

## Spontaneous Fundal Uterine Rupture Sparing Cesarean Scar at 32 weeks of Gestation: A Case Report and Review of Literature

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### Abstract

**Introduction:** Uterine rupture is a catastrophic emergency in obstetrics requiring immediate surgical intervention to improve maternal outcome. Fetal outcomes are almost poor even if it is still alive and the case was presenting very early after uterine rupture. Usually uterus ruptures at the lower segment (weakest part) if there is no history of uterine surgery. Fundal rupture usually occurs after previous classic cesarean delivery or previous uterine surgery.

**Case Report:** A 27 years old patient G3P<sub>1+1</sub>, 32 weeks of gestation presented with hypovolemic shock. History and ultrasound raise suspicion of uterine rupture. Exploration revealed hemoperitoneum and fundal uterine rupture about 10 cm which was repaired and bilateral tubal ligation was done and patient was discharged after 5 days. The positive history of previous curettage supports the finding of fundal rupture with intact cesarean scar.

**Conclusion:** Uterine rupture should be suspected in patient presenting with abdominal pains during pregnancy in presence of uterine scar. The history of uterine curettage raises the suspicion of uterine rupture.

**Keywords:** Spontaneous, Fundal Uterine Rupture, Cesarean Scar, Third trimester.

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### Introduction

Rupture uterus is rare, but it is one of the most serious preventable obstetrical emergencies which could lead to grave sequelae for both mother and baby with perinatal mortality of 80–95%.<sup>(1)</sup>

Rupture uterus is commonly seen in women who have a past history of previous uterine operation leaving uterine scar.<sup>(2)</sup> The risk of uterine rupture is associated with uterine scars caused by previous cesarean section, myomectomy, hysteroscopic procedures, and curettage.<sup>(3)</sup>

### Case Presentation

A 27 years old patient G3P<sub>1+1</sub> came to emergency unit of Obstetrics and Gynecology Department, Tanta University, Egypt in a shock state; Pulse 123 beat/minute, Blood pressure was 80/50 and in air hunger state. Immediate resuscitation was done by wide pore cannulas, IV fluids, immediate investigations, and cross matched blood was requested. On fixation of a catheter urine volume was 30 ml only.

The patient history was reviewed immediately which revealed that she was pregnant at 32 weeks of gestation in a singleton baby after a previous cesarean delivery 6 years ago and previous curettage for missed abortion 2 years before the current pregnancy. Pregnancy course was smooth all over the first 2 trimesters.

Sudden onset abdominal pain, dull aching around the umbilicus was felt followed by syncope and severe pallor. Patient was examined vaginally where the cervix was closed and no bleeding was observed. Ultrasound

revealed fetal death and marked intraperitoneal free fluid which on aspiration revealed blood.

Immediate shift of the patient to operation room and exploration was done through Pfannenstiel incision. At that time investigations revealed hemoglobin 6 g/dL, creatinine was 1.1 other investigations were within normal. After incision, large amounts of intraperitoneal hemorrhage mixed with amniotic fluid was found and suctioned out about 1800 ml, baby was extracted from abdomen dead. The uterus was then exteriorized, we were expecting uterine rupture at the cesarean section scar, but the surprising issue that we found uterine rupture at the fundus about 10 cm Fig. 1 and the cesarean scar was spared and intact. Fig. 2

After counseling of patient's relatives, husband and consultation of higher staff members of the Department the decision was to repair the uterine fundus with bilateral tubal ligation to prevent this catastrophic scenario to be repeated. Intraperitoneal drain was fixed and the abdomen was closed in layers.

Replacement of blood was done intraoperatively and in the postoperative period, complete investigations were also requested, follow up was conducted in an ordinary ward, and there was no need for ICU. The patient was doing well after 5 days except for the psychic trauma from the case scenario and she was discharged in the following condition; Pulse 88 beat/minute, Blood pressure 110/75, Hemoglobin was 10.4 g/dL. The patient was given a card with all operative data and the schedule for follow up.



**Fig. 1: Fundal rupture at 32 weeks gestation**

Our explanation for this case was proposed that perforation of the fundus had occurred during curettage and passed unnoticed. That perforation healed by secondary intention yielding a weak scar in the fundus making a weak point in the uterus unable to withstand progressive stretching as pregnancy advances leading to rupture at the fundus and spared cesarean section scar.



