ABSTRACT

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Title: Examining a Concerning Rise: a Case Series on Uterine Ruptures at a Single Institution

Background: Trial of labor after cesarean delivery (TOLAC) offers women the opportunity to attempt a vaginal delivery for subsequent pregnancies. While TOLAC has become a safe option for many women, it carries the risk of uterine rupture, a potentially life-threatening complication. At our institution, we counsel our patients with one prior cesarean delivery that her risk of uterine rupture is <1%, which is based on our historical institution-specific uterine rupture rate and the national average. In 2022, our institution's rate of uterine rupture more than doubled.

Purpose: This case series is described in an effort to explore the increased incidence of uterine rupture in patients attempting TOLAC in 2022 and to identify risk factors associated with this complication at our institution.

Design: case series

Results: At our institution, we offer patients who have previously undergone one or two low transverse cesarean deliveries the opportunity to TOLAC. We counsel that the average rate of uterine rupture is <1% in patients with one prior cesarean delivery, and slightly higher for two cesarean deliveries. From 2019-2021, the average rate of uterine rupture at our institution was

0.78%. During 2022, the rate of uterine rupture at our institution was 2.25%. In the first six months of 2023, there are already three cases of uterine rupture in TOLAC patients, which raises suspicion that the 2023 rate of uterine rupture will at the very least approximate the rate of 2022. In all three of the uterine rupture cases in 2022, they were induced using oxytocin. None of the cases presented in spontaneous labor. One of the cases had two prior cesarean deliveries. Two of the cases used mechanical dilation balloons for cervical ripening. Two of the cases resulted in repeat cesarean deliveries during induction of labor due to non-reassuring fetal status and maternal complaints concerning for uterine rupture. One case resulted in a forceps-assisted vaginal delivery for fetal bradycardia at delivery with an exploratory laparotomy on postpartum day one for continued pain and bleeding, which was later identified as a uterine rupture. While each of these cases have unique precipitating factors, they were all induced TOLACs.

Conclusion: The uterine rupture rate at our institution more than doubled in 2022. The common theme among the uterine rupture cases in 2022 was induction of labor rather than spontaneous labor. Uterine rupture during TOLAC can be influenced by several factors including: type of prior uterine scar, previous cesarean indication, number of prior cesareans, spontaneous labor versus augmentation, and the interpregnancy interval. These cases were evaluated to be safe for TOLAC induction of labor attempt based on their known prior history. Some confounders to this evaluation include institutional rise in number of deliveries and TOLACs, better documentation in electronic medical records, and rising number of patients with a history of cesarean delivery nationally. While TOLAC can be a safe option, clinical suspicion must be high during the TOLAC. The risk of uterine rupture must be carefully considered and discussed during antenatal counseling with shared decision-making with the patient. At our institution, we are continuing to take a closer look at the ongoing TOLAC cases for risk factors for uterine rupture. We are currently studying the impact of short-interval pregnancy on TOLAC outcomes. We are also considering a change in counseling to quote a uterine rupture rate of closer to 2% rather than quoting <1%.