

# Spontaneous uterine rupture during preterm labor in the second trimester of a twin IVF pregnancy without any apparent risk factor

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## Summary

Uterine rupture is a rare complication of pregnancy. It can cause severe problems for the mother and child if not immediately diagnosed and treated. Some certain risk factors play a major role for occurrence. Multiple pregnancies, grand multiparity, previous cesarean sections or myomectomy operations, hysteroscopic manipulations and corrective uterine surgery, etc. are the main predisposing factors. In this case we report the successful management of a spontaneous uterine rupture in a primigravid female at the 29<sup>th</sup> week of a twin pregnancy after IVF treatment.

**Key words:** Uterine rupture; Spontaneous rupture.

## Introduction

Spontaneous rupture of a non-laboring, unscarred uterus, especially in the second trimester, is extremely rare [1]. Uterine rupture during labor is a severe and fatal complication of pregnancy that can lead to mortality and morbidity of both mother and baby.

It may occur in a nontraumatic-unscarred uterus about one in 15,000 pregnancies. The incidence of uterine rupture has decreased significantly with the knowledge of leading causes and increased surgical interventions [2]. The maternal or fetal mortality rate is also high enough to make sure that emergent treatment is needed.

Most spontaneous uterine ruptures occur in patients with a scarred uterus during labor. However, it they rarely occur without any apparent risk factor. We present a case of spontaneous rupture in a primigravid female at 29 weeks of a twin pregnancy after IVF (in vitro fertilization) treatment who was admitted to our clinic for mild subtle inguinal cramping pain and onset of pinkish bloody discharge with no history of any primary uterine operation.

## Case Report

A 29-year-old primigravid female in the 29<sup>th</sup> week of a twin pregnancy after IVF treatment came to our clinic after 12 hours of subtle inguinal cramping pain and onset of pinkish bloody discharge. She had had no previous primary uterine surgery except for laparoscopic endometrioma extirpation in 2005. She had become pregnant on the first IVF trial. She was fine except for mild blunt pain on the left side of the abdomen. Her vital signs were within normal limits with no tachycardia and no fever. Two live fetuses with vertex and breech presentation appropriate for gestational age on transabdominal ultrasound (US) were seen. Placentas were located anteriorly and posteriorly,

and amniotic fluid volumes were also within normal limits. On examination, the cervix was 8 cm dilated and effaced with minimal bleeding. Emergent cesarean section was planned. Pre-operative laboratory values were hemoglobin: 11.1 g/dl, hematocrit: 33.5%, white blood cells:  $14 \times 10^3/\text{ml}$ , platelets:  $264 \times 10^3/\text{ml}$ , and CRP: 11.8 mg/l. Coagulation tests were also within normal limits.

During cesarean section, a minimally hemorrhagic collection was seen in the abdominal cavity and two separate amniotic sacs were seen bulging into the abdominal cavity through a 3 cm length of ruptured uterine segment. The rupture was vertical and extended up to the fundal area on the anterior aspect of the uterine wall. The babies were delivered through the ruptured area and then the uterine wall defect was repaired. The 1,185 and 1,350 gram neonates were transferred to the intensive care unit. The infants were discharged from the neonatal intensive care unit 28 and 26 days later without any sequelae weighing 1,800 and 1,700 grams, respectively. The mother was discharged on the 3<sup>rd</sup> day after the operation without any complications.

## Discussion

Traditionally, the primigravid uterus has been considered almost resistant to spontaneous rupture. Rupture of the gravid uterus continues to be one of the serious life-threatening complications of pregnancy [3]. Multiparity, multiple pregnancy, uterine corrective surgery like in an arcuate or septate uterus, and previous intrauterine intervention like myoma enucleation or uterine sharp curettage may predispose to uterine rupture. Induction of labor with oxytocin or ripening of the cervix may also easily cause rupture to both a previously sectioned or scarred uterus and unscarred primigravid uterus.

As is known the most common cause of uterine rupture is separation due to previous cesarean section. Classical cesarean scars constitute a high rupture tendency in comparison to a low segment transverse incision. The fundal and cervical areas of the uterus are affected from lacerations.

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tion of a previous vertical scar. Although our case did not have uterine scarring, the cervix and fundal areas were included in the lacerated area.

The most common risk factor is previous uterine surgery, although this was not the case in our patient. Grosetti *et al.* studied 2,128 births with a low transversal scar after previous cesarean section retrospectively. They found a uterine rupture rate of 0.3/100 among women with repeated cesarean delivery without labor, 1/100 among women with spontaneous onset of labor, 1.4/100 among women with oxytocin-induced labor, and 2.2/100 among women with prostaglandin cervical ripening. Compared to women with a planned cesarean section, women with spontaneous onset of labor were more likely to have uterine rupture (OR: 4.0; 95% CI: 0.8-42.0). A greater relative risk was observed among women with oxytocin-induced labor (OR: 4.3, 95% CI: 0.3-60.0), and particularly those with prostaglandin-induced labor (OR: 8.7; 95% CI: 1.5-97.3,  $p = 0.01$ ). They concluded that in women with uterine scarring, prostaglandin E2 induction of labor is a risk factor for uterine rupture [4].

In a multicenter study that studied the complication rates of laparoscopic myomectomy, it was found that the rupture rate was one in 2,050 patients who had undergone laparoscopic myomectomy [5]. This is one of the largest series reported on laparoscopic myomectomy and the first one to focus on complications. The complication rate appears to be better than acceptable in comparison with complication rates reported after laparotomic myomectomies. Laparoscopic myomectomy, when performed by an inexperienced surgeon, can be dangerous with a slightly high uterine rupture during pregnancy.

Clinical stigmata of uterine rupture commonly includes fetal bradycardia. In our case as soon as we saw 8 cm of cervical dilatation and active fetuses on the US we performed surgery immediately. Thus, we did not have enough time for cardiotocographic evaluation. Blood and bulging membranes were seen in the abdominal cavity. Although our patient had no severe pain or vaginal bleeding, she had a uterine rupture. It should be remembered that even complex uterine ruptures may happen during a pregnancy without any significant symptoms. We have to keep in mind that nonsignificant complaints of a pregnant

patient, whatever her gestational age, may alert us to the possibility of uterine rupture to prevent complications.

Treatment is immediate care and surgery as soon as possible. The best procedure for a ruptured uterus is the one which is shortest in duration, will not exacerbate the patient's state of shock and will get the patient off the operating table in the best condition [6]. Hypovolemia, hemorrhagic shock may occur suddenly due to high blood flow to the pregnant uterus. Correction of vascular deficits with crystalloid or blood is mandatory for early intervention for stabilization of the patient's condition. We incidentally detected a severe rupture and we repaired the torn uterus. It should be kept in mind that hysterectomy may be required in such cases. However once laceration has occurred and is successfully treated, there is always an increased risk for subsequent rupture.

In conclusion, we have reported the rare occurrence of a spontaneous uterine rupture in a preterm primigravid in labor with no known risk factors. It should be remembered that even an unscarred uterus can be ruptured and delaying diagnosis can cost the life of the mother and/or baby.

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