

# Frequency of Pregnancy Following Laparoscopic Ovarian Drilling in Patients with Clomiphene Resistant Polycystic Ovarian Syndrome

1. Syed Muhammad Ali 2. Humera Shaheen 3. Sadia Nazir

1. Prof. & Head, Deptt. of Obstetrics & Gynaecology 2,3. Asstt. Profs. of Obstetrics & Gynaecology, DG Khan Medical College, Dera Ghazi Khan

## ABSTRACT

**Objective:** To determine the frequency of pregnancy following laparoscopic ovarian drilling in patients with clomiphene citrate resistant polycystic ovarian syndrome.

**Study Design:** Retrospective / Observational study

**Place and Duration of Study:** This study was carried out in the Department of Obstetrics and Gynaecology DG Khan Medical College, Dera Ghazi Khan from November 2012 to May 2013.

**Patients and Methods:** One hundred eligible patients who suffer from anovulatory infertility and who failed to respond to the treatment with clomiphene citrate were enrolled from outpatient department.

**Results:** Overall frequency of PCOS was 4.84%. Majority of cases of PCOS were in age group 20-30 years. 72% of cases were having primary infertility and 28% were having secondary infertility. 41.86% of cases were resistant to CC given in a dose of 150 mg for three consecutive cycles. Conception rate was 66% in 6 month follow up period after LOD.

**Conclusion:** Laparoscopic ovarian drilling with diathermy should be considered to be a preferred choice for the infertile women with history of failed response to clomiphene treatment as compared to the use of gonadotrophins.

**Key Words:** Polycystic ovary syndrome, Laparoscopic ovarian drilling, Clomiphene citrate resistance

**Citation of article:** Ali SM, Shaheen H, Nazir S. Frequency of Pregnancy Following Laparoscopic Ovarian Drilling in Patients with Clomiphene Resistant Polycystic Ovarian Syndrome. Med Forum 2015;26(7):40-42.

## INTRODUCTION

The problem of polycystic ovarian disease syndrome (PCOD/PCOS) has been the subject of research studies over the past sixty years. The major clinical manifestations are menstrual irregularities, signs of androgen excess, and obesity. Anovulation is a common problem in women with polycystic ovarian disease. Clomiphene citrate (CC) is the accepted first-line treatment for infertile women with polycystic ovarian disease, but 25% of these patients show no response to CC, and remain anovulatory despite increasing doses.<sup>2</sup> Human menopausal gonadotropins, follicle stimulating hormone, or combination of gonadotropin-releasing hormone agonist and gonadotropins may be used as a second-line treatment.

However, the patients treated with these hormones tend to develop a multifollicle response, with the associated risks of ovarian hyperstimulation syndrome (OHSS) and multiple pregnancies. Laparoscopic ovarian drilling with diathermy has been reported to be a successful method of ovulation induction for those women who do

not respond to clomiphene citrate, human menopausal gonadotropins, follicle stimulating hormone, or combination of gonadotropin releasing hormone agonist, and gonadotropins.<sup>3</sup> Pregnancy rates of 27–73% have been reported in the literature. Unlike ovulation stimulation regimens, there is no increase in the risk of multiple pregnancies or ovarian hyperstimulation after LOD. Pregnancies are most likely to occur within 6 months of surgery.<sup>4</sup>

## PATIENTS AND METHODS

This study was carried out in the Department of Obstetrics and Gynaecology DG Khan Medical College, Dera Ghazi Khan from November 2012 to May 2013. One hundred eligible patients who suffer from anovulatory infertility and who failed to respond to the treatment with clomiphene citrate were enrolled from outpatient department. Laparoscopy was performed via three ports. A 10 mm laparoscope was inserted in the primary sub-umbilical trocar and the two additional 5 mm trocars were inserted in the lower abdomen. To manipulate the ovary, a grasping forceps was used to hold the ovarian ligament; and the other secondary port was used to introduce a diathermy needle. Four to six holes were made in the ovarian capsule with a unipolar coagulation current at a power

**Correspondence:** Dr. Syed Muhammad Ali,  
Professor & Head Department of Obstetrics &  
Gynaecology, DG Khan Medical College, DG Khan  
**Cell No.:** 03216174488  
**E-mail:** smashmultan@yahoo.com

of 40 watts for 4 seconds. Then the pregnancy was recorded (defined by positive urine hCG and the presence of an intrauterine pregnancy verified by a vaginal ultrasound) during 6 months follow up without the use of any additional ovulatory agents. Data was entered and analyzed using computer programme SPSS 10.

## RESULTS

Out of 258 cases of PCOS, 41.9% were resistant to CC given in a dose of 150 mg for three consecutive cycles. Among the 108 resistant cases, 100 were selected for LOD. Majority of the patients (55%) were in age group of 20-30 years (Table 1). 89% of cases presented with Oligomenorrhea (Table 2). Out of 100 cases of PCOS, a large majority of 72% was having primary infertility (Table 3).

**Table No.1: Distribution according to age (n=100)**

Age (years)	No.	%
< 20	29	29.0
20-30	55	55.0
31-35	16	16.0

**Table No.2: Distribution according to presenting complains (n=100)**

Clinical features	No.	%
Oligomenorrhea	89	89.0
Hirsutism	77	77.0
Acne	40	40.0

**Table No.3: Distribution according to infertility status (n=100)**

Type of infertility	No.	%
Primary	72	72.0
Secondary	28	28.0

## DISCUSSION

The Polycystic Ovarian Syndrome (PCOS) remains an incompletely understood entity that appears with regularity in the practice of most gynaecologists. As the presenting symptom of this group of patients is often infertility due to chronic anovulation, restoration of ovulatory function assumes paramount importance. For all those patients of PCOS who are found to be having a poor response to Clomiphene Citrate, the choice of treatment rests between medical ovulation induction using higher doses, higher stimulants like gonadotrophins or the use of laparoscopic surgical method. Potential advantages of the surgical methods include multiple ovulatory cycles from a single treatment and elimination of the risk of Ovarian Hyperstimulation Syndrome (OHSS). Additionally, high cost and intensive monitoring associated with gonadotropin therapy can be avoided. The objective of this study was to determine the frequency of pregnancy following laparoscopic ovarian drilling in our patients

with clomiphene citrate resistant polycystic ovarian syndrome.

PCOS is one of the most common endocrine disorders of women in the reproductive age group, with a prevalence of 4-12%.<sup>5</sup> In various European studies, the prevalence of PCOS was 6.5-8%.<sup>6</sup> Under the Rotterdam criteria, the prevalence was 11.9±2.4%.<sup>7</sup> Our study is showing a little higher frequency of PCOS (26.63%) in infertility cases but this is corresponding with study of Driscoll DA in which the incidence were estimated to be 11-26%.<sup>8</sup> In another study, of a total of 113 consecutive women recruited, 32 (28.3%) were diagnosed as having PCOS.<sup>9</sup> Overall frequency was 4.84% in the present study.

Clomiphene citrate has been used as a first-line ovulation induction agent for over 40 years.<sup>10</sup> The majority of women who have infertility associated with chronic anovulation in this disorder ovulate in response to clomiphene citrate. However, up to 30 percent remain anovulatory. Furthermore, of the roughly 70 percent who do ovulate in response to clomiphene citrate, only one-half will conceive.<sup>11</sup>

The first line therapy for anovulation is clomiphene citrate (CC) but unfortunately, ovulation is not achieved in almost 40% of PCOS. Various authors have reported a failure of ovulation at particular dose/cycles.<sup>12</sup> The rate of anovulation at a dose of 150 mg in the study conducted by Branigan et al<sup>13</sup> was 28% and 32% in the one conducted by Lobo.<sup>14</sup> The present study showed a 41.86% anovulatory rate with 150mg/three cycles which is comparable with above mentioned studies. Other reported a rate of anovulation as high as 72% with 100 mg cc in three consecutive cycles.<sup>15</sup> In 1.10 patients who failed to conceive on clomiphene citrate (treatment started from minimum dose of 50 mg/day to 150 mg/day from day 2-6 of menstrual cycle.<sup>7</sup>

Oligomenorrhea was the most common clinical finding in all subjects i.e. 89% and 77% were having hirsutism. Acne was found to be observed in 40% of cases. This is comparable with a study in which Hirsutism was the most common clinical finding in all subjects of the study group and 75% of the control group showed hirsutism of various grades. Amenorrhea was more common than oligomenorrhea. The occurrence of hirsutism of 85% in the present study is almost similar to that of Adams.<sup>16</sup>

Primary infertility was observed in 72% of cases and secondary infertility in 28%. This was in agreement with a study in which 72.8% cases were of primary infertility and 27.2% of secondary infertility.<sup>7</sup> In another study, eleven (68.75%) patients had primary infertility and Five (31.25%) patients presented with secondary infertility.

In our study the conception rate was 66% in a six month study period. Which remains in agreement with most of the previous studies. Armar and Lachelin<sup>17</sup>

reported a pregnancy rate of 66%<sup>17</sup>, Naether et al 70%.<sup>18</sup> After treatment and 6 months follow up, ovulation occurred in 14 (87.5%) patients. Eleven (68.75%) women succeeded in conceiving. In another International study between June 1996 and June 2003, there were 182 pregnancies in 153 PCOS patients who were treated with laparoscopic ovarian drilling.<sup>19</sup> Some authors have found a correlation between the number of points cauterized and the ovulation rate. We had used maximum 6 points and did not find any difference between 6 and 8 point approach.

## CONCLUSION

Laparoscopic ovarian drilling with diathermy should be considered as a preferable choice for infertile women with a history of failed response to clomiphene treatment as compared to the use of gonadotrophins.

**Conflict of Interest:** The study has no conflict of interest to declare by any author.

## REFERENCES

1. The Rotterdam ESHRE/ASRM-Sponsored PCOS Consensus Workshop Group. Revised 2003 consensus on diagnostic criteria and long-term health risks related to polycystic ovary syndrome. *Fertil Steril* 2004;81:19-25
2. Tulandi T, Watkin K, Tan SL. Reproductive performance and three-dimensional ultrasound volume determination of polycystic ovaries following laparoscopic ovarian drilling. *Int J Fertil* 1997; 42: 436-40.
3. Balen AH, Jacobs HS. A prospective study comparing unilateral and bilateral laparoscopic ovarian diathermy in women with polycystic ovarian syndrome. *Fertil Steril* 1994; 62: 921-5.
4. Zafar MF, Chye NGS. Ovarian drilling for clomiphene citrate resistant polycystic ovarian disease. *Ann King Edward Med Coll* 2001; 7: 88-9.
5. Azziz R, Woods K, Reyna R. The prevalence and features of the polycystic ovary syndrome in an unselected population. *J Clin Endocrinol Metab* 2004; 89: 2745-9.
6. Asuncion M, Calvo RM, San Millan JL. A prospective study of the prevalence of the polycystic ovary syndrome in unselected Caucasian women from Spain. *J Clin Endocrinol Metab* 2000; 85: 2434-8.
7. March WA, Moore VM, Kristyn J. The prevalence of polycystic ovary syndrome in a community sample assessed under contrasting diagnostic criteria. *Human Reproduction* 2010; 25: 544-51.
8. Driscoll DA. Polycystic ovary syndrome in adolescence. *Ann New York Acad Sci* 2003;997: 49-55
9. Alvarez-Blasco F, Jose I, Botella-Carretero JI, San Millan JL, Hector F, Morreale E. Prevalence and Characteristics of the Polycystic Ovary Syndrome in Overweight and Obese Women *Arch Intern Med* 2006; 166: 2081-6
10. Kafy S, Tulandi T. New advances in ovulation induction. *Curr Opin Obstet Gynecol* 2007;19: 248-52.
11. Amer SA, Li TC, Metwally M. Randomized controlled trial comparing laparoscopic ovarian diathermy with clomiphene citrate as a first-line method. *Hum Reprod* 2009; 24: 219-25.
12. George SS, George K, Irwin C. Sequential treatment of metformin and CC in clomiphene resistant women with polycystic ovary syndrome. *Hum Reprod* 2005; 18: 299-304
13. Branigan EF, Estes MA. Treatment of chronic anovulation resistant to clomiphene citrate (CC) by using oral contraceptive ovarian suppression followed by repeat CC treatment. *Fertil Steril* 1999; 71: 544-6.
14. Lobo RA, Gysler M, March CM, Goebelsmann U, Mishell DR. Clinical and laboratory predictors of clomiphene response. *Fertil Steril* 1982;37:168-74.
15. Gysler M, March CM, Mishell DR, Bailey EJ. A decade's experience with an individualized clomiphene treatment regimen including its effect on the postcoital test. *Fertil Steril* 1982;37:161-7.
16. Dasari P, Pranahita GK. The efficacy of metformin and clomiphene citrate combination compared with clomiphene citrate alone for ovulation induction in infertile patients with PCOS. *J Hum Reprod Sci* 2009;2:18-22.
17. Armar NA, Lachelin GC. Laparoscopic ovarian diathermy: an effective treatment for anti-oestrogen resistant anovulatory infertility in women with the polycystic ovary syndrome. *Br J Obstet Gynaecol* 1993; 100: 161-4.
18. Naether OGJ, Baukloh V, Fischer R, Kowalczyk T. Long-term follow-