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Case Report

Atypical uterine rupture: case report and literature review

Matteo Terrinoni[1,2]*, Federica Adinolfi[1], Michele Palisciano[1,3], Dario Rossetti[2], Gian Carlo Di Renzo[4,5]

[1]Department of Obstetrics and Gynecology, University of Perugia, Perugia, Italy
[2]Department of Obstetrics and Gynecology, "Alto Tevere" Hospital of Città di Castello, USL Umbria 1, Perugia, Italy
[3]Department of Obstetrics and Gynecology, "Branca" Hospital of Gubbio- Gualdo Tadino, USL Umbria 1, Perugia, Italy
[4]PREIS School, International and European School of Perinatal, Neonatal and Reproductive Medicine, Florence, Italy
[5]Department of Obstetrics, Gynecology and Perinatology, I.M. Sechenov First State University of Moscow, Moscow, Russia

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***Correspondence:**
Dr. Matteo Terrinoni,
E-mail: terrinonimatteo@gmail.com

ABSTRACT

Uterine rupture, defined as a partial or complete disruption of the uterine wall, can occur spontaneously during pregnancy or labor-even without classic symptoms. This report presents an atypical case involving a 34-year-old woman with a history of laparoscopic myomectomy and large loop excision of the transformation zone, who conceived via in vitro fertilization. At 35 weeks, during an elective cesarean section for complications including intrauterine growth restriction and oligohydramnios, dehiscence of a previous uterine scar was incidentally discovered, with the fetal limb partially entrapped. Remarkably, the patient exhibited minimal pain and haemorrhagic signs, deviating from the typical presentation. This case highlights the complex interplay between surgical history, assisted reproductive techniques, and mechanical factors in predisposing patients to uterine rupture. It emphasizes the need for careful monitoring and individualized management strategies for high-risk pregnancies, and calls for further research to refine clinical guidelines.

Keywords: Embryo transfer, Fetal presentation, Labor, Laparoscopic myomectomy, Uterine rupture

INTRODUCTION

Uterine rupture is defined as a partial or complete discontinuity of the uterine wall, which may occur spontaneously during pregnancy or labor, with or without the expulsion of the fetus into the abdominal cavity.[1] This event can occur in both an intact uterus and a scarred uterus, the latter following previous surgical interventions such as cesarean section, myomectomy, or metroplasty.[2] The main risk factors include.

Previous cesarean section

An estimated risk of 0.5–1% for a transverse segmental incision, rising up to 10% with a classical longitudinal incision.

Induction and augmentation of labor

The use of oxytocin or prostaglandins (e.g., misoprostol) increases the risk, particularly in patients with a previous cesarean section (up to 2%). Dystocia and fetal macrosomia: fetal weight exceeding 4000 g. Multiparity, polyhydramnios, and twin pregnancies. abdominal trauma or invasive obstetric maneuver.

The primary symptom of uterine rupture is acute and severe pain, which may be accompanied by the cessation of uterine contractions, marked fetal bradycardia, prolonged decelerations, and vaginal bleeding-with the potential development of haemorrhagic shock. In some instances, fetal parts may be visible in the abdominal cavity.[3] Guidelines recommend urgent surgical

intervention via laparotomy for uterine repair or, in cases of irreparable injury, for hysterectomy, combined with emergency cesarean section and intensive hemodynamic management.[4,7] An optimal clinical approach also includes careful selection of candidates for vaginal birth after cesarean (VBAC), with limited use of oxytocin and misoprostol in high-risk patients.[8,9] Finally, an elective cesarean section is indicated when the ultrasound-assessed uterine segment thickness is less than 2.5 mm (FIGO).

CASE REPORT

A 34-year-old woman underwent a laparoscopic myomectomy in 2016 for the removal of a 4 cm intramural subserosal myoma located in the right posterolateral region. During the procedure, a left tubal plasty and coagulation of endometrial foci in the left uterosacral ligament were also performed as part of an infertility workup. Subsequently, following an in vitro fertilization (IVF) procedure, the patient achieved pregnancy in 2020.

During the pregnancy-complicated by intrauterine growth restriction (IUGR) that became apparent after 32 weeks-the patient was admitted at 35 weeks and 2 days due to an incidental finding of oligohydramnios (Amniotic fluid index 16 mm) and a negative premature rupture of membranes (PROM) test. After induction of fetal lung maturity with 12 mg of Bentelan, an elective cesarean section was performed at 35 weeks and 4 days. Intraoperatively, a dehiscence of the previous scar was noted, with involvement of the fetal right lower limb, which became entrapped in the uterine defect and subsequently exhibited an ecchymotic ring attributable to compression (Figure 1, Figure 2, Figure 3). The male neonate weighed 2280 grams and did not present any immediate complications.

