

# Rupture of a myomectomy site in the third trimester of pregnancy after myomectomy, septoplasty and cesarean section: A case report

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## ABSTRACT

Uterine rupture during pregnancy is a rare but dangerous complication. A history of cesarean section is known to be a risk factor, but other types of uterine surgery can also increase the risk. We report a case of rupture of a myomectomy site in the third trimester of pregnancy without uterine contractions in a woman who had previously undergone myomectomy, septoplasty and cesarean section. The 39-year-old woman (gravida 2, para 2) presented at 29 weeks' gestation with uterine contractions. She was successfully treated with tocolytics. At 32 weeks of pregnancy, in the absence of contractions, the patient complained of severe abdominal pain and she became hypotensive. Emergency laparotomy and cesarean section were performed, resulting in the delivery of a live infant. The myomectomy site was found to have ruptured but the cesarean and septoplasty scars were intact. This case suggests that myomectomy scars are at greater risk of rupture during pregnancy than those resulting from cesarean section and septoplasty.

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## 1. Introduction

Uterine rupture occurs very rarely but may be fatal to both mother and fetus. Previous uterine surgery, such as cesarean section, myomectomy and septoplasty, is the main cause of uterine rupture. The ruptures after each type of surgery have different characteristics. The incidence of uterine rupture after cesarean section is reported to be 0.3%; the incidence after myomectomy is 0.6%; and the incidence after septoplasty is 0.02%.

We report a case in which a woman with a history of myomectomy, septoplasty and cesarean section experienced a rupture of the myomectomy site at 32 weeks of pregnancy after successful control of uterine contractions three weeks previously.

## 2. Case Report

A 39-year-old woman (gravida 2, para 2) presented with irregular uterine contractions at the 29th week of gestation. A non-stress test (NST) showed regular uterine contractions and normal fetal heartbeat. Cervical dilatation was 1 cm, effacement was 30%, and fetal station was -3. Transabdominal ultrasound was used to estimate the fetal body weight at 1300 g, which was appropriate for the gestational age. The patient received tocolytics (ritodrine) and betamethasone based

on general obstetric indications. After management, the uterine contractions were well controlled, without any complications.

She had undergone open myomectomy for a 6.5-cm mass in the right fundal area of the uterus four years previously, which did not involve the endometrium (Fig. 1). Two years later she had undergone uterine septoplasty using hysteroscopic scissors. One year before presentation she had been delivered by elective cesarean section due to the previous uterine surgery.

We recommended magnetic resonance imaging (MRI) to determine myometrial thickness because she had been told after her previous cesarean section that the myometrium at the right fundus of the uterus was very thin. However, she refused. Abdominal ultrasonography was therefore used, and it showed that the uterine muscle layer was thinner by approximately 1.2 cm at the myomectomy site.

On the 19th day after presentation, she complained of sudden upper abdominal pain and uncomfortable breathing. Her blood pressure was 90/60 mmHg, her heart rate 70 beats per minute, and her respiration rate 20 breaths per minute. NST showed good fetal variability without fetal deceleration or uterine contractions. There were no abnormal findings in the maternal chest X-ray or electrocardiogram. Thirty minutes later, her blood pressure had fallen to 60/40 mmHg, but her pulse remained at 70 beats per minute. She complained of more severe upper abdominal pain, and this pain radiated to the shoulder. The fetal condition was still good on NST. According to abdominal ultrasound, fetal movement was normal, amniotic fluid index was within the normal range, and there was no evidence of retroplacental hemorrhage. Maternal hemoglobin level decreased to 8.5 g/dL from 11.0 g/dL. Even though fetal condition was still good, considering current maternal

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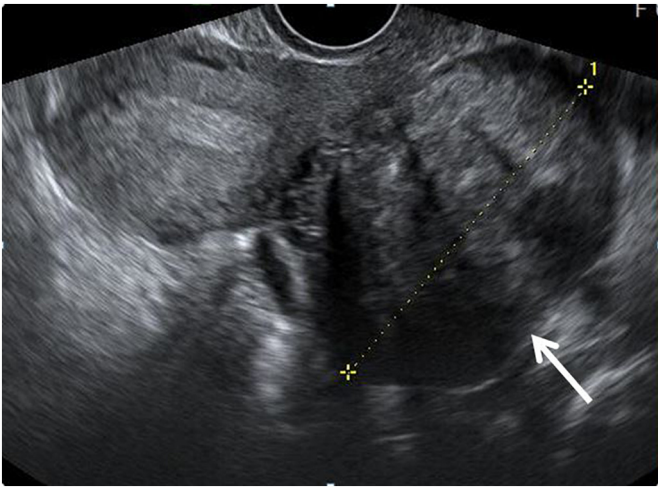


Fig. 1. The uterine myoma at the right fundal area (arrow).

symptoms, we suspected uterine rupture with an intact amniotic membrane. Immediate laparotomy and cesarean delivery were performed. There was a large amount of intraabdominal hemorrhage. The estimated blood loss was 5 L. Emergency transfusions and 0.9% saline were administered. A male fetus weighting 1800 g was delivered. Apgar scores at 1 and 5 min were 6 and 8, respectively. A 3-cm rupture caused by previous myomectomy on the right side of the uterine fundus was found (Fig. 2). We sutured the ruptured site and the vital signs quickly stabilized. Mother and neonate were discharged without any complications.

