Halvard Gjöonnaess

A simple treatment for polycystic ovarian syndrome

Good results are reported from Norway in the treatment of polycystic ovarian syndrome by laparoscopic electrocautery of the ovary. The method may prove particularly valuable in parts of the world where drugs are difficult to obtain and where social or geographical circumstances impede follow-up.

Involuntary infertility is a major concern of 10–15% of married couples. Infertility is often a tragedy in itself, and in countries where the welfare of the elderly depends on direct support from younger people a lack of children may be disastrous. Consequently, improvements in the treatment of infertility are still vitally necessary.

The endocrine treatment of anovulatory women requires sophisticated laboratory facilities and close follow-up, which, in many places, are not available. However, a relatively new and simple technique exists for the restoration of regular ovulatory cycles, without using drugs, in women suffering from involuntary infertility due to the polycystic ovarian syndrome, otherwise called the Stein–Leventhal syndrome (1, 2).

The inclusion criteria were:

- menstrual irregularities;
- an endocrine profile showing progesterone values with no luteal phase (serum progesterone <8 nmol/l), serum luteinizing hormone and androgenic hormones in the upper physiological ranges or above, and low sex-hormone-binding globulin (3);
- ovaries with a smooth, white and thickened capsule, often with small cysts.

The indications for treatment were infertility in 150 cases and obesity/virilism in 40 cases. Of the infertility cases, 113 were observed for more than two years. The patients were all of reproductive age, averaging 26 years.

The technique involves introducing an ordinary angled Wolf laparoscope into the peritoneal cavity through the umbilicus. Unipolar biopsy or sterilization forceps are held against the ovarian surface for two to four seconds so as to penetrate the ovarian capsule. Cautery is performed using the same current as for ordinary unipolar sterilization. Each hole is approximately 3 mm in diameter and 2–4 mm in depth, the ovaries appearing at the end of the procedure as shown in the photograph.

Ten years' experience

In the Gynaecological Department of Aker University Hospital in Oslo, 190 women with the syndrome were treated between 1977 and 1987.

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The ovary after electrocautery in a case of polycystic ovarian syndrome.

When compared with the general pregnant population of Norway (4), the treated women who became pregnant showed increased incidences of pre-eclampsia and gestational diabetes (Table 2). However, whereas obese women had higher incidences of both diseases, patients of normal weight did not differ in this respect from the general population (5).

The outcomes of first pregnancies after ovarian electrocautery resembled those in the general population (Table 3). No influence of the syndrome, the treatment, or maternal body weight was detected. So far 27 of the women have conceived twice, ten have become pregnant three times, and one has had four pregnancies. The cumulative early miscarriage rate (<16 weeks of gestation) was 10.3%.

The perinatal mortality rate, including all infants born after 16 weeks of gestation and not surviving the first neonatal week, was 6.8%. The losses were due to premature detachment of the placenta in two cases and to cervical incompetence or premature rupture of the membranes in three.

Neither the sex ratio nor the rates of malformations differed significantly from those in the general population (Table 3).

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<tr>
<th>Table 1. Pregnancy after ovarian electrocautery in 113 involuntarily infertile women with polycystic ovarian syndrome (observation time exceeding two years).</th>
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<tbody>
<tr>
<td>No. treated</td>
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<tr>
<td>--------------</td>
</tr>
<tr>
<td>Syndrome only</td>
</tr>
<tr>
<td>Syndrome with additional tubal factors</td>
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<td>Syndrome cases with subfertile husbands</td>
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The main endocrine effects of ovarian electrocautery were the establishment of regular ovulatory cycles in about 90% of the cases and decreased concentrations of serum androgen (3, 6). However, the effects on hirsutism and obesity were variable. In some women the endocrine changes have already lasted for years, but in women who did not develop regular menstrual cycles the androgen level increased again in a matter of weeks. An increase occurred in serum luteinizing hormone one day after ovarian electrocautery together with a marked increase in the luteinizing hormone response to stimulation with gonadotropin-releasing hormone in the women who ovulated within the first four weeks (6). This change in the pituitary response to gonadotropin-releasing hormone suggests that ovarian electrocautery interferes with a feedback mechanism, probably by reducing a negative feedback from the ovary.

Following wedge resection of the ovaries in women with polycystic ovarian syndrome, ovulation and pregnancy may be achieved but the reported pregnancy rates vary widely (25–71%) (7, 8), probably because of differing degrees of mechanical sterility associated with postoperative periovular adhesions (9). Another drawback is that ovarian wedge resection involves laparotomy and postoperative morbidity.

Treatment with clomiphene citrate has given pregnancy rates of 30–61% (10), but it requires careful follow-up including laboratory tests to verify ovulation and clinical observation to ensure compliance. Other endocrine treatments, with gonadotropins or gonadotropin-releasing hormone analogues, are more expensive, less effective and require very close follow-up.

The method described here can lead to a pregnancy rate of 80%, higher than the rates reported for wedge resection or clomiphene treatment. Additional infertility factors, such as subfertile husbands or tubal defects, can influence the results. The method does not involve laparotomy, only laparoscopy, something that should be done in every case of infertility as part of the diagnostic procedure. The treatment is simple and can be performed by any trained laparoscopist. Ovarian electrocautery increases the operation time by only five to ten minutes. There is practically no postoperative morbidity, and patients may leave hospital after a few hours or on the first day following the operation. No follow-up is required. If the patient has regular menstrual periods she can be practically sure that ovulatory cycles are occurring.

The effects of ovarian electrocautery on virilism and obesity are variable, and the treatment should therefore probably not be recommended on its own to deal with these problems.

Table 2. Complications in pregnancies following ovarian electrocautery in women with polycystic ovarian syndrome.

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<thead>
<tr>
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<th>Patients</th>
<th>General pregnant population*</th>
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<tr>
<td></td>
<td>%</td>
<td>%</td>
</tr>
<tr>
<td>Pre-eclampsia</td>
<td>12.9</td>
<td>3.8</td>
</tr>
<tr>
<td>Gestational diabetes</td>
<td>8.1</td>
<td>0.25</td>
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*Source: see reference no. 4.
For the treatment of involuntary infertility due to polycystic ovarian syndrome, there is probably no simpler or more convenient method available than laparoscopic electrocautery of the ovary. The method may be especially rewarding in areas of the world where drugs are difficult to obtain and where social or geographical circumstances impede follow-up.

References