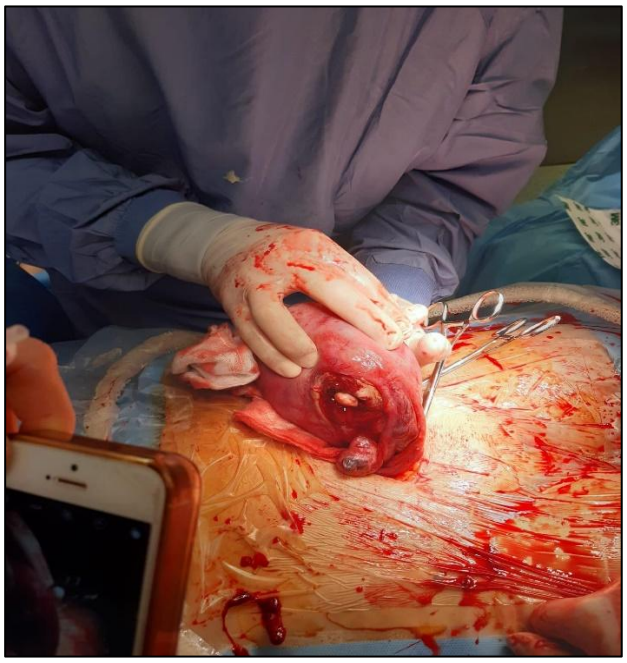

Figure 1: Uterine rupture.

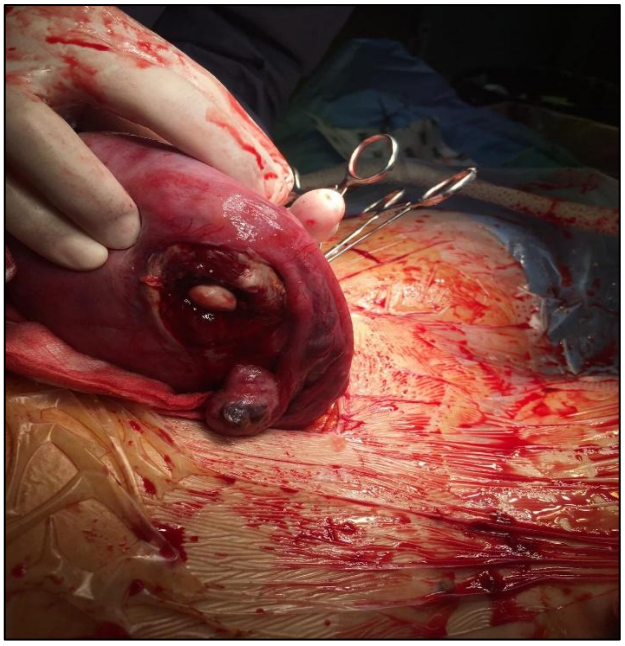

Figure 2: Uterine rupture: dehiscence of the previous scar.

Figure 3: Newborn-fetal right lower limb ecchymotic ring.

In 2021, the patient underwent a large loop excision of the transformation zone (LLETZ) procedure for cervical intraepithelial neoplasia (CIN) II, with negative margins and a cone length of less than 1 cm.

Finally, in November 2024, at 38 weeks and 5 days, the patient underwent a second cesarean section following a spontaneous pregnancy with a breech presentation of a female fetus on this occasion, no structural abnormalities of the uterus were observed. The enrolled patient provided informed consent to the drafting and publication of the study in all its parts.

DISCUSSION

This case raises several important issues regarding uterine rupture in the presence of previous risk factors.

Atypical clinical presentation

Contrary to the classic presentation-where acute and severe pain is the predominant symptom-the patient did not exhibit painful symptoms or obvious haemorrhagic signs. Moreover, cardiotocographic monitoring did not reveal significant abnormalities, suggesting a subclinical or partial rupture. This atypical presentation may render the diagnosis more insidious, warranting heightened vigilance in high-risk patients .[10]

Fetal birth weight and amniotic fluid

It is well demonstrated that fetal macrosomia and polyhydramnios are clear risk factor for uterine rupture, this case, characterized from low birth weight and oligohydramnios, may suggests that these two factors may play, sometimes, a marginal role in uterine rupture. It is also not clear if oligohydramnios is related to IUGR of if amniotic fluid could be previously spilled out into abdominal cavity.

Impact of previous surgical interventions

A history of myomectomy and LLETZ clearly predisposes to uterine rupture, as scar tissue may constitute a weak point in the uterine wall. The observed dehiscence appears to have developed along one of these scars, reinforcing the hypothesis that structural compromise from previous surgeries can play a decisive role.[11]

Assisted reproductive techniques and embryo placement

Although current literature does not demonstrate a direct correlation between assisted reproductive techniques and uterine rupture, this case prompts reflection on the possibility that the method and anatomical site of embryo transfer may influence the distribution of mechanical forces within the uterus, thereby compromising its integrity. Further studies are needed to clarify this potential link.

Mechanical factors and fetal presentation

The traction exerted by the entrapped lower limb may have contributed to the occurrence of the rupture. Additionally, the absence of complications during the second cesarean section-despite the presence of two surgical scars-raises the question of whether the recurrence risk is truly high or if protective factors might mitigate the impact of previous interventions.

In summary, this case demonstrates that uterine rupture can present atypically, even in the absence of classic clinical signs. It also suggests that the interplay between surgical history, assisted reproductive techniques, and mechanical factors may lead to variable risk profiles. Future studies are warranted to further elucidate these correlations and to establish more precise guidelines for monitoring and managing high-risk patients.

CONCLUSION

This case report highlights an atypical presentation of uterine rupture, emphasizing that previous uterine scars represent a significant risk factor even when the classic clinical picture is absent. The absence of typical symptoms, coupled with the potential contribution of embryo placement and mechanical forces related to fetal presentation, calls for a re-evaluation of risk factors and underscores the need for further research to improve the monitoring and management of patients with prior uterine surgery.

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