Abdominal versus vaginal cerclage after a failed transvaginal cerclage: a systematic review

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Authors' objectives
To compare the outcomes of pregnancy following transabdominal cerclage (TAC) versus transvaginal cerclage (TVC) in women who had a failed TVC during a previous pregnancy.

Searching
MEDLINE (from 1966 to 2001) and EMBASE (from 1980 to 2001) were searched for English language articles; the search terms were reported. In addition, manual cross-referencing of MEDLINE, the included studies and textbooks was undertaken. No attempts to identify unpublished studies were made.

Study selection
Study designs of evaluations included in the review
With the exception of case reports, all study designs were eligible for inclusion in the review.

Specific interventions included in the review
Studies that compared TAC with TVC in women who had experienced a failed TVC in a previous pregnancy were eligible for inclusion. Failure of previous TVC was defined as a resultant mid-trimester loss or pre-term delivery at less than 34 weeks' gestation. In the included studies, cerclage was placed from 10 to 19 weeks.

Participants included in the review
Pregnant women for whom a previous pregnancy had resulted in a mid-trimester loss or pre-term delivery at less than 34 weeks' gestation, despite having a TVC placed in that pregnancy, were included. Participants who had an emergency cerclage placed at 20 or more weeks of gestation, or who had undergone a cervical amputation, were excluded. The participants in the included studies were aged from 18 to 40 years. The gestational age at the placement of cerclage ranged from 10 to 19 weeks, and the range of previous pregnancies was 1 to 12.

Outcomes assessed in the review
The outcomes of interest were gestational age at delivery after the placement of either a TVC or TAC, neonatal death or morbidity, and complications of surgery. Complications included blood loss requiring transfusion, maternal death, and morbidity due to infections and venous thromboembolism. The outcomes had to be available directly or by calculation. Studies in which it was not possible to separate the data for the specific participants of interest, were excluded.

How were decisions on the relevance of primary studies made?
Two reviewers independently assessed the studies for inclusion and resolved any differences by discussion.

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

Data extraction
Two independent reviewers abstracted the data and resolved any differences by discussion. Data were extracted on neonatal outcomes (weeks' gestation at delivery and perinatal deaths or deliveries at less than 24 weeks' gestation) and maternal outcomes (operative complications and endometritis).

Methods of synthesis
How were the studies combined?
The percentage and 95% confidence interval (CI) of outcomes were calculated for TAC and TVC, and presented narratively.

How were differences between studies investigated?
Differences in outcomes between the treatment groups were not explored.

**Results of the review**
Fourteen observational studies (n=157) were included: 13 case series (12 retrospective studies, 1 prospective study) and one retrospective cohort study. In these studies, 117 women underwent a TAC and 40 women a TVC.

The likelihood of perinatal death or delivery at less than 24 weeks’ gestation was 6.0% (95% CI: 3.8, 8.2) after a TAC and 12.5% (95% CI: 2.7, 22.7) after a TVC. The likelihood of a pre-term delivery between 24 and 28 weeks' gestation was 1.7% (95% CI: 0.7, 4) after a TAC and 2.5% (95% CI: 2.3, 7.3) after a TVC.

The likelihood of operative complications (bleeding requiring transfusion; injury to the bowel, bladder or uterine artery; or complications of anaesthesia) after TAC was 3.4% (95% CI: 0.01, 6.8). There were no serious operative complications after TVC. One case of infection (endometritis) was reported in the TAC group; none were reported in the TVC group.

**Authors' conclusions**
TAC may be associated with a lower risk of perinatal death or delivery at less than 24 weeks' gestation, but it may also be associated with a higher risk of serious operative complications.

**CRD commentary**
The review question was clear in terms of the intervention, participants and outcomes. The search of two databases to identify relevant studies was adequate, but no attempts were made to reduce either language or publication bias. The methods used to select the studies and abstract the data were not described, thus it is not known whether any efforts were made to reduce errors and bias. A validity assessment was not reported and the authors did not attempt to discuss differences between the primary studies; it is therefore difficult to assess the quality of the studies from which the results were derived, and to comment on how this could have impacted upon the results obtained. The number of participants included in the review was small, particularly for women undergoing a TVC. Therefore, the results of the review may not be particularly robust. The authors appropriately acknowledged that caution is needed when interpreting the results of their review, owing to the wide CIs around the point estimates for the outcomes of perinatal death and delivery at less than 24 weeks' gestation after TAC.

**Implications of the review for practice and research**
Practice: The authors did not state any implications for practice.

Research: The authors stated that multicentre randomised controlled trials with sufficient numbers of participants should be undertaken, to provide more reliable and unbiased estimates of the benefits and risks associated with TAC.

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