

## **Maternal Distress due to Spontaneous Antepartum Rupture of Unscarred Uterus with a Live Fetus in the Abdominal Cavity at 31 Weeks: A Case Report and Literature Review**

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### **Abstract**

**Introduction:** Historically spontaneous antepartum rupture of the unscarred uterus is rare. Uterine rupture is a tear in the uterine wall involving its full thickness Ofir K., et al. 2004. Uterus rupture can be a complete or partial tear. Major risk factors include: previous myomectomy, cesarean section, hysterotomy, uterus metroplasty, genetically deformed uterus etcetera. We herein report an uncommon presentation of complete ruptured of the unscarred uterus, with a ruptured amniotic sac and fetus floating in the abdominal cavity.

**Case Report:** A 31 -year-old woman, gravida1 para1, without previous incision on the uterus, or other uterine manipulation due to bleeding disorder. The patient arrived with an acute abdomen cause by massive hemoperitoneum, amniotic fluid, and fetus expelled into the abdominal cavity. A high index of suspicion and meticulous attention vital whenever, pregnant women present with severe painful distress, for the possibility of spontaneous uterus rupture on the scarred uterus, but rare in the unscarred uterus. Since the implication on mother and fetus likely disastrous.

**Keywords:** *Acute Abdomen; Maternal Distress; Uterus Rupture; Obstetrics Management; Life Fetus*

### **Abbreviations**

UR: Uterus Rupture; UH: Ultrasound Examination

### **Introduction**

A uterine rupture is a life-threatening event for mother and fetus. It is a rare complication associated with catastrophic obstetrics emergencies [1].

Involve the separation of the full-thickness of the uterus wall and overlying serosa [2]. Rupture of the uterus, although rare is common in women with previous obstetrics and gynaecological scar, multiparity, congenital abnormality, fetal macrosomia, fetal malposition, prolonged labour, oxytocin induction, attempted forceps delivery, external version, and trauma, it is a rare event in the unscarred uterus [1-3]. Generally, in the late third trimester of pregnancy, however, also seen in the late second and early third trimester. UR diagnosed acciden-

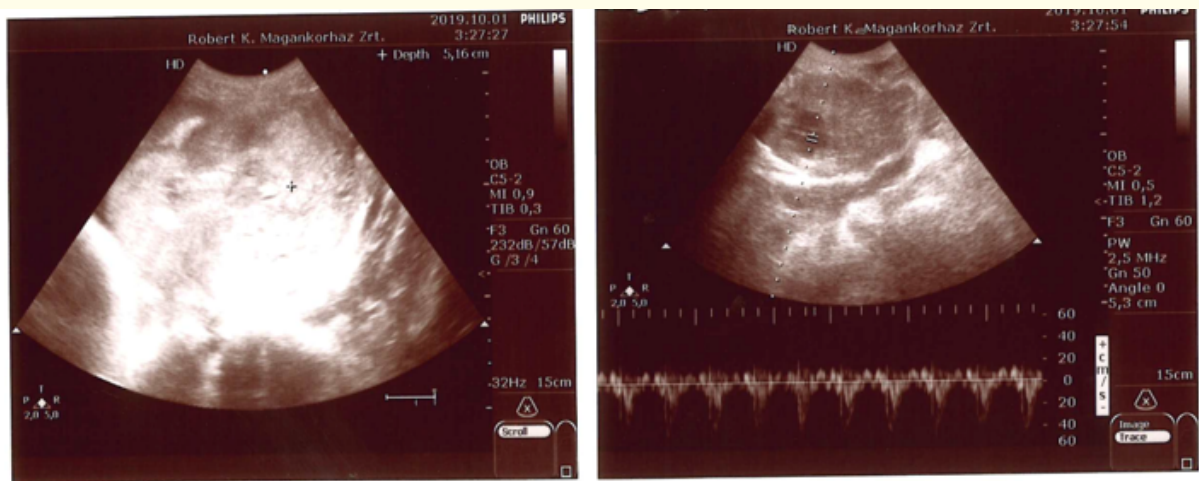
tally, either when a patient presents with an acute abdomen antepartum, or abnormal pain pattern intrapartum. Clinical signs of uterine rupture during pregnancy are non-specific and can be confusing [4]. Indeed, it is not always easy to distinguish it from other abdominal emergencies (appendicitis, gallstones, pancreatitis, etcetera.) by Suner S., *et al.* 1996 [ 5].

