Laparoscopic management of endometriosis: comprehensive review of best evidence

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CRD summary
The authors found that laparoscopic treatment of endometriosis reduced pain and improved fertility. Co-interventions that may help (in appropriate circumstances) included laparoscopic presacral neurectomy, pre-operative and/or postoperative hormonal suppression, excisional cystectomy with mesna and/or initial circular excision and anti-adhesive barriers. Due to methodological problems in the review, particularly the failure to assess study quality, the conclusions should be regarded cautiously.

Authors' objectives
To assess the effectiveness of laparoscopic techniques for pain and/or fertility problems associated with endometriosis.

Searching
The Cochrane Library and MEDLINE were searched from 1966. Search terms were reported. The search was limited to articles in English.

Study selection
Randomised controlled trials (RCTs) of treatment of endometriosis by laparoscopic surgery with or without medical therapy or an adhesion prevention technique were eligible for inclusion. The endometriosis was required to be diagnosed by laparoscopy or histology. Trials that included laparotomy were excluded.

Participants in the included studies were women with pain, infertility, cysts and/or adhesions associated with stage I to IV endometriosis (using American Society for Reproductive Medicine (r-ASRM) criteria). Various laparoscopic interventions were used (for example, excision, ablation, cystectomy, fenestration and coagulation, cyst stripping and adhesion barriers) with or without pre- or post-operative medical treatment (for example, gonadotropin-releasing hormone (GnRH) antagonist, nafarelin, medroxyprogesterone acetate, danazol and levonorgestrel intrauterine system). Interventions were compared with each other and/or with diagnostic surgery alone, placebo, or no treatment.

Outcomes reported in the review included relief of pelvic pain and endometriosis symptoms, pregnancy rates and operative outcomes (for example, ease of surgical procedures, operating time and blood loss). Measures used included visual analogue scales, r-ASRM scales and symptom scores. Duration of follow up ranged from two months to three years.

The authors stated neither how the papers were selected for the review nor how many reviewers performed the selection.

Assessment of study quality
The authors did not state that they assessed validity.

Data extraction
Descriptive data were extracted from individual studies. Findings reported as statistically significant in the primary studies (p<0.05) were deemed clinically significant; attempts were made to check that studies that reported non-significant results had a power of at least 70% to detect such a difference. Numbers needed to treat were calculated for some findings. It was reported that the trials were reviewed by all authors, but it was not stated clearly how the data were extracted for the review and how many reviewers performed the data extraction.

Methods of synthesis
Studies were combined in a narrative synthesis organised by indications for surgery and/or by interventions.

Results of the review
Thirty-four RCTs were included in the review (n=approximately 3,360, range 26 to 402).
Laparoscopic treatment: Laparoscopic treatment significantly improved pain compared to diagnostic laparoscopy alone (two RCTs, n=102). No statistically significant difference was found between laparoscopic excision and ablation (one RCT, n=141) or between laparoscopic conservative surgery with laparoscopic uterosacral nerve ablation and conservative surgery alone (three RCTs, n=298). Adjunctive laparoscopic presacral neurectomy reduced pain significantly more than conservative surgery alone in women with midline pain (one RCT, n=141). Laparoscopic treatment significantly improved pregnancy rates in infertile women compared to diagnostic laparoscopy in one RCT (n=341) with an number needed to treat of eight, but not in a second RCT (n=111).

Laparoscopic treatment plus medical therapy: A preoperative GnRH antagonist significantly improved r-ASRM scores compared to conservative surgery alone (one RCT, n=80). When conservative surgery plus postoperative medication was compared with surgery alone or with differing medications (13 RCTs, n=1,217) there was no statistically significant difference in pregnancy rates; findings for pain outcomes were inconsistent. There was no statistically significant difference in pain scores between pre-operative versus postoperative GnRH agonist in conjunction with conservative surgery, but r-ASRM scores were significantly improved in the pre-operative group (two RCTs, n=81). An LNG-IUS (levonorgestrel Intra-Uterine System) after conservative surgery significantly improved pain, with an number needed to treat of three (one RCT, n=40).

Other findings were reported in the review.

Authors' conclusions
Laparoscopic treatment of endometriosis reduced pain and improved fertility. Co-interventions that may help (in appropriate circumstances, described in the review) included laparoscopic presacral neurectomy, pre-operative and/or postoperative hormonal suppression, excisional cystectomy with mesna and/or initial circular excision and anti-adhesive barriers.

CRD commentary
The objectives of the review were clear, but the failure to specify primary outcomes meant that the review reported a large number of findings and lacked focus. Relevant sources were searched for studies, but no end date was specified for the search. It did not appear that specific attempts were made to retrieve unpublished studies and the search was limited by language, so it was possible that studies were missed. No specific steps were reported to minimise the risk of reviewer bias and error by having more than one reviewer independently make decisions on study selection and data extraction, and it did not appear that study validity was systematically assessed. Few details were reported about the primary studies. These factors made it difficult to evaluate the reliability or applicability of the review findings. Due to methodological problems in the review, particularly the failure to assess study quality, the conclusions should be regarded cautiously.

Implications of the review for practice and research
Practice: The authors stated that laparoscopic surgery should be considered in patients with pain suspicious for endometriosis.

Research: The authors stated that RCTs were needed to compare laparoscopic and medical management of endometriosis and to compare excision or ablation of lesions. RCTs should be well-powered placebo-controlled and double-blinded studies with at least one year's follow up, and should report outcomes such as visual analogue pain scores and quality of life measures. A histologically confirmed diagnosis of endometriosis was preferable.

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