Omentoplasty in the prevention of anastomotic leakage after colorectal resection: a meta-analysis
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CRD summary
This well-conducted review concluded that there was insufficient evidence to determine whether omentoplasty should be used to reduce anastomotic leakage after colorectal resection. This conclusion is likely to be reliable.

Authors' objectives
To determine whether omentoplasty after colorectal anastomosis can reduce anastomotic leakage.

Searching
PubMed, EMBASE, Cochrane Central Register of Clinical Trials and the Chinese Biomedicine Literature Database were searched from inception to June 2008. Search terms were reported. No language restrictions were applied. Reference lists of selected studies were screened.

Study selection
Randomised controlled trials (RCTs) that compared omentoplasty with no omentoplasty in patients undergoing colorectal surgery, with large bowel anastomosis in any segment of the colon or rectum, were eligible for inclusion. Primary outcomes considered by the review were overall anastomotic leakage, radiological anastomotic leakage, clinical anastomotic leakage and death. Secondary outcomes were repeat operation, wound disruption, early wound abscess, generalised or localised peritonitis, anastomotic structure, extra-abdominal complication, and length of hospitalisation.

Patients in the included trials had carcinoma, sigmoid diverticular disease and miscellaneous conditions. The site of the anastomosis was colonic, supraperitoneal rectum, infraperitoneal rectum or anus. The mean age of participants in the included studies ranged from 61 to 66 years, and the proportion of men was 49% overall.

Two reviewers independently selected studies for inclusion. Disagreement was resolved through discussion with others.

Assessment of study quality
Study quality was assessed according to the methods recommended by Cochrane (2006). Criteria assessed included randomisation, allocation concealment, blinding, and withdrawals/loss to follow-up.

Two reviewers independently assessed study quality. Disagreement was resolved through discussion with others.

Data extraction
Relative risks were calculated for dichotomous outcomes and mean differences were calculated for continuous outcomes. Study authors were contacted for further details where required.

Two reviewers independently extracted data from the included studies. Disagreement was resolved through discussion with others.

Methods of synthesis
Pooled relative risks (RRs) and weighted mean differences together with 95% confidence intervals (CIs) were estimated. Fixed-effect models were used in the absence of heterogeneity; if heterogeneity was present then random-effects models were used. Heterogeneity was assessed using the $\chi^2$ and $I^2$ statistics.

Results of the review
Three RCTs were included (n=943 patients). All the trials were considered to have adequate randomisation, allocation
of concealment was unclear, blinding was not used in one trial and was unclear in the others; all trials scored "no" for withdrawals/loss to follow-up.

Clinical anastomotic leakage was reduced among patients who received omentoplasty compared to those that did not (RR 0.36, 95% CI 0.16 to 0.78) but there was no difference in radiological anastomotic leakage (RR 0.76, 95% CI 0.41 to 1.40) or in overall anastomotic leakage between the two treatment groups (RR 0.51, 95% CI 0.23 to 1.05). Mortality was assessed in two trials and was similar for those who did and did not receive omentoplasty (RR 1.01, 95% CI 0.55 to 1.86).

Most secondary outcomes were similar across treatment groups, with the exception of length of hospitalisation: patients who received omentoplasty spent an average of 6 days less (95% CI 4.6 to 7.4) in hospital compared to those who did not, but this was only assessed in one RCT.

There was little evidence of heterogeneity for any of the outcomes (p>0.10, I² ranged from 0 to 52%).

Authors' conclusions
There was insufficient evidence to determine whether omentoplasty should be used to reduce anastomotic leakage after colorectal resection.

CRD commentary
The review addressed a focused question supported by clearly defined inclusion criteria. The literature search for published studies was adequate, but no specific attempts were made to include unpublished data, so there is a possibility of publication bias. No language restrictions were applied, minimising the risk of language bias. Appropriate steps were taken to minimise bias and errors at all stages of the review process. Trial quality was assessed using appropriate criteria. As all trials scored almost identically on the quality assessment, it was not possible to incorporate quality into the analysis. Methods of analysis were appropriate. Heterogeneity was formally assessed. Results were clearly reported. The authors’ cautious conclusion is supported by the data presented and are likely to be reliable.

Implications of the review for practice and research
Practice: The authors stated that there is insufficient evidence to determine whether omentoplasty should be used to reduce anastomotic leakage after colorectal resection, so the decision remains a matter for surgical judgement.

Research: The authors stated that there is a need for multicentre, well-designed trials in this area.

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