**Fig. 2: Showing Intact Prior Cesarean section scar**

### Discussion and Literature Review

Uterine rupture could occur in scared uterus with previous history of uterine surgery (previous cesarean, myomectomy, hysteroscopy) or occur in non-scared with remote history of unrecognized uterine perforation, thermal injury, and obstructed labor.

Spontaneous uterine rupture may occur before or after labor onset, at term or preterm, and with or without non-reassuring fetal heart rate patterns.<sup>(4)</sup>

Uterine rupture also may occur in a subsequent pregnancy after unrecognized perforation during entry of the hysteroscope. So, when this occurs, it is important that the surgeon explains to the patient the hazard of uterine rupture in the subsequent pregnancy and to document this discussion in the medical records.<sup>(2)</sup>

Rupture uterus increases after induction of labour or trial of labour in a scared uterus leading to rupture through the site of scar.<sup>(5)</sup>

Searching of the literature in the last 10 years (2007 – 2017) for reported cases of fundal rupture in third trimester revealed the following research results:

Author	Year	Patient age	Obstetric history	GA at rupture	Size of rupture	Previous uterine surgery	Diagnosis	Management
Nkwabong E et al <sup>(6)</sup>	2007	35 years	G7P4	34 weeks	7 cm	2 uterine curettages	Ultrasound	Repair in 2 layers + bilateral tubal ligation
Rana R et al <sup>(7)</sup>	2009	26 years	G3P2	32 weeks	7.5 cm	Not relevant	Clinical +Ultrasound	Repair of the uterus in double layer+ bilateral tubal ligation
Nikolaou M et al <sup>(8)</sup>	2012	33 years	G1P0	28 weeks	4.5 × 4 cm	Not relevant	Clinical + ultrasound	Subtotal hysterectomy
Mishra M et al <sup>(11)</sup>	2013	35 years	G3P <sub>1+1</sub>	34 weeks	Not mentioned	One D/C operation 12 years back	missed	Subtotal hysterectomy
Kim YR et al <sup>(9)</sup>	2014	30 years	G1P0	32 weeks+2days	Corneal Size not mentioned	Laparoscopic cornual resection	Ultrasound	Repair of the defect
Sheybani S et al <sup>(10)</sup>	2014	Not stated	G3L2	28th weeks	10 cm	Not relevant	Misdiagnosed as abruptio	Repair in 2 layers+ double tubal ligation

Mizutamari E et al <sup>(11)</sup>	2014	29 years	G1P0	32 weeks + 3 days	2 cm at right cornu	Not relevant	Clinical+ MRI	Repair of cornu
Djaković I et al <sup>(3)</sup>	2015	40 years	G3L2	31 weeks	Not mentioned	Laparoscopic myomectomy	Clinical+ Ultrasound	Repair in 2 layers
Metin K et al <sup>(12)</sup>	2016	33 years	G3L2	32 weeks	10 cm	Not relevant	Misdiagnosed as abruption	Repair in 2 layers
Benoit RM et al <sup>(13)</sup>	2016	29 years	G4P3	32 weeks	Not mentioned	D&C 2 weeks postpartum	Clinical+ Ultrasound+CT	Hysterectomy
Abbas A et al <sup>(2)</sup>	2017	32 years	G2P1	33 weeks	7×7 cm	Hysteroscopic resection of submucous myoma	Clinical+ Ultrasound	Repair in 3 layers

Review of literature revealed that all previously mentioned cases had uterine rupture at the fundus or cornu in the third trimester either the patients had previous uterine surgery<sup>(2,3,9)</sup> or patients had history of uterine curettage<sup>(1,6,13)</sup> or the patients had no relevant history of any uterine surgery.<sup>(7,8,10,11,12)</sup>

History of uterine curettage may cause rupture in the lower uterine segment where perforation was suspected in that case.<sup>(14)</sup>

Most cases were diagnosed clinically and with ultrasound and CT or MRI<sup>(2,3,6,7,8,9,11,13)</sup> or diagnosis was missed in some cases<sup>(1)</sup> or misdiagnosed as placental abruption.<sup>(10,12)</sup>

In most cases repair of fundus was done without tubal ligation<sup>(2,3,9,11,12)</sup> or repair with tubal ligation as done in our case<sup>(6,7,10)</sup> or hysterectomy was done.<sup>(1,8,13)</sup>

To our knowledge, one case of uterine fundal rupture sparing cesarean section scar that case had 2 previous cesarean sections similar to our case.<sup>(12)</sup> The cause of rupture was preterm labour.