### 3. Discussion

Uterine rupture is a very rare obstetrical complication that is often life-threatening for the mother and fetus. The incidence has been reported to be approximately 0.05% of all deliveries [1]. The risk factors include previous uterine surgery (cesarean section, myomectomy, or dilatation and curettage), short birth interval, uterine anomaly, multiparity, and induced labor [2, 3]. The risk of uterine rupture after cesarean section is 0.3% after cesarean delivery. Induced labor has been known to be a leading cause of uterine rupture in women who have had a cesarean section. Uterine rupture often occurs in the low segment of the uterus because the myometrium is thin [4].

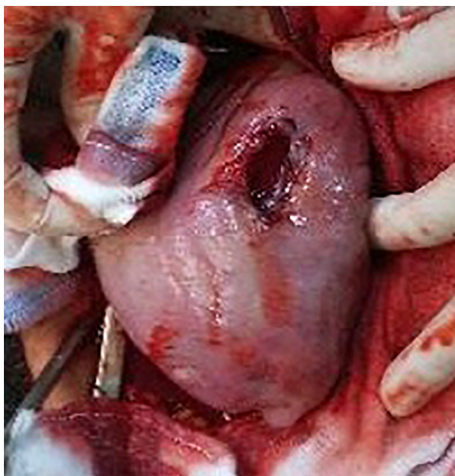


Fig. 2. The myomectomy site with 3 cm rupture. The amnion, which was intact until delivery, had been torn from the myometrium in the cesarean section.

Recently, the incidence of uterine rupture after myomectomy has increased. According to a meta-analysis, the risk of uterine rupture after myomectomy is 0.6–0.75% of pregnancies after myomectomy [5, 6]. Uterine rupture after myomectomy is not related to the surgical technique (laparotomy or laparoscopy), myoma size or location. The delivery interval is not related to the risk of uterine rupture after myomectomy. The location of the rupture does not depend on the lower uterine segment but does depend on the location of the prior operation. Almost all ruptures (80%) have been reported to occur before labor.

Uterine ruptures during pregnancy after hysteroscopic septoplasty occur very rarely [7, 8]. The reported overall pregnancy rate after septoplasty is 69–80%, and the overall live birth rate is 50–78%. The incidence of uterine rupture after septoplasty has been reported to be 0.02%. There are two methods of hysteroscopic septoplasty: endoscopic resection using scissors or electrosurgery using monopolar electrocautery. The risk of uterine rupture seems to be higher when using electrocautery. The damage to the vascular supply from electrosurgery may cause weakness in the myometrium. Intraoperative uterine rupture during septoplasty is also considered a risk factor for uterine rupture during pregnancy [7, 8].

In the present case, the patient had had a myomectomy, a uterine septoplasty and a cesarean section, respectively four years, two years and one year previously. The possibility of a cesarean scar rupture seemed higher, but it was the myomectomy site that ruptured. Moreover, bleeding suddenly occurred in the absence of labor.

This case is interesting because it may indicate that myomectomy increases the risk of rupture more than cesarean section or septoplasty. According to the literature, the risk of rupture after myomectomy is double that after cesarean section [4–6]. They may also occur at different times. After myomectomy, rupture often occurs before labor, whereas rupture after cesarean section occurs during labor.

The classic signs and symptoms of uterine rupture include fetal distress, decrease in uterine tone, abdominal pain, the presenting station changing, bleeding and shock [9]. However, signs and symptoms of uterine rupture are usually nonspecific, which may delay diagnosis and treatment. Therefore, uterine rupture must be considered in the differential diagnoses of severe abdominal pain, even before labor. When uterine rupture is suspected, emergency laparotomy should be performed.

Maternal and neonatal outcomes after uterine rupture depend on the time between rupture and operation and sufficient transfusion [9]. In the present case, the patient was hospitalized with a weak uterine contraction and was given tocolytic agents. The uterine contractions were well controlled. The uterine rupture occurred at the uterine fundus, where the uterine muscle was thick. There was no fetal disturbance for 2–3 h after maternal blood pressure started dropping. Fetal status and amniotic fluid volume were normal on ultrasonography. The rupture led to intra-abdominal bleeding. Therefore, the mother developed abdominal and shoulder pain, but the rate of bleeding was not fast and the maternal pulse remained normal. The fetal condition was good because the rupture occurred only in the uterine muscle layer, and the amniotic membrane was intact.

It was recommended that the patient should have an MRI scan to evaluate the uterus, but she refused. MRI is known to be the most effective method of determining the thickness of the uterine wall during pregnancy [10]. In case of a previous cesarean section, ultrasound is also used to measure the thickness of the uterine muscle [11, 12]. However, until now, measurement has been limited to the lower part of the uterus.

In conclusion, a case is reported in which a myomectomy site ruptured before the onset of labor in a mother who previously undergone three types of uterine surgery: myomectomy, septoplasty and cesarean section. Women who have undergone uterine surgery should be advised about the risk of rupture when planning future pregnancies.

## Contributor

Hyunjin Cho is the sole author.

## Conflict of Interest

The author declares that there is no conflict of interest regarding the publication of this case report.

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## Patient consent

The patient gave informed consent for the using of personal information.

## Provenance and peer review

This case report was peer reviewed.

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