

Mini-commentary on BJOG-20-1459.R1 (Caesarean birth and risk of subsequent preterm birth)

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Mini-commentary on BJOG-20-1459.R1: Caesarean birth and risk of subsequent preterm birth: retrospective cohort study

Declarative title to be added

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Worldwide, preterm birth occurs in 11% of pregnancies and is the leading cause of childhood mortality. Complications from preterm birth are the most common cause of neonatal death in the United Kingdom, yet the incidence of preterm birth is not falling.

In this issue of BJOG, Williams *et al* (BJOG xxxx) report on an observational study which identifies previous second stage caesarean birth as a risk factor for spontaneous preterm birth, confirming the results of other observational cohorts. Among women with one previous term birth, the adjusted odds ratio was 2.1 (95% confidence interval [CI] 1.3 to 3.1) for preterm birth before 37 weeks gestational age and 7.5 (95% CI 3.4 to 15) for preterm birth before 34 weeks, for previous second stage caesarean birth compared with previous vaginal birth. They adjusted for confounders not addressed in other studies including interpregnancy interval and maternal deprivation index, strengthening the existing evidence. The association is plausible because the cervix and lower uterine segment are anatomically merged in the second stage of labour and inadvertent cervical incision might damage the integrity of the cervix. The association was at least as strong as that described for previous excisional surgery for cervical dysplasia. Current National Institute of Clinical Excellence Guidelines recommend considering prophylactic cervical cerclage for an ultrasound-measured cervical length < 25mm if there is a history of cervical trauma. Given the plausibility and emerging epidemiological evidence, it would seem prudent to offer the same screening and treatment when there is a history of second stage caesarean birth.

The observed association is relevant in other ways. Counselling about instrumental versus caesarean birth may be influenced by knowledge of future risks. Additionally, surgeons may need to be aware of the potential importance of avoiding inadvertent cervical incision, while still avoiding upper segment incision and its attendant risk of future intrapartum uterine rupture.

The study by Williams *et al* is well designed, yet there remains potential for confounding not adjusted for in the analysis. Further, missing data for body mass index (1.6%) and cigarette smoking (13%) were classified as unknown and not imputed which can also cause bias. As there are only a handful of observational studies, it would be sensible to confirm the association, and explore potential causative mechanisms (e.g., by monitoring cervical length in subsequent pregnancies).

Clinical prediction models for spontaneous preterm labour in asymptomatic women have been developed but need improvement before incorporation into clinical practice. Addition of new risk factors such as second stage caesarean birth and better understanding of the causes of preterm birth could improve these models and ultimately improve outcomes through offering prophylaxis with cervical cerclage, vaginal progesterone, or pessary for women at high risk.

Given the massive personal, clinical, and economic burden imposed by preterm birth, the plausibility of the association, and the growing evidence from observational studies, I believe cervical surveillance warranted, with a view to offering prophylactic measures when there is a history of second stage caesarean birth.

No disclosures: A completed disclosure of interest form is available to view online as supporting information.