## Conclusion

Uterine rupture -although rare- should be put in mind in patient presenting with abdominal pains in the third trimester whether patient has uterine scar or not. The history of uterine curettage should raise the suspicion of rupture as perforation may occur and pass unnoticed leading to weak point in the uterus that could not withstand stretching of growing baby.

## References

- Misra M, Roychowdhury R, Sarkar NC, Koley MM. The spontaneous pre-labour rupture of an unscarred uterus at 34 weeks of pregnancy. *Journal of Clinical and Diagnostic Research*, 2013; 3, 548 – 549. Available from [http://www.jcdr.net/back\\_issues.asp](http://www.jcdr.net/back_issues.asp).
- Abbas AM, Michael A, Ali MK, Abdel-Reheem F, Shahat MA. Recurrent spontaneous third-trimester uterine rupture after hysteroscopic resection of myoma: a case report. *POG in Press*. 2017;1,7. Available from: [http://ir.uiowa.edu/pog\\_in\\_press/](http://ir.uiowa.edu/pog_in_press/).
- Djaković I, Rudman SS, Djaković Ž and Košec V. Uterine rupture following myomectomy in third trimester. *Acta Clin Croat* 2015;54:521-524.
- Dow M, Wax J R, Pinette M G, Blackstone J, Cartin A. Third-trimester uterine rupture without previous cesarean: a case series and review of the literature. *Am J Perinatol*. 2009;26:739–744.
- Dupont C, Carayol M, Le Ray C, Barasinski C, Beranger R, Burguet A, Chantry A, Chiesa C, et al. Oxytocin administration during spontaneous labour: Guidelines for clinical practice. *Abst. Gynecol Obstet Fertil Senol*. 2017;45(1):56-61. doi: 10.1016/j.gofs.2016.12.017.
- Nkwabong E, Kouam L, Takang W. Spontaneous uterine rupture during pregnancy: case report and review of literature. *African journal of reproductive health*. 2007;11(2):107-12.
- Rana R, Puri M. Pre-labor silent rupture of unscarred uterus at 32 weeks with intact amniotic sac extrusion: a case report. *Cases journal*. 2009;16;2(1):7095.
- Nikolaou M, Kourea HP, Antonopoulos K, Geronatsiou K, Adonakis G, Decavalas G. Spontaneous uterine rupture in a primigravid woman in the early third trimester attributed to adenomyosis: A case report and review of the literature. *J Obstet Gynaecol Res*. 2013;39(3):727-32. doi: 10.1111/j.1447-0756.2012.02042.x.
- Kim YR, Cho DH. Uterine rupture in subsequent third trimester pregnancy diagnosed preoperatively by ultrasound: A case report. *OA Case Reports* 2014; 22;3(8):72.
- Sheybani S, Zirak N, Poorandi R, Hosseini E. Pre-term Spontaneous Unscarred Uterine Rupture; A Case Report and Review. *Journal of Patient Safety & Quality Improvement*. 2014;2(4):171-4.
- Mizutamari E, Honda T, Ohba T, Katabuchi H. Spontaneous Rupture of an Unscarred Gravid Uterus in a Primigravid Woman at 32 Weeks of Gestation. *Case Reports in Obstetrics and Gynecology*. 2014, 209585.
- Metin K, Öksüzöğlü A, Timur H, Üstün YE. Spontaneous Fundal Uterine Rupture in a Pregnant Woman at 32 Weeks Gestation who had Two Previous Cesarean Sections. *Gynecology Obstetrics & Reproductive Medicine*, [S.l.], p. 1-3, 2016. doi:<http://dx.doi.org/10.21613/GORM.2016.488>.
- Benoit RM. An evolving third trimester uterine rupture without prior history of Cesarean. *Ultrasound Obstet Gynecol*. 2016, 48: 368. doi:10.1002/uog.17120.
- Dixon L, Carlan SJ, O'Leary TD, Perez J. Spontaneous Complete Uterine Rupture in a Non laboring, Early Third-trimester Uterus: Missed Diagnosis by Ultrasound. *AJP Reports*. 2013;3(2):79-82. doi:10.1055/s-0033-1341575.