

# Pregnancy Outcomes in Patients With Prior Uterine Rupture or Dehiscence

## A 5-Year Update

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### INTRODUCTION

Uterine rupture is a serious pregnancy complication associated with significant maternal and neonatal morbidity and mortality. For women with a history of uterine rupture, there is a risk of recurrence, ranging in the literature from 0–33%.<sup>1–3</sup> Owing to this, some women with a prior uterine rupture are advised not to have more pregnancies.<sup>1</sup> In 2014, we reported outcomes for 14 women (20 pregnancies) with a history of uterine rupture (clinically apparent, complete scar separation in labor or before labor) and 30 women (40 pregnancies) with a history of uterine dehiscence (incomplete uterine scar separation with intact serosa, sometimes referred to as a uterine window).<sup>4</sup> In these 60 pregnancies, there was 0% severe morbidity and 6.7% of pregnancies had uterine dehiscence seen at the time of delivery. Subsequent to the 2014 publication, we have seen an increase in patients with a history of uterine rupture or dehiscence, and the objective of this Research Letter is to update our results with a larger sample size.

### METHODS

After Biomedical Research Alliance of New York Institutional Review Board approval was obtained, we reviewed the charts of all patients who delivered at more than 24 weeks in our maternal–fetal medicine practice from July 2005 (when our computerized

medical record was created) to August 2019. Our methodology and definitions were similar to those in our original publication.<sup>4</sup> In our practice, patients with a prior uterine rupture undergo cesarean delivery at approximately 36–37 weeks of gestation, or earlier in the setting of preterm labor. Patients with a prior uterine dehiscence undergo cesarean delivery at approximately 37–39 weeks, based on obstetric history, clinical findings, and ultrasound findings. The outcomes reported are severe morbidities (uterine rupture, hysterectomy, transfusion, cystotomy, bowel injury, mechanical ventilation, intensive care unit admission, thrombosis, reoperation, maternal death, and perinatal death). We also report less severe morbidities, such as placenta previa, placenta accreta, and the finding of uterine dehiscence at delivery. Outcome incidences and 95% CIs are reported. Because several women had more than one pregnancy, we used the total number of women, and not the number of pregnancies, as the denominator in calculating percentages and 95% CIs. This report includes the women and pregnancies from our prior publication.<sup>4</sup>

### RESULTS

Over the course of the study period, 37 women (59 pregnancies) had a prior uterine rupture and 50 women (75 pregnancies) had a prior uterine dehiscence. These 87 women (134 pregnancies) comprised the case series. Pregnancy outcomes are shown in Table 1. There were no maternal or perinatal deaths. There was one uterine rupture (0.7% of all pregnancies, or 1.2% of all women, 95% CI 0.2–6.2%). This occurred in a woman with three prior cesarean deliveries, a prior uterine dehiscence, and a unicornuate uterus. She went into labor at 36 2/7 days, 2 days before her scheduled cesarean delivery. An incidental uterine rupture was noted at delivery; there were no maternal complications. The newborn had Apgar scores of 9 at 1 and 5 minutes and did not require admission to the neonatal intensive care unit.

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*The author did not report any potential conflicts of interest.*

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**Table 1. Pregnancy Outcomes in Women With a History of Prior Uterine Rupture or Dehiscence**

| Outcome                          | Prior Uterine Rupture<br>(n=37 Women [59 Pregnancies]) | Prior Uterine Dehiscence<br>(n=50 Women [75 Pregnancies]) | Combined (N=87<br>Women [134 Pregnancies]) |
|----------------------------------|--------------------------------------------------------|-----------------------------------------------------------|--------------------------------------------|
| Gestational age at delivery (wk) | 36.3±1.2                                               | 37.0±2.0                                                  | 36.7±1.7                                   |
| Birth weight (g)                 | 2,898±428                                              | 3,051±512                                                 | 2,984±481                                  |
| Uterine dehiscence               | 18.9 (9.5–34.2)                                        | 18 (9.8–30.8)                                             | 18.4 (11.7–27.8)                           |
| Placenta previa                  | 2.7 (0.5–13.8)                                         | 2.0 (0.4–10.5)                                            | 2.3 (0.6–8.0)                              |
| Placenta accreta                 | 2.7 (0.5–13.8)                                         | 0 (0–7.1)                                                 | 1.2 (0.2–6.2)                              |
| Uterine rupture                  | 0 (0–9.4)                                              | 2.0 (0.4–10.5)                                            | 1.2 (0.2–6.2)                              |
| Hysterectomy                     | 2.7 (0.5–13.8)                                         | 0 (0–7.1)                                                 | 1.2 (0.2–6.2)                              |
| Transfusion                      | 2.7 (0.5–13.8)                                         | 0 (0–7.1)                                                 | 1.2 (0.2–6.2)                              |
| Cystotomy                        | 0 (0–9.4)                                              | 0 (0–7.1)                                                 | 0 (0–4.2)                                  |
| Bowel injury                     | 0 (0–9.4)                                              | 0 (0–7.1)                                                 | 0 (0–4.2)                                  |
| Mechanical ventilation           | 2.7 (0.5–13.8)                                         | 0 (0–7.1)                                                 | 1.2 (0.2–6.2)                              |
| Intensive care unit admission    | 0 (0–9.4)                                              | 0 (0–7.1)                                                 | 0 (0–4.2)                                  |
| Thrombosis                       | 0 (0–9.4)                                              | 0 (0–7.1)                                                 | 0 (0–4.2)                                  |
| Reoperation                      | 0 (0–9.4)                                              | 0 (0–7.1)                                                 | 0 (0–4.2)                                  |
| Maternal death                   | 0 (0–9.4)                                              | 0 (0–7.1)                                                 | 0 (0–4.2)                                  |
| Perinatal death                  | 0 (0–9.4)                                              | 0 (0–7.1)                                                 | 0 (0–4.2)                                  |

Data are mean±SD or % (95% CI).

Percentages and 95% CIs were calculated using number of women as the denominator (not number of pregnancies).

One woman with a prior uterine rupture transferred care to our practice at 25 weeks of gestation with four prior cesarean deliveries, a placenta previa, and suspected placenta accreta. She was delivered by cesarean at 34 weeks because of bleeding and required a hysterectomy at that time owing to the placenta accreta. She accounts for all of the maternal morbidities seen in the prior uterine rupture group (mechanical ventilation, blood transfusion, hysterectomy). Otherwise, there were no maternal morbidities in the cohort. The incidence of uterine dehiscence (window) seen at the time of cesarean delivery was 11.9% of all pregnancies, or 18.4% of all women (95% CI 11.7–27.8%).

## DISCUSSION

Our updated series confirms our previous report of excellent outcomes in women with prior uterine rupture or uterine dehiscence.<sup>4</sup> Among 37 women (59 pregnancies) with prior uterine rupture and 50 women (75 pregnancies) with prior uterine dehiscence, one woman had an uncomplicated uterine rupture and one woman had a relatively uncomplicated cesarean hysterectomy for placenta accreta. We did find that 11.9% of these pregnancies (18.4% of all women) had uterine dehiscence seen at the time of delivery, suggesting that these patients should not labor and supporting our protocol for cesarean delivery before the onset of labor.

In conclusion, and similar to what we reported previously,<sup>4</sup> women with prior uterine rupture or uterine dehiscence appear to have a low risk of adverse outcomes in subsequent pregnancies if managed in a standardized manner, including cesarean delivery before labor or at the onset of preterm labor. We encourage other centers to report their experiences from this unique population.

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