Safety of laparoscopy vs laparotomy in the surgical staging of endometrial cancer: a systematic review and metaanalysis of randomized controlled trials

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CRD summary
The authors' stated that laparoscopy and abdominal surgery (laparotomy) for endometrial cancer were similar in terms of intraoperative complications but laparoscopy had fewer postoperative complications. These conclusions were based on a small number of poorly described studies and a synthesis that indicated considerable unexplained variation. The results should be considered tentative rather than conclusive.

Authors' objectives
To compare the safety of the laparoscopic versus abdominal approach to staging endometrial cancer.

Searching
MEDLINE, Web of Science and clinical trials registries were searched until August 2011 with no language limitations. Bibliographies, reference lists and expert opinion articles were checked for additional studies. Search terms were reported.

Study selection
Randomised controlled trials (RCTs) that compared laparoscopic and abdominal surgery in women with a histological diagnosis of endometrial cancer were eligible for inclusion. The primary outcomes of interest were rates of intraoperative and postoperative complications.

All of the trials included women with stage I endometrial cancer; two trials also included stages IIa and II-III. Surgical procedures included laparoscopically assisted vaginal hysterectomy, totally laparoscopic hysterectomy and laparoscopic/abdominal radical hysterectomy. Pelvic and para-aortic lymphadenectomy rates varied. Reported outcomes included intraoperative complications, postoperative complications, operative time, blood loss and pelvic/para-aortic node yield.

Two independent reviewers screened studies for inclusion. Any disagreements were resolved by discussion or arbitration.

Assessment of study quality
Methodological quality was assessed using the Cochrane Risk of Bias tool for five key areas of bias and an additional item. Items were rated as adequate, inadequate or unclear. Ratings for each study were reported in a table.

It was unclear how many reviewers performed these assessments.

Data extraction
Basic study characteristics were extracted along with all reported surgical endpoints. Treatment effects were extracted on an intention-to-treat basis or recalculated as such. Per protocol results were extracted or calculated. Authors were contacted for additional information where necessary. Complexity of surgical procedures was defined as low for hysterectomy alone, medium for pelvic lymphadenectomy plus hysterectomy and high for pelvic and para-aortic lymphadenectomy plus hysterectomy.

It was unclear how many reviewers extracted these data.

Methods of synthesis
The reviewers reported using a Mantel-Haenszel model to calculate the summary risk ratios for dichotomous data and weighted mean differences (WMD) for continuous data, each with 95% confidence intervals (CI). However, it appeared from the figures in the paper that odds ratios (OR) were used rather than risk ratios so odds ratios are reported below.
Cochran’s Q test was used to assess heterogeneity and the p-value was set at 0.05 or higher to represent homogeneity. Heterogeneous data were analysed using a random-effects model and homogeneous data with a fixed-effect model. The effects of publication year and complexity of surgical procedure were tested using Spearman’s rank correlation.

Results of the review
Eight RCTs were included in the review (3,752 participants: 2,324 received laparoscopic surgery and 1,401 received abdominal surgery). Three trials were considered to have unclear sequence generation and allocation concealment, four trials were not blinded and two trials were rated as unclear. Risk of selective outcome reporting bias was rated as unclear for three trials.

No significant differences were observed in the odds ratio for intraoperative complications between laparoscopy and laparotomy in seven trials (no significant heterogeneity).

There were significantly fewer postoperative complications in laparoscopy patients compared with laparotomy patient (OR 0.71, 95% CI 0.63 to 0.79; eight trials). Significant heterogeneity was reported for this analysis (p=0.007).

Six trials reported on operation time and blood loss. Laparoscopic surgery took significantly longer than laparotomy (WMD 51.46, 95% CI 46.56 to 58.36; significant heterogeneity) but laparoscopic patients lost significantly less blood (WMD 17.82, 95% CI 20.86 to 14.79; significant heterogeneity). The units of time and blood loss were not reported.

No significant differences in pelvic (seven trials) or para-aortic (five trials) node yields were reported and no significant heterogeneity was noted in either analysis. No significant relationships with any of the reported endpoints were found for year of publication and complexity of surgery.

Authors’ conclusions
The laparoscopic approach for surgical staging of endometrial cancer was similar in terms of intraoperative complications but resulted in fewer postoperative complications in comparison with abdominal surgery (laparotomy).

CRD commentary
This review addressed a clear question with appropriate inclusion criteria. The literature searches were adequate but not comprehensive and it was unclear whether reviewers sought to locate unpublished data. The review processes were partly described such that reviewer error or bias seemed unlikely to have influenced the results.

Included trials were assessed for methodological quality. Syntheses were performed and although the text described using risk ratios but the forest plots reported odds ratios it seems unlikely that this would affect the direction of the results. It was difficult to assess the degree of clinical homogeneity between the trials due to a lack of study details reported in the paper. Several analyses were significantly heterogeneous but the impact on the reliability of the results was not further explored. One trial appeared to dominate the results.

The authors’ conclusions broadly reflect the evidence as presented but lack of detail on how outcomes were defined made it difficult to assess trial comparability and the appropriateness of meta-analysis, which indicated heterogeneity in several areas. The results should be considered as tentative rather than conclusive.

Implications of the review for practice and research
Practice: The authors stated that laparoscopic surgery should be considered as the gold standard procedure for staging endometrial cancer and this approach should be incorporated into international guidelines and recommendations.

Research: The authors made no recommendations for future research.

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Not reported.

Bibliographic details
Record Status
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.