



Polycystic ovarian syndrome related hypo fertility: value of ovarian drilling

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Introduction:
Polycystic ovarian syndrome (PCOS) is a common endocrine disorder that affects women of reproductive age and is a leading cause of infertility. One of the treatment options for PCOS-related infertility is ovarian drilling, a surgical intervention aimed at improving ovulation and increasing the chances of conception. This prospective case-control study aims to evaluate the value of ovarian drilling in the management of PCOS-related infertility.

Methods:
Over a one-year period from January 2020 to December 2020, a total of 60 patients with PCOS and resistant to clomiphene citrate (CC) were included in the study. Among them, 30 patients underwent ovarian drilling, while the remaining 30 patients did not undergo surgery during the same period, and the decision for surgery was deferred. Patient characteristics, including age, body mass index (BMI), and clinical hyperandrogenism, were assessed in both groups. Hormone levels, such as luteinizing hormone (LH), follicle-stimulating hormone (FSH), testosterone, and estradiol, were measured. Ultrasonography scans were performed to evaluate antral follicular count and ovarian volume. The primary outcome assessed was the rate of spontaneous pregnancy within six months and one year.

Results:
The mean age of the patients was comparable in both groups (31.25+/-3.97 vs 31.63+/-4.52; p=0.78). In our study, the BMI of the 2 groups was comparable (23.66 Vs 24.61; p=0.63). Clinical hyperandrogenism was the most common sign found in both groups (83.3% vs 76.6%; p=0.41). The mean LH levels found in patients in both groups were significantly higher than the mean FSH levels with an LH/FSH ratio >1 in all cases. However, there was no significant difference in the results for these two parameters (p=0.39/p=0.28). The mean testosterone levels found in both groups were high, with testosterone >0.6 ng/mL in 83.3% of patients in the first group and 80% of patients in the second group with p=0.43. In the 3rd month assessment, there was a consistent and significant decrease in plasma LH (p=0.009). A slight rise in FSH and normalization of the LH/FSH ratio. Constant fall in testosterone (p=0.021) was noted with a non-significant fall in circulating estradiol levels. Ultrasonography scan carried out six months later showed a significant decrease in antral follicular count(p=0.008) in drilling group. Ovarian volume decrease was equally noticed without being significant (p=0.07). Spontaneous pregnancy was observed in 30% of cases within 6 months and in 46.6% within one year in the drilling group versus 13.33% in the control group (p=0.028 for 6 months, p=0.001 for 1 year). Predictive factors of ovarian drilling success were: age <35 years, duration of infertility <3 years and high LH level >10.

Discussion:
The findings of this prospective case-control study provide important insights into the effectiveness of ovarian drilling as a treatment option for infertile women with PCOS who are resistant to clomiphene citrate (CC). The results suggest that ovarian drilling can significantly improve the chances of spontaneous pregnancy in this patient population. The study showed that ovarian drilling was associated with a significant decrease in plasma LH levels, along with a slight increase in FSH levels, leading to a normalization of the LH/FSH ratio. This hormonal profile indicates improved ovarian function and regulation of the menstrual cycle, which are essential for successful ovulation and conception. The decrease in testosterone levels observed after ovarian drilling further supports the positive impact of the procedure on hormonal balance in women with PCOS.

Ultrasonography scans conducted six months after ovarian drilling demonstrated a significant decrease in antral follicular count. This reduction suggests a decrease in the number of small, immature follicles characteristic of PCOS. The decrease in antral follicular count indicates a more balanced and healthier ovarian response, which can enhance the chances of successful ovulation and pregnancy. The study also found that spontaneous pregnancy rates were significantly higher in the ovarian drilling group compared to the control group. Within six months, 30% of women in the drilling group achieved pregnancy, while only 13.33% of the control group experienced spontaneous pregnancy. Within one year, the pregnancy rate in the drilling group further increased to 46.6%. These results highlight the beneficial effect of ovarian drilling on fertility outcomes in women with PCOS who are resistant to CC. The findings of this study suggest that patient selection is a crucial factor in maximizing the effectiveness of ovarian drilling. Factors such as age, duration of infertility, and LH levels were identified as predictive factors for the success of ovarian drilling. Specifically, patients under the age of 35, those with a shorter duration of infertility (<3 years), and those with higher LH levels (>10) had higher pregnancy rates after ovarian drilling. These findings emphasize the importance of individualized treatment approaches and tailored patient selection for optimizing outcomes with ovarian drilling. Overall, the results of this study support the effectiveness of ovarian drilling as a treatment option for PCOS-related infertility. Ovarian drilling offers benefits in terms of hormonal regulation, improvement in antral follicular count, and increased rates of spontaneous pregnancy. However, it is important to consider that ovarian drilling is an invasive surgical procedure and should be carefully evaluated on a case-by-case basis, weighing the potential risks and benefits for each patient. Further research is warranted to explore the long-term effects and sustainability of the benefits observed with ovarian drilling. Additionally, comparative studies with other treatment modalities for PCOS-related infertility would provide valuable insights into the relative efficacy and safety of ovarian drilling in the broader context of fertility management for women with PCOS.

Conclusions:
This study demonstrates that ovarian drilling is an effective treatment option for infertile women with PCOS who are resistant to clomiphene citrate. The selection of appropriate patients, particularly those under the age of 35, with a shorter duration of infertility and higher LH levels, may further enhance the success of ovarian drilling in terms of achieving pregnancy. Ovarian drilling can be considered as a valuable intervention in the management of PCOS-related infertility, improving the chances of spontaneous conception.

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