Closure versus non-closure of the peritoneum at caesarean section

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RHL Summary

Key findings

- Postoperative adhesions were similar in four small trials of non-closure of both layers, and increased in one small trial of visceral layer non-closure (high risk of bias).
- Non-suturing of one or both peritoneal layers reduced operative time by 5-6 minutes
- Duration of hospital stay was slightly reduced in two comparison groups, as well as for non-closure of parietal peritoneum only.
- Chronic pelvic or abdominal pain was reduced for non-closure of both layers and the parietal layer.
- Fever/infectious morbidity and endometritis were similar for all 3 comparisons, while wound infection was similar for two but reduced for visceral layer non-closure
- Posoperative pain was reduced for parietal layer non-closure
- Urinary symptoms were reduced for visceral layer non-closure

Evidence included in this review

Twenty-one randomized trials involving 17,276 participants were included.

Quality assessment

Across trials there was a variable risk of bias, with heterogeneity for some outcomes, addressed through random effects analysis.

Clinical implications

Caesarean section is one of the most commonly performed major operations worldwide. Current evidence does not justify the additional use of time and suture material to close either peritoneal layer. Most outcomes were either similar between groups or favoured non-closure, with the exception of one small trial at high risk of bias which found increased adhesion formation with visceral non-closure.

Further research

More data on long-term outcomes may be forthcoming from large collaborative studies. Any further major studies on caesarean section techniques should focus instead on the more critical question of myometrial repair method and risk of uterine rupture.

Abstract

Caesarean section is a very common surgical procedure worldwide. Suturing the peritoneal layers at caesarean section may or may not confer benefit, hence the need to evaluate whether this step should be omitted or routinely performed.

The objective of this review was to assess the effects of non-closure as an alternative to closure of the peritoneum at caesarean section on intraoperative and immediate- and long-term postoperative outcomes.

We searched the Cochrane Pregnancy and Childbirth Group's Trials Register (1 November 2013). Randomised controlled trials comparing leaving the visceral or parietal peritoneum, or both, unsutured at caesarean section with a technique which involves suturing the peritoneum in women undergoing elective or emergency caesarean section.

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

A total of 29 trials were included in this review and 21 trials (17,276 women) provided data that could be included in an analysis. The quality of the trials was variable.

1. Non-closure of visceral and parietal peritoneum versus closure of both parietal layers

Sixteen trials involving 15,480 women, were included and analysed, when both parietal peritoneum was left unclosed versus when both peritoneal surfaces were closed. Postoperative adhesion formation was assessed in only four trials with 282 women, and no difference was found between groups (risk ratio (RR) 0.99, 95% confidence interval (CI) 0.76 to 1.29). There was significant reduction in the operative time (mean difference (MD) -5.81 minutes, 95% CI -7.68 to -3.93). The duration of hospital stay in a total of 13 trials involving 14,906 women, was also reduced (MD -0.26, 95% CI -0.47 to -0.05) days. In a trial involving 112 women, reduced chronic pelvic pain was found in the peritoneal non-closure group.

2. Non-closure of visceral peritoneum only versus closure of both peritoneal surfaces

Three trials involving 889 women were analysed. There was an increase in adhesion formation (two trials involving 157 women, RR 2.49, 95% CI 1.49 to 4.16) which was limited to one trial with high risk of bias. There was reduction in operative time, postoperative days in hospital and wound infection. There was no significant reduction in postoperative pyrexia.
3. Non-closure of parietal peritoneum only versus closure of both peritoneal layers
The two identified trials involved 573 women. Neither study reported on postoperative adhesion formation. There was reduction in operative time and postoperative pain with no difference in the incidence of postoperative pyrexia, endometritis, postoperative duration of hospital stay and wound infection. In only one study, postoperative day one wound pain assessed by the numerical rating scale, (MD -1.60, 95% CI -1.97 to -1.23) and chronic abdominal pain assessed by the visual analogue score (MD -1.10, 95% CI -1.39 to -0.81) was reduced in the non-closure group.

4. Non-closure versus closure of visceral peritoneum when parietal peritoneum is closed.
There was reduction in all the major urinary symptoms of frequency, urgency and stress incontinence when the visceral peritoneum is left unsutured.

There was a reduction in operative time across all the subgroups. There was also a reduction in the period of hospitalisation post-caesarean section except in the subgroup where parietal peritoneum only was not sutured where there was no difference in the period of hospitalisation. The evidence on adhesion formation was limited and inconsistent. There is currently insufficient evidence of benefit to justify the additional time and use of suture material necessary for peritoneal closure. More robust evidence on long-term pain, adhesion formation and infertility is needed.

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