To close or not to close? A systematic review and a meta-analysis of peritoneal non-closure and adhesion formation after caesarean section

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CRD summary
The review compared the safety of closure versus non-closure of the peritoneum during repeat caesarean section in terms of adhesion formation, concluding there was some evidence to suggest that non-closure was associated with more adhesion formation than closure. Although the authors’ conclusions were cautious, the review had numerous flaws, suggesting that the conclusions should not be considered reliable.

Authors' objectives
To compare the safety of closure versus non-closure of the peritoneum during caesarean section in terms of adhesion formation.

Searching
MEDLINE, EMBASE, the Cochrane Central Controlled Trials Register (CENTRAL) and the Cochrane Pregnancy and Childbirth Group Trials Register were searched, between 1980 and October 2008, for studies in any language. Search terms were not reported. Reference lists of relevant studies were also searched.

Study selection
Prospective studies that compared peritoneal closure with non-closure during a repeat caesarean section in terms of adhesion formation were eligible for inclusion. Studies had to use an adhesion scoring system, but not use anti-adhesion agents during the primary caesarean section. Studies also had to exclude patients who had adhesions in the primary caesarean section (or interim surgeries afterwards).

One included study compared parietal peritoneal closure alone, peritoneal non-closure, and both parietal and visceral peritoneal closure.

The authors did not state how many reviewers selected studies for inclusion.

Assessment of study quality
The authors did not assess study quality.

Data extraction
Data were extracted in order to calculate odds ratios (OR) and 95% confidence intervals (CI).

The authors did not state how many reviewers extracted data.

Methods of synthesis
Meta-analyses were performed to generate pooled odds ratios (method unspecified). Heterogeneity was assessed using the $\chi^2$ test.

Results of the review
Three studies (n=249 women) were included in the review; two randomised controlled trials (RCTs) and an observational study. Follow-up periods ranged from five to 16 years.

Non-closure of the peritoneum resulted in a significantly greater chance of adhesion formation (OR 2.60, 95% CI 1.48 to 4.56; three studies); the odds increased when unspecified confounding factors in the observational study were adjusted for (OR 4.23, 95% CI 2.06 to 8.69).
Authors' conclusions
There was some evidence to suggest that non-closure of the peritoneum after caesarean section was associated with more adhesion formation compared with closure of the peritoneum.

CRD commentary
The review addressed a clear question, supported by appropriate inclusion criteria. Four databases were searched to identify studies in any language, but it was unclear whether unpublished studies were specifically sought, so some relevant trials may have been missed. The use of methods to minimise the risk of reviewer error and bias (such as independent duplicate processes) was not reported.

No assessment of study quality was made, so it was not possible to evaluate the reliability of the primary studies, or the review process. The decision to pool RCT data with observational data was questionable; the type of model used was not stated. The results of heterogeneity assessments were not presented. Few study details were provided relating to the populations studied, which made it difficult to assess whether there was any clinical heterogeneity.

Although the authors' conclusions were cautious, the review had numerous flaws, suggesting the conclusions should not be considered as being reliable.

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

Research: The authors stated a need for further RCTs with standardised methodologies, and for studies evaluating the impact of adhesions in caesarean section on foetal morbidity and mortality.

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This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.