

## Incomplete Cesarean Scar Rupture

Firoozeh Ahmadi\*, Shiva Siahbazi, Farnaz Akhbari

- Department of Reproductive Imaging, Reproductive Biomedicine Center, Royan Institute for Reproductive Biomedicine, ACECR, Tehran, Iran

### Abstract

**Background:** Uterine rupture at the site of a previous cesarean scar is an uncommon but catastrophic complication of pregnancy, which is associated with significant maternal and fetal morbidity and mortality.

**Case Presentation:** A 30-year old woman at 24th week of gestation and complaint of pain, contractions and spotting was admitted in Royan Institute in Tehran, Iran. She had a past medical history of an EP and a cesarean section delivery, respectively 4 and 2 years before hospitalization. Herniation of an amniotic membrane into the maternal bladder was found on ultrasound examination.

**Conclusion:** Risk factors of cesarean scar rupture should be considered in women undergoing subsequent pregnancies as they need extra care. Ultrasonography can be used to evaluate women with previous cesarean section to assess the risks of scar rupture during subsequent pregnancies.

**Keywords:** Cesarean section, Dehiscence, Rupture, Scar.

**To cite this article:** Ahmadi F, Siahbazi S, Akhbari F. Incomplete Cesarean Scar Rupture. *J Reprod Infertil.* 2013;14(1):43-45.

\* Corresponding Author:  
Firoozeh Ahmadi, Royan  
Institute, No. 12, East  
Hafez Ave., Bani-Hashem  
St., Resalat Highway,  
Tehran, P.O. Box: 19395-  
4644, Iran  
E-mail:  
dr.ahmadi1390@gmail.  
com

**Received:** Sep. 9, 2012

**Accepted:** Nov. 30, 2012

### Introduction

Uterine rupture usually occurs at the site of deficient cesarean scars. The majority of fenestrations or incomplete uterine ruptures are asymptomatic and may initially be quite subtle and may be seen during the process of future cesarean sections or laparotomies (1). The majority of cesarean uterine incisions are low-transverse and this type of incision has the lowest risk for rupture in subsequent pregnancies (2, 3). The classical (vertical) scar at the upper part (body) of the uterus is more vulnerable to ruptures and can cause more serious complications both for the mother and her baby (2).

The risk of uterine rupture in the presence of a defective scar is related to the degree of thinning of the lower uterine segment as measured by ultrasound. In other words, if the niche is deeper or the overlying myometrium is thinner, the risk of the above mentioned complications in subsequent pregnancies are higher (4).

We present here, a case with the incomplete rup

ture of a cesarean scar and a history of previous cesarean section and EP.

### Case Presentation

A 30 year-old woman with a prior ectopic pregnancy (EP) and a cesarean section delivery, respectively 4 and 2 years earlier, was admitted with the complaints of uterine contractions and lower abdominal pain in Royan Institute in Tehran, Iran. In her previous pregnancy, she had become pregnant by IVF and had undergone cerclage placement and then had cesarean section delivery by transverse Pfannenstiel skin incision.

She had conceived naturally in her current pregnancy, without any assisted reproductive technology (ART) treatment. She had no cerclage, the patient experienced uterine contractions and lower abdominal pain in the 24th week of gestation. Her suprapubic scar was painful on palpation.

We performed ultrasonography using an Accuvix XQ machine (Madison Co. Ltd., Korea) with a

3–5 MHz convex probe and a 3D, 4–8 MHz transvaginal probe. At first, we performed a transabdominal sonography, which was suspicious of cesarean scar rupture; therefore, we further evaluated the cervical canal and cesarean scar by transvaginal sonography. Ultrasonography revealed a fenestration 17 mm in diameter in the scar (Figure 1). Three dimensional ultrasonography of the uterine isthmus confirmed the fenestration (Figure 2).

The patient and her spouse decided to continue the pregnancy; therefore, she was under conservative treatment and was restricted to complete bed rest (CBD) at home. Accordingly, controlled sonography of the cesarean scar defect was done every 10 to 14 days until the 34th week of gestation. At the onset of uterine contractions, emergency cesarean delivery was done at the 34th week of ges-

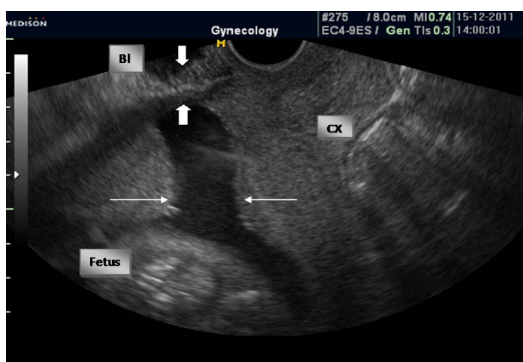
tation. There was no fetal or maternal morbidity following delivery.

