is a well-known complication of laparoscopy<sup>20</sup>, as in our patient.

Hemostasis by laparoscopic electrocoagulation may cause scar tissue formation in the uterine wall and maladaptation to future changes in size of the pregnant uterus. When scarring occurs in the uterine fundus, strong uterine contractions related to that segment may expose structural damage inflicted by previous procedures<sup>21</sup>. All of the issues discussed previously may be considered as probable causes of uterine rupture.

## Conclusion

The risk of uterine rupture in pregnancies following previous surgical treatment of interstitial pregnancy remains unclear, warranting close monitoring of these women during pregnancy. Patients should be informed on the early signs and symptoms of uterine rupture, thus increasing chances of early diagnosis and treatment. Uterine rupture can cause fetal demise and severe maternal morbidity, including hysterectomy in severe cases. Nonspecific pain episodes occurring in third trimester should be taken into special consideration, as symptoms may be diverse and misleading. In this case report, the importance of close follow-up of a pregnant patient with previous uterine surgery is stressed.

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#### Sažetak

### RUPTURA UTERUSA U POSLJEDNJEM TRIMESTRU NAKON RESEKCIJE ROGA MATERNICE ZBOG EKTOPIČNE TRUDNOĆE

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Ruptura maternice u trudnoći teška je opstetrička komplikacija povezana sa značajnom maternalnom i fetalnom smrtnošću. Rizik raste kod žena s prethodnom uterotomijom koja uključuje carski rez, miomektomiju, salpingektomiju, ali i različite anomalije posteljice i maternice, polihidramniju, a u rijetkim slučajevima može nastati i spontano. Prikazujemo slučaj rupture maternice u ranom trećem trimestru trudnoće koja je prethodno imala lijevostranu salpingektomiju zbog saktosalpinksa učinjenu laparoskopiskim putem i resekciju lijevog roga kao terapiju ektoپیčne trudnoće laparotomijom.

**Ključne riječi:** *Trudnoća; Posljednji trimestar; Ruptura maternice; Resekcija roga maternice; Salpingektomija*