Coagulation or excision of ovarian endometriomas?

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CRD summary
This review compared coagulation or vapourisation with excision or cystectomy for the treatment of ovarian endometriomas. The authors concluded that coagulation appears to be associated with a significant increase in cyst recurrence. The studies were generally of a poor quality, thus the evidence is weak.

Authors' objectives
To compare the effects of coagulation or vapourisation with excision or cystectomy on the recurrence rate of ovarian endometriomas.

Searching
MEDLINE and EMBASE were searched from 1990 to 2000 for studies published in the English language; the search terms were stated. The reference lists in identified studies were screened, and gynaecological and surgical textbooks that had been published in the last 12 years were consulted. Proceedings of scientific conferences were excluded.

Study selection
Comparative studies were eligible for inclusion if they reported the number of patients treated at the time of first surgery. The included studies were randomised controlled trials (RCTs), quasi-RCTs and retrospective studies.

Specific interventions included in the review
Studies of conservative surgical treatment were eligible for inclusion if the type of surgical treatment was clearly described. The included studies compared carbon dioxide laser vapourisation or coagulation at laparoscopy with excision at laparoscopy or laparotomy. In one study, danazol was used post-operatively.

Participants included in the review
Studies of women with ovarian endometriomas were eligible for inclusion. In the included studies, the mean age of the women ranged from 29 to 32 years and the mean cyst diameter at first surgery was 4 to 5 cm. All of the included studies were of women with stage III or IV endometriomas according to the revised American Fertility Society classification.

Outcomes assessed in the review
Studies that reported the number of patients with recurrent cysts were eligible for inclusion. In the included studies, recurrent endometrioma were diagnosed using repeat surgery, ultrasonography or a combination of the two methods. The review also assessed post-operative reproductive performance. The duration of follow-up ranged from 1 to 3 years.

How were decisions on the relevance of primary studies made?
Two reviewers independently selected the studies and resolved any disagreements by consensus.

Assessment of study quality
Validity was not formally assessed, although some methodological limitations of the included studies were mentioned in the 'Discussion' section of the paper.

Data extraction
Two reviewers, who were not blinded, independently extracted the data onto standardised form and resolved any
disagreements through discussion. The extracted data included study design, surgical treatment, concomitant treatment and methods used to diagnose recurrent endometrioma. In one study with four treatment arms, data were only extracted for patients undergoing complete excision or laser ablation. In another study in which laparoscopic coagulation was compared with excision at laparotomy or laparoscopy, the data were combined for the two excision treatment arms. For each study, the data were entered into 2x2 tables and odds ratios (ORs) and 95% confidence intervals (CIs) were calculated.

**Methods of synthesis**

How were the studies combined?
The studies were combined using a meta-analysis. Pooled ORs and 95% CIs were calculated using the Mantel-Haenszel fixed-effect model.

How were differences between studies investigated?
Statistical heterogeneity was assessed using the Breslow-Day method.

**Results of the review**

Four studies (507 patients) were included: one RCT (64 patients), one quasi-RCT (56 patients) and two retrospective studies (387 patients).

Coagulation or laser vapourisation significantly increased the risk of cyst recurrence compared with excision (OR 3.09, 95% CI: 1.78, 5.36). No significant statistical heterogeneity was detected (P=0.54).

The results for post-operative reproductive performance differed in the two studies reporting this outcome. One retrospective study (156 patients) found that coagulation increased cumulative pregnancy rates at 36 months (60% versus 47%) and reduced time to conceive (1.4 versus 2.3 years) compared with cystectomy. One RCT (64 patients) found that cystectomy increased the cumulative pregnancy rate at 24 months compared with coagulation (67% of 9 women versus 24% of 17 women with coagulation).

Methodological limitations were discussed within the paper. These referred to the lack of specific inclusion criteria, lack of clear reporting of drop-outs and lack of intention-to-treat analysis.

**Authors’ conclusions**

Coagulation appears to be associated with a significant increase in cyst recurrence.

**CRD commentary**

The review question was clear in terms of the study design, intervention, participants and outcomes. Several relevant sources were searched and the search terms were stated. No attempts were made to minimise language or publication bias. Two reviewers independently selected the studies and extracted the data, which reduces the potential for bias and errors. Validity was not formally assessed.

The data were combined in a meta-analysis, but it is questionable whether the synthesis of studies with different designs is appropriate. Statistical heterogeneity was assessed, but the influence of study design on the results was not explored. The studies were generally of a poor quality, thus the evidence is weak. However, the evidence presented may represent the best-quality evidence currently available.

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

Practice: The authors stated that excision of the entire cyst wall may be regarded as the standard treatment for endometriomas, apart from extremely small cysts.

Research: The authors stated that further studies are required to evaluate the effect of alternative surgical treatments on lesion recurrence and post-operative pregnancy rates.
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