Antepartum, risk after one lower segment cesarean section has been described as 1.6 per 1000 deliveries, whereas risk intrapartum 5.2 - 24.5 per 1000 deliveries [4,6]. The risk of UR is significantly higher after classical cesarean section 40 - 90 per 1000 deliveries Lydon-Rochelle M., *et al.* 2001 and Landon MB., *et al.* 2004 [4,6]. However, the incidence of rupture in the unscarred uterus estimated at 1:15,000-20,000 deliveries Miller DA., *et al.* 1997, Ofir K., *et al.* 2004 and Akhtar Y., *et al.* 2010 [1,7,8]. Others also reported an estimated incidence of Uterus Rupture in the developed world to be around 0.006% for unscarred uterus, and 1% with a previous cesarean section based on the World Health organization systemic review Hofmeyr GJ., *et al.* 2005 and Kaczmarczyk M., *et al.* 2007 [3,9]. Scarred UR is a preventable condition Omole-Ohonsi A., *et al.* 2011[10]. Prevalence can be influenced by reducing the cesarean section rate, with adequate counselling, antenatal surveillance, management of intrapartum activities. However, unscarred UR is challenging to prevent, as the onset and symptoms are non-specific, particularly in the late second and early third trimester UR events. Established characteristic signs and symptoms of UR include: abdominal pain of tearing quality, abnormal fetal lie or loss of presenting part, and heart rate, vaginal bleeding, sudden loss of contractions [8-11].

### Case Report

A healthy 31-year-old primigravid woman conceived naturally. Receive uneventful regular antenatal counselling in a private clinic. The medical history reveals laparoscopic appendectomy and cystectomy due to ovarium endometrioma. She had no previous history of trauma, uterine surgery, intrauterine interventions, or any medical conditions like Ehlers-Danlos syndrome, and others in either herself or her family members.

At 30 weeks, she presented early in the morning 03:52 on the 1<sup>st</sup> of October 2019 at the emergency unit with an acute abdominal catastrophic state, extremely pale with almost complete cardiovascular collapse, fainting episodes. The information gathered from the husband revealed complaints of periodical uterine cramps close to three days and about 1-hour intensive pain before arrival. Vital signs were unstable, with a haemoglobin level of 103 mmol/L, a pulse of 120 BPM, a blood pressure of 95/62 mmHg, the respiration rate of 34 circles per minute.



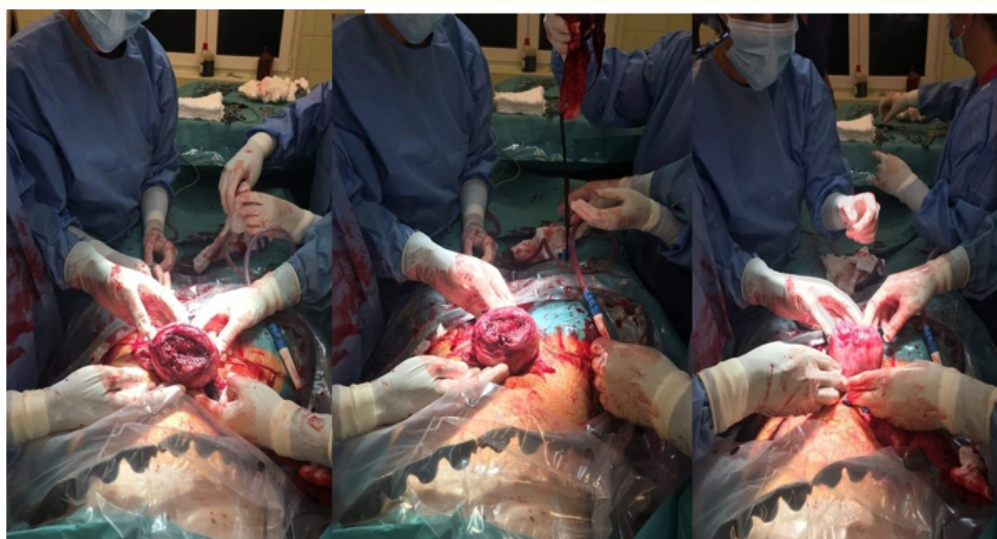
**Figure 1:** Ultrasound image showing the deformed, collapsed uterus, fetal parts, fetal heart rate, with no amniotic fluid.

Examination revealed distended, generally tenderness, a painful abdomen, and did not move with respiration, fundal height: 29 cm, with the irregular contoured, rigid uterus, fetal movement, parts not detected. Cardiotocograph detected a fetal heart rate of 60 - 90/min (bradycardia). Speculum examination reveals usually positioned cervix, no vaginal bleeding, or amniotic fluid leakage. On digital inspection, the cervix is tightly closed and uneffaced. Immediate ultrasound examination (UH) reveals a semi-prolapsed fetus, with no amniotic fluid in the uterus, detached placenta, and massive fluid in the abdominal cavity (Figure 1).



**Figure 2:** Ultrasound image showing the subinvolved uterus on the second-day post-surgery.

The ultrasonographic findings, the clinical features strongly suggest a life-threatening complication of pregnancy UR. Immediately, the patient was sent to the delivery room, resuscitation with intravenous fluid, and blood transfusion initiated. The decision to perform an emergency cesarean section was made. On entering the abdominal cavity, the uterus was found empty (Figure 2), placenta and baby expelled into the abdominal cavity in a pool of blood in the left epigastrium. A female baby weighing 1,400 gr was delivered, with an Apgar 4 at 1 minute, Apgar 6 at 5 minutes. Neonate immediately transferred to the Neonatology Department to receive further treatment. During the surgery, about 4 litres of blood loss and amniotic fluid were recorded. The complete fundal rupture extended to both horns (cornual end) of the uterus. The damaged old tissue was removed, and the defect was repaired in two non-continuous absorbable sutures, transfusion, other supportive therapy like antibiotics, symptomatic treatment provided.



