Cervical stitch (cerclage) for preventing preterm birth in multiple pregnancy

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RHL summary

Key Findings

- The use of cervical cerclage compared with no cerclage for women with multiple pregnancy did not improve outcomes for mother nor baby.
- In the sub-group of women selected on the basis of cervical findings on ultrasound examination, cerclage increased the risk of low birthweight, very low birthweight and respiratory distress syndrome.

Evidence included in this review

The five randomized trials included only 128 women (122 women with twin pregnancies and 6 women with triplet pregnancies). One trial included women with multiple pregnancy only, one included women with multiple pregnancy and history of preterm birth, and three included women with multiple pregnancy and ultrasound diagnoses of cervical changes.

Quality assessment

Included trials varied from average to above average quality, and the numbers of women in each study were small.

Clinical implications

There is no evidence to support the use of cervical cerclage for women with multiple pregnancy, based on the multiple pregnancy alone or on clinically diagnosed cervical changes. For women with cervical changes diagnosed by ultrasound, cerclage appears to be harmful.

Further research

Larger trials are needed to provide more robust evidence, particularly for women with multiple pregnancy and previous preterm birth. Such trials should include long-term follow-up of the children.

Cochrane review
Abstract

Cervical cerclage is a surgical intervention involving placing a stitch around the uterine cervix. The suture material aims to prevent cervical shortening and opening, thereby reducing the risk of preterm birth. The effectiveness and safety of this procedure in multiple gestations remains controversial.

To assess whether the use of a cervical cerclage in multiple gestations, either at high risk of pregnancy loss based on just the multiple gestation (history-indicated cerclage), the ultrasound findings of 'short cervix' (ultrasound-indicated cerclage), or the physical exam changes in the cervix (physical exam-indicated cerclage), improves obstetrical and perinatal outcomes. The primary outcomes assessed were perinatal deaths, serious neonatal morbidity, and perinatal deaths and serious neonatal morbidity.

We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (30 June 2014) and reference lists of retrieved studies.

All randomised controlled trials (RCTs) of cervical cerclage in multiple pregnancies. Quasi-RCTs and RCTs using a cluster-randomised design were eligible for inclusion (but none were identified). Studies using a cross-over design and those presented only as abstracts were not eligible for inclusion.

We included studies comparing cervical cerclage with no cervical cerclage in multiple pregnancies.

Studies comparing cervical stitch versus any other preventative therapy (e.g. progesterone) in multiple pregnancies, and studies involving comparisons between different cerclage protocols (history-indicated versus ultrasound-indicated versus physical exam-indicated cerclage) were also eligible for inclusion but none were identified.

Two review authors independently assessed trials for inclusion and risk of bias. Two review authors extracted data. Data were checked for accuracy.

We included five trials, which in total randomised 1577 women, encompassing both singleton and multiple gestations. After excluding singletons, the final analysis included 128 women, of which 122 women had twin gestations, and six women had triplet gestations. Two trials (n = 73 women) assessed history-indicated cerclage, while three trials (n = 55 women) assessed ultrasound-indicated cerclage. The five trials were judged to be of average to above average quality, with three of the trials at unclear risk regarding selection and detection biases.

Concerning the primary outcomes, when outcomes for cerclage were pooled together for all indications and compared with no cerclage, there was no statistically significant differences in perinatal deaths (19.2% versus 9.5%; risk ratio (RR) 1.74, 95% confidence intervals (CI) 0.92 to 3.28, five trials, n = 262), serious neonatal morbidity (15.8% versus 13.6%; average RR 0.96, 95% CI 0.13 to 7.10, three trials, n = 116), or composite perinatal death and neonatal morbidity (40.4% versus 20.3%; average RR 1.54, 95% CI 0.58 to 4.11, three trials, n = 116).

Among the secondary outcomes, there were no significant differences between the cerclage and the no cerclage groups. To name a few, there were no significant differences among the following: preterm birth less than 34 weeks (average RR 1.16, 95% CI 0.44 to 3.06, four trials, n = 83), preterm birth less than 35 weeks (average RR 1.11, 95% CI 0.58 to 2.14, four trials, n = 83), low birthweight less than 2500 g (average RR 1.10, 95% CI 0.82 to 1.48, four trials, n = 172), very low birthweight less than 1500 g (average RR 1.42,
95% CI 0.52 to 3.85, four trials, n = 172), and respiratory distress syndrome (average RR 1.70, 95% CI 0.15 to 18.77, three trials, n = 116). There were also no significant differences between the cerclage and no cerclage groups when examining caesarean section (elective and emergency) (RR 1.24, 95% CI 0.65 to 2.35, three trials, n = 77) and maternal side-effects (RR 3.92, 95% CI 0.17 to 88.67, one trial, n = 28).

Examining the differences between prespecified subgroups, ultrasound-indicated cerclage was associated with an increased risk of low birthweight (average RR 1.39, 95% CI 1.06 to 1.83, $\tau^2 = 0.01$, $I^2 = 15\%$, three trials, n = 98), very low birthweight (average RR 3.31, 95% CI 1.58 to 6.91, $\tau^2 = 0$, $I^2 = 0\%$, three trials, n = 98), and respiratory distress syndrome (average RR 5.07, 95% CI 1.75 to 14.70, $\tau^2 = 0$, $I^2 = 0\%$, three trials, n = 98). However, given the low number of trials, as well as substantial heterogeneity and subgroup differences, these data must be interpreted cautiously.

No trials reported on long-term infant neurodevelopmental outcomes. There were no physical exam-indicated cerclages available for comparison among the studies included.

This review is based on limited data from five small studies of average to above average quality. For multiple gestations, there is no evidence that cerclage is an effective intervention for preventing preterm births and reducing perinatal deaths or neonatal morbidity.


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