Misoprostol for second trimester pregnancy termination in women with prior caesarean: a systematic review

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CRD summary
The authors concluded that second trimester misoprostol termination appeared safe in women with one prior low-transverse caesarean; there was insufficient data to draw conclusions about women with multiple prior low transverse caesarean or prior classical caesarean delivery. Given the absence of high-quality studies, the reliability of the authors' conclusions is unclear and their caution justified.

Authors' objectives
To determine the risk of uterine rupture with the use of misoprostol for second trimester termination in women with prior caesarean delivery.

Searching
MEDLINE, Scopus and POPLINE were searched from 1966 to April 2008 for studies in any language. Search terms were reported. References of retrieved articles were handsearched. A retrospective chart analysis was carried out in the reviewers' two institutions to elicit further data for review.

Study selection
Studies (prospective, retrospective and case reports) of second trimester misoprostol termination (16 to 28 weeks) in women with a prior caesarean birth were eligible for inclusion. The primary outcome was incidence of uterine rupture. Other outcomes eligible for inclusion were maternal complications such as hysterectomy and blood transfusion.

Included studies were of vaginal, oral or sublingual misoprostol in doses that ranged from 200μg to 800μg administered at intervals of one to 12 hours. Where stated, gestational age ranged from 14 to 28 weeks. Most terminations were of live foetus.

The authors stated neither how the studies were selected for the review nor how many reviewers performed the study selection.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
The number of participants with uterine rupture was extracted according to type and number of prior caesarean. The number of participants with uterine rupture who underwent hysterectomy and needed blood transfusion was extracted. Two reviewers independently performed the data extraction.

Methods of synthesis
Pooled proportions of uterine rupture were calculated across studies according to type and number of prior caesarean and grouped according to design. 95% confidence intervals (CI) were calculated using the modified Wald method. Several different analyses were planned to investigate the effects of type of prior caesarean (low transverse or classical) and number of prior caesareans (one, two, three or more than three). The authors stated that publication bias was assessed by reporting results separately for case reports and other study designs.

Results of the review
Seventeen studies were included for the review (n=at least 521): one prospective cohort study (n=53); six retrospective cohort studies (n=at least 311); five case series (n=150); and five case reports (n=5).

Second trimester misoprostol termination was associated with: 0.43% uterine rupture rate (95% CI 0.08% to 1.67%);
n=461) in women who had one prior low transverse caesarean delivery; 0% uterine rupture rate (95% CI 0.0% to 9.2%; n=46) in women who had two prior low transverse caesarean deliveries; and 0% uterine rupture rate in women who had three prior low transverse caesarean births (n=7). Two participants who underwent second trimester termination using misoprostol had prior classical caesarean delivery and one of those resulted in uterine rupture. All five case reports were of uterine rupture following second trimester misoprostol termination.

None of the eight cases of uterine rupture resulted in maternal mortality or hysterectomy. Three required blood transfusion.

**Authors’ conclusions**

Second trimester termination with misoprostol appeared safe in women with one prior low transverse caesarean due to the low risk of uterine rupture, hysterectomy and need for transfusion. There was insufficient data to draw conclusions about the risks of of second semester misoprostol termination in women with more than one prior low transverse caesarean or with prior classical caesarean delivery.

**CRD commentary**

The review addressed a clear question with well-defined inclusion criteria. Several relevant databases were searched. Appropriate steps were taken to minimise the possibility of language and publication biases. Data extraction was conducted by two reviewers independently; it was unclear whether similar steps were taken in the study selection process and so reviewer error and bias could not be ruled out. It appeared that no validity assessment was carried out. Most included studies were of weaker methodological design. An appropriate method was used to combine the studies, but statistical heterogeneity was not assessed. Given the absence of high-quality studies, the reliability of the authors’ conclusions is unclear and their caution regarding women with classical or multiple caesarean deliveries was justified.

**Implications of the review for practice and research**

*Practice:* The authors stated that oxytocin use during second trimester misoprostol termination should be minimised and that experienced obstetrician, anaesthesia, nursing and operating staff should be available at all times. Women with prior caesarean delivery should be counselled on the risks involved with subsequent forms of delivery.

*Research:* The authors stated that further large-scale research was needed into the incidence of uterine rupture following second trimester misoprostol termination in women with two or more low-transverse caesarean deliveries or with classical caesarean deliveries.

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