### Discussion

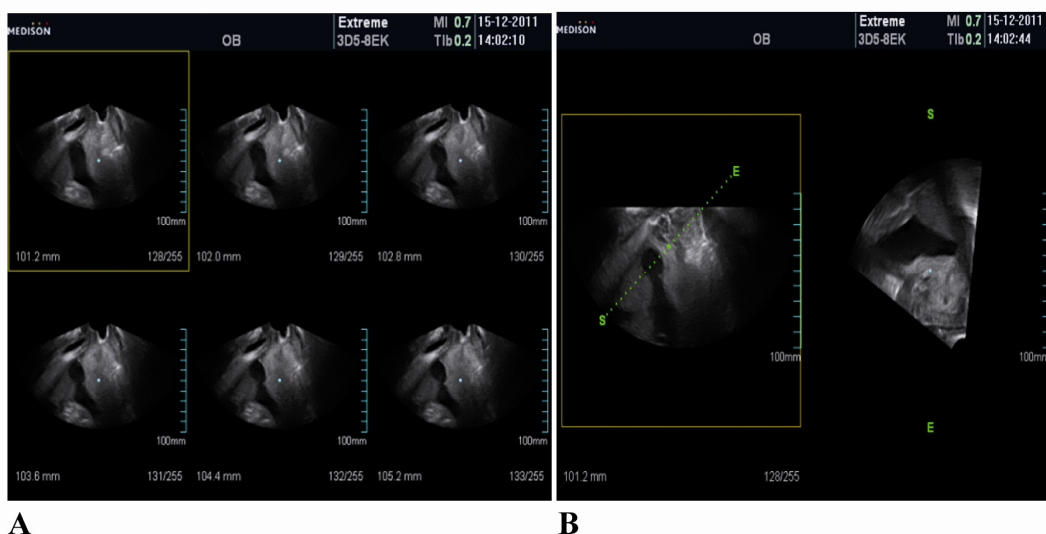
Uterine ruptures mostly occur due to previous cesarean sections. Risk of rupture in classical (vertical) incision is greater than transverse one in subsequent pregnancies. Risk factors for uterine rupture include myomectomy, septoplasty, metroplasty, trauma, congenital uterine anomalies (especially ectopic pregnancy in the rudimentary horn), inadequate treatment of endometriosis, placental abruption, and mid-forceps delivery. Sometimes postpartum ruptures occur in patients giving birth by vaginal delivery following prior cesarean sections.

Uterine ruptures could be divided into complete and incomplete (dehiscence) ruptures. In incomplete uterine rupture or dehiscence, the myometrium is disrupted but the serosa is intact. Full thickness tears of uterine wall result in complete uterine ruptures. These ruptures mostly occur at the level of prior anterior low cesarean sections. Compared to complete uterine rupture, uterine dehiscence has much lower maternal and neonatal morbidity.

The risk of uterine rupture has risen recently, especially, in developed countries due to increased rate of cesarean deliveries. The frequency of uterine rupture ranges between 0.2% to 3.8% (5, 6). The increasing use of transvaginal sonography during prenatal care has allowed more frequent identification of scar defects and the assessment of rupture risk.



**Figure 1.** Transvaginal ultrasound examination in the 24th week of gestation demonstrated a 17 mm fenestration within the uterine scar (Large arrow). Thinning of the myometrium over the cesarean scar defect is seen behind the bladder (Small arrow)



A

B

**Figure 2.** A and B: Multislice and three-dimensional ultrasound image (coronal view) in the 24th week of gestation showing the fenestration with a 17 mm diameter

A complete uterine rupture cannot usually be predicted and it will suddenly occur during labor or delivery. Termination of pregnancy should be considered if any sudden pain is present.

Several concomitant symptoms of eminent uterine rupture include vaginal bleeding, sharp pain between contractions, abdominal pain or tenderness, recession of the fetal head (baby's head moving back up into the birth canal), bulging under the pubic bone (baby's head protrudes out of the uterine scar), and onset of sharp pain at the site of previous scar (7, 8).

Emergency exploratory laparotomy and delivery are proposed for the treatment of ruptured uterus. Successful repair of dehiscence with continuation of pregnancy have been reported by other researchers too (as in our case).

### Conclusion

An incomplete uterine rupture can be identified by sonographic evaluation of the isthmic uterine scar in late second trimester, as in the present case. High frequency transducer is preferred over a low frequency one for the diagnosis of anterior uterine wall rupture. It is recommended to look for continuous myometrial band and measure its thickness, especially, if the patient complains about pain or contractions. Besides, it is highly suggested to consider the diagnosis of uterine rupture in patients who have recently undergone cesarean section.

### Conflict of Interest

The authors declare no conflict of interest.

### References

1. Taipale P, Karhumaa J, Penttinen J. Two- and three-dimensional sonographic diagnosis of incomplete uterine scar rupture during pregnancy. *Ultrasound Obstet Gynecol.* 2005;25(4):418-9.
2. Jastrow N, Chaillet N, Roberge S, Morency AM, Lacasse Y, Bujold E. Sonographic lower uterine segment thickness and risk of uterine scar defect: a systematic review. *J Obstet Gynaecol Can.* 2010;32(4):321-7.
3. Ofili-Yebovi D, Ben-Nagi J, Sawyer E, Yazbek J, Lee C, Gonzalez J, et al. Deficient lower-segment Cesarean section scars: prevalence and risk factors. *Ultrasound Obstet Gynecol.* 2008;31(1):72-7.
4. Rozenberg P, Goffinet F, Phillippe HJ, Nisand I. Ultrasonographic measurement of lower uterine segment to assess risk of defects of scarred uterus. *Lancet.* 1996;347(8997):281-4.
5. Armstrong V, Hansen WF, Van Voorhis BJ, Syrop CH. Detection of cesarean scars by transvaginal ultrasound. *Obstet Gynecol.* 2003;101(1):61-5.
6. Fukuda M, Fukuda K, Mochizuki M. Examination of previous caesarean section scars by ultrasound. *Arch Gynecol Obstet.* 1988;243(4):221-4.
7. Arulkumaran S, Chua S, Ratnam SS. Symptoms and signs with scar rupture--value of uterine activity measurements. *Aust N Z J Obstet Gynaecol.* 1992; 32(3):208-12.
8. Gotoh H, Masuzaki H, Yoshida A, Yoshimura S, Miyamura T, Ishimaru T. Predicting incomplete uterine rupture with vaginal sonography during the late second trimester in women with prior cesarean. *Obstet Gynecol.* 2000;95(4):596-600.