Total abdominal hysterectomy versus total laparoscopic hysterectomy for benign disease: a meta-analysis

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CRD summary
This review concluded that total laparoscopic hysterectomy appeared to offer benefits to women requiring total hysterectomy for benign indications when compared with total abdominal hysterectomy, particularly with regard to minor complications, blood loss and hospital stay. These conclusions were based on poor quality small trials and secondary analyses, so the results may not be reliable.

Authors' objectives
To assess whether total laparoscopic hysterectomy is associated with more favourable outcomes than total abdominal hysterectomy when performed for benign conditions.

Searching
MEDLINE, Current Controlled Trials Register and the Cochrane Library were searched between 1989 and August 2007. Search terms were reported. Only English-language publications were considered for inclusion.

Study selection
Prospective randomised controlled trials (RCTs) comparing total abdominal hysterectomy with total laparoscopic hysterectomy for non-malignant surgical indications were eligible for inclusion. The main outcome of interest was the incidence of perioperative complications.

No significant baseline differences in patient characteristics were reported and no further details were reported. Most of the patients received laparoscopic vaginal vault closure, only one trial used vault suspension. The primary outcome was divided into major (visceral damage, vaginal vault dehiscence or other life-threatening events) and minor (pelvic haematoma, febrile morbidity, blood transfusion requirement, etc.) perioperative complications. Secondary outcomes of operative time, estimated blood loss, hospital stay and postoperative pain scores were provided. All three trials used different methods to estimate blood loss and postoperative fever.

The authors did not report how many reviewers performed the study selection.

Assessment of study quality
Included trials were assessed using a validated 5-point scale (Jadad) which included items on inclusion criteria, randomisation, blinding and power calculations; the highest quality score was 5. Results were presented as individual items as well as a summary score.

The authors did not report how many reviewers performed the validity assessment.

Data extraction
Data were extracted to derive odds ratios for dichotomous outcomes and mean differences for continuous outcomes.

The authors did not report how many reviewers performed the data extraction.

Methods of synthesis
A random-effects model was used to pool the trials and calculate summary odds ratios (OR) and associated 95% confidence intervals (CI) for the categorical outcomes of interest. Continuous outcomes were pooled as weighted mean differences (WMD). Cochran's Q-test was used to assess heterogeneity and bias assessed by visual inspection of funnel plots.
**Results of the review**

Three RCTs were included in the review (n=201 patients, range 40 to 102). The quality score was 2 points in one trial and 1 point in two trials. One trial reported details of the randomisation process and power calculation. No trials used blinding.

**Primary outcomes** (three RCTs): Patients receiving total laparoscopic hysterectomy were significantly less likely to experience a perioperative complication (OR 0.19, 95% CI 0.07 to 0.50). When considered as minor versus major complications, there was no difference in major complication rates between total laparoscopic hysterectomy and total abdominal hysterectomy, but significantly fewer minor complications for total laparoscopic hysterectomy patients (OR 0.12, 95% CI 0.04 to 0.35). There was a non-significant trend towards decreased haematoma in the total laparoscopic hysterectomy patients. There were no differences between total laparoscopic hysterectomy and total abdominal hysterectomy for blood transfusion or febrile morbidity rates. Statistical heterogeneity was not present in any of the primary outcome analyses.

**Secondary outcomes**: Operative time (three RCTs) was significantly longer for total laparoscopic hysterectomy patients (WMD 22 minutes, 95% CI 5 to 39). Blood loss (two RCTs) was significantly lower in the total laparoscopic hysterectomy groups (WMD -183 mL, 95% CI -346 to -21). There was a non-significant trend toward reduced duration of hospital stay in favour of total laparoscopic hysterectomy (two RCTs). Significant heterogeneity was present for all analyses of secondary outcomes.

**Authors’ conclusions**

Total laparoscopic hysterectomy appeared to offer benefits to women requiring total hysterectomy for benign indications when compared with total abdominal hysterectomy, particularly with regard to minor complications, blood loss and hospital stay.

**CRD commentary**

This review addressed a clear question, with brief inclusion and exclusion criteria. The searches covered some of the main databases and one source of grey literature, but publication bias cannot be excluded. Only English-language publications were considered, so language bias may have influenced this review. Overall, the review processes (study selection, quality assessment and data extraction) were not clearly described, which made it difficult to rule out reviewer error and bias. Methodological quality appeared to be assessed appropriately and reported clearly, but little data on the baseline characteristics for each trial was presented. All included trials appear to have been of poor quality. The analyses appear to have been appropriate. The results were discussed in the light of the poor quality primary data. Although the authors' conclusions largely follow from the small number of poor trials reported, undue emphasis was placed on two secondary analyses that reported significant levels of heterogeneity (blood loss and hospital stay), so they may not be reliable.

**Implications of the review for practice and research**

**Practice**: The authors did not state any implications for practice.

**Research**: The authors suggest that larger studies are required to assess the impact of total laparoscopic hysterectomy on major complications and long-term clinical outcomes.

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**Bibliographic details**


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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.