Cervical stitch (cerclage) for preventing pregnancy loss in women

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Cervical cerclage is an invasive procedure with an “intrinsic” risk of pregnancy loss. As there is uncertainty about any benefits of this intervention, it should be performed only in high-risk cases in which there is a cervical factor during the second and third trimester of pregnancy.

RHL Commentary by Huy NVQ

1. EVIDENCE SUMMARY

This Cochrane review (1) was finalized in July 2003. Six trials with a total of 2175 women were included in this review. The search strategy used by authors was comprehensive and data are presented appropriately in illustrations and text.

The review aimed to compare the effectiveness cervical cerclage by any method with no cerclage or with other interventions for preventing miscarriage or preterm labour. However, the available data allowed comparisons of only: (i) elective cerclage versus no cerclage or bed rest; and (ii) cerclage versus no cerclage for short cervix as determined by ultrasound.

In four trials that compared elective cerclage versus no cerclage or bed rest, no overall reduction in total pregnancy loss and early pregnancy loss (less than 24 weeks' gestation) was observed in the women who underwent cerclage [relative risk (RR) 0.86; 95% confidence interval (CI) 0.59–1.25]. There were also no overall significant differences between preterm delivery rates (RR 0.88; 95% CI 0.76–1.03). The largest among the four trials was coordinated by MRC/RCOG (2) and this trial yielded a small reduction in births under 33 weeks of gestation (RR 0.75; 95% CI 0.58–0.98).

No cases of maternal mortality were reported in any of the included trials, but compared with conservative therapy, more women developed infection (defined in the trials as mild pyrexia) after cerclage (6.7% versus 2.6%; RR 2.57; 95% CI 1.42–4.64). Cervical cerclage was also associated with increased use of tocolytic therapy and hospital admissions.

Two other trials examined the role of therapeutic cerclage when ultrasound examination revealed a short cervix. Here again, there was no difference in total pregnancy loss (RR 0.91; 95% CI 0.36–2.27), early pregnancy loss (RR 0.17; 95% CI 0.01–3.3) or preterm delivery before 28 weeks (RR 0.12; 95% CI 0.01–2.19) and 34 weeks (RR 0.7; 95% CI 0.44–1.12). No differences in antepartum haemorrhage rate, use of steroids, caesarean delivery, labour induction, or episodes of 'false labour' were observed.
In conclusion, cervical stitch should not be offered to women at low or medium risk of mid-trimester pregnancy loss, regardless of cervical length. The benefit of cervical cerclage for women who are found by ultrasonography to have a short cervix remains uncertain since the numbers of randomized women in available trials were too small to draw firm conclusions.

Since the publication of this review, several randomized controlled trials (RCT) (3, 4, 5) and one protocol of a planned RCT have been published (6).

Based on results from 23 patients, Althuisius et al. (3) conclude that emergency cerclage, indomethacin, antibiotics, and bed rest reduce the risk of preterm delivery before 34 weeks of gestation and the risk of compound neonatal morbidity in women with cervical incompetence with prolapsed membranes at or beyond a dilated external cervical os.

Berghella et al. (4), in a study on 61 patients, found no difference in any obstetric or neonatal outcomes. A subanalysis of singleton pregnancies with previous preterm birth at <35 weeks of gestation and a short cervix of <25 mm (n = 31 women) also revealed no significant difference in recurrent preterm birth at <35 weeks of gestation (40% vs. 56%; relative risk, 0.52; 95% CI, 0.12–2.17). They conclude that cerclage did not prevent preterm birth in women with a short cervix but their results should be confirmed in larger trials.

In the trial by To et al. (5) involving 253 patients, the authors found that the rates of preterm delivery before 33 weeks of gestation were similar in the intervention (22%) and control groups (26%) (RR 0.84; 95% CI 0.54–1.31; p=0.44), and there were no significant differences in perinatal or maternal morbidity or mortality. Hence, they concluded that insertion of a Shirodkar suture in women with a short cervix detected by ultrasound does not substantially reduce the risk of early preterm delivery. However, routine measurement by ultrasound of cervical length at 22–24 weeks of gestation helps to identify a group at high risk of early preterm birth.

Although data from the study by Althuisius et al. (3) favour the use of “emergency cerclage”, data from the two other trials involving a larger number of patients yielded no clear benefits of cervical cerclage.

2. RELEVANCE TO UNDER-RESOURCED SETTINGS

2.1. Magnitude of the problem

Cervical incompetence causes pregnancy loss during the late stage of pregnancy, leading to emotional and physical distress for the mother and her family. There is little worldwide data on the incidence of preterm birth, but estimates range from 5% in some developed countries to 25% in some developing countries (6). Incidences of preterm birth have been stable at around 5%–10% for the last 30 years in most developed countries (6). The prevalence of cervical incompetence varies widely between settings and countries, partly due to variations and difficulties in diagnosis and registration of cervical incompetence. At Hue Central Hospital, a tertiary level hospital in central Viet Nam, the incidence of preterm birth is 8%; 40% of these cases are due to cervical factor (unpublished internal department report, 2006). The consequences of preterm delivery are worse in developing countries owing to the lack of effective neonatal health-care facilities.

2.2. Applicability of the results

All the studies reviewed were conducted in developed countries. Since the physiology of labour, especially the cervical shortening and dilatation as well as the commonly used techniques of cervical cerclage are similar in women, conclusions from the studies are also applicable to developing countries. Based on the conclusions of this review, health-care facilities in developing countries should consider this intervention only on a case-by-case basis.
2.3. Implementation of the intervention

Cervical cerclage is an invasive procedure, which requires hospitalization and anaesthesia and is associated with its “intrinsic” risk of pregnancy loss. Due to these factors and the uncertainty of any benefits of the intervention, cervical cerclage should be performed only in high-risk cases of pregnancy loss due to a cervical factor arising during the second and third trimester. The procedure should be offered at secondary or tertiary level of care, where ultrasound assessment of the cervix and anaesthesia are available. If cervical cerclage fails, there should be a good neonatal intensive care unit available for management of very premature newborns.

3. RESEARCH

Further trials on the effectiveness of cervical cerclage to prevent pregnancy loss are needed. Rigorous randomized controlled trials should be conducted to investigate the effectiveness and safety of cervical cerclage, performed by the vaginal and the transabdominal route. Research should also focuses on the effect on the family unit of the procedure – i.e. the psychological effects on the woman herself and/or her family members, as well as associated interventions, e.g. bed rest, caesarean section and on long-term paediatric outcomes.

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References