Is ovarian surgery effective for androgenic symptoms of polycystic ovarian syndrome?

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CRD summary
This review concluded that although ovarian surgery may decrease androgen levels in some women with polycystic ovarian syndrome, further research is required to establish whether there is any improvement in hirsutism or acne. The poorly reported review had several methodological weaknesses, therefore it was difficult to assess the reliability of these findings.

Authors' objectives
To assess the effectiveness of ovarian surgery in the treatment of non-infertility symptoms of polycystic ovarian syndrome (PCOS).

Searching
MEDLINE was searched for articles published from 1966 to 2002; the search terms were reported. In addition, the bibliographies of relevant articles were checked. Language restrictions were not used, although eight potentially relevant non-English language studies had not been translated and were therefore excluded.

Study selection

Study designs of evaluations included in the review
No inclusion criteria for the study design were specified.

Specific interventions included in the review
Studies of any ovarian surgical intervention were eligible for inclusion. The included studies assessed unilateral oophorectomy, ovarian wedge resection and ovarian drilling. The studies with a control group used a range of comparators, including intranasal luteinising hormone releasing hormone, laparoscopic ovarian electrocautery, gonadotrophin injections and diagnostic laparoscopy.

Participants included in the review
Women with PCOS were eligible for inclusion. The majority of participants in the included studies had clomiphene-resistant PCOS.

Outcomes assessed in the review
Studies assessing hirsutism, acne or serum androgen levels were eligible for inclusion. Details of how these were assessed were not provided.

How were decisions on the relevance of primary studies made?
The authors did not state how the papers were selected for the review, or how many reviewers performed the selection.

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

Data extraction
The authors did not state how the data were extracted for the review, or how many reviewers performed the data extraction. Data on the study design, participants, intervention and outcomes were extracted.

Methods of synthesis
How were the studies combined?
A narrative synthesis of the studies was undertaken.

How were differences between studies investigated?
The studies were grouped according to the outcome assessed.

**Results of the review**
Nineteen studies (n=943) were included: 3 randomised controlled trials (RCTs; n=70), 2 non-randomised controlled studies (n=14) and 14 observational studies (n=859).

**Hirsutism** (5 studies including 1 RCT). The RCT found no changes in hirsutism, as measured by the Ferriman Galway score, following ovarian drilling. One of the remaining 4 studies reported regression of hirsutism after unilateral oophorectomy.

**Acne** (3 studies including 1 RCT).
The RCT found no changes in the participants' acne following ovarian diathermy. The 2 observational studies reported an improvement in acne.

**Serum androgen levels** (17 studies including 3 RCTs).
The 3 RCTs reported no differences in serum androgen levels between laparoscopic ovarian electrocautery and intranasal luteinising hormone-releasing hormone, between unilateral and bilateral laparoscopic ovarian diathermy, and following ovarian diathermy. Apart from one study of diathermy, the remaining studies reported a reduction in at least one of the serum androgen levels post surgery, though there was no consensus over the duration of the decrease.

**Authors' conclusions**
There was evidence that ovarian surgery might decrease androgen levels in some women with PCOS, but the effects on hirsutism and acne were less clear.

**CRD commentary**
The review addressed a reasonably clear research question using broadly defined inclusion criteria for the intervention, participants and outcome of interest. Only one database was searched and specific attempts to locate unpublished studies were not made, therefore relevant studies might have been missed. The review methodology was poorly described and it was not possible to assess whether appropriate measures had been taken to reduce bias and error in the study selection and data extraction processes. Individual study quality was not assessed, although there was some general discussion of the limitations of including uncontrolled studies in the review.

Some relevant details of the individual studies were provided, but there was generally a paucity of information on how the outcomes were assessed. The authors' conclusions were appropriately cautious given the weaknesses of the study designs included in the review. However, given the poor reporting of the review processes, the lack of a validity assessment and the limited search for studies, it was difficult to assess the reliability of the findings.

**Implications of the review for practice and research**
**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated that high-quality, appropriately powered RCTs assessing both objective and subjective measures of hirsutism and acne, as well as treatment complications, are required.

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