**Figure 3:** Showing a photograph demonstrating the stage of the intra-operative images of uterine rupture, including the repair. The picture shows the extend of disruption from the right cornus to the left cornus of the uterus.

The patient was discharged home from the hospital on postoperative 8-days, while the child was given home after one-month post-delivery. Six weeks postoperative check-up shows the wounds healed. The baby currently has attained her 1st anniversary, without any detectable physical and neurological defect.

## Discussion

Antepartum unscarred uterine rupture is among the terrifying rare obstetrics emergencies [12]. Naturally, uterine rupture is more common in intrapartum, usually induced by various factors [1-4,12]. Frequently associated risk factors include: cephalopelvic disproportion, multiparity, previous cesarean section, fetal malpresentation, obstructed labour, abnormal placentation, obesity, intrinsic weakness of the uterine wall (Ehlers disease-Danlos type IV) or architecture defect of the uterus (bicornuate, didelphis, etcetera) [1-3]. These factors vary from country to country and also depend on the socio-economic development of the society. In underdeveloped countries, the common risk factors are obstructed labour, cephalopelvic disproportion, multiparity, previous cesarean, etcetera, where the incidence is ranging from 0.3-25% [1,3,6,13]. A study conducted by Loue VA., *et al.* 2015 reported an incidence of 0.95%, with a staggering majority with unscarred uterus 76.8% of the total 513 cases [14]. Whereas, in the developed countries, the frequent risk factor is any previous uterine defects (cesarean section, myomectomy, etcetera.), cephalopelvic disproportion, shortened inter-delivery interval, etcetera. Other possible causes are poor obstetrics management like the indiscriminate use of oxytocin and prostaglandin in labour induction Kotoulová M., *et al.* 2016 [15]. According to WHO, its prevalence stands at 0.006% for developed countries and 25% for underdeveloped countries. Uterine rupture can cause severe morbidity and mortality. Maternal mortality is usually by haemorrhagic shock, coagulation dysfunction, sepsis, pulmonary emboli, renal failure, etcetera. Hofmey GJ., *et al.* 2005 and Nousheen Aziz SY., *et al.* 2015 [3,16]. Estimated to have contributed 12.9% maternal and 96.3% perinatal deaths in a study conducted in Tanzania by Kidanto HL., *et al.* 2012 [17]. Another study conducted in the United States of America estimated 5% of maternal mortality Ripley DL., *et al.* 1999, Mazzone ME., *et al.* 2006, Dane B., *et al.* 2009 [18-20].

This case report highlights the rare occurrence of unprovoked spontaneous antepartum unscarred uterus rupture in the early third trimester of the pregnancy. The case was unique as the presentation was an acute abdominal catastrophe, possibly from other causes rather than a ruptured uterus. Initially, causing some diagnostic dilemma at reaching a preoperative diagnosis. Even with the presence of some classic features: bleeding, massive haemorrhage, tenderness, rebound tenderness, non-reassuring fetal status, fetal bradycardia, malposition, and irregular uterus contour, etcetera [3,9,13,21]. However, the clinical presentation in the index case was a fainting attack, severe abdominal pain. An emergency ultrasonographic examination performed in the emergency room provided the bases for immediate action, as the scan released a lack of tissue continuity, semi-empty uterus, massive abdominal fluid collection. An immediate response to stabilize the patient with the aggressive replacement of fluid with crystalloid and blood products, followed by immediate surgical intervention.

## Conclusion

We present this current case to highlight the need for service providers (Obstetrician, midwives, general physicians) to pay attention to a possible spontaneous unscarred uterus rupture, antepartum at any stage of pregnancy, in a patient presenting with an acute abdomen. Spontaneous rupture of the uterus in the developed world is more associated with previous cesarean section or myomectomy, while in lesser developed countries, it is more associated with obstructed labour, multiparity peri-intrapartum. There is always a need to exclude early unscarred uterine rupture even at antepartum as a differential diagnosis for acute abdominal catastrophe or bleeding. As there is a greater risk of maternal, fetal morbidities, and mortalities if the diagnosis is delayed or missed.

## Author's Contribution

A.A. Ekine drafted and revised the manuscript.

Á. Rúcz, V. Veres, Kovács, Ts. Nega performed the literature search and revised the draft manuscript.

Csáthy L. revised the draft manuscript.

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### **Patient Consent**

Obtain.

### **Declaration of Competing Interest**

The authors declare that they have no conflict of interest regarding the publication of this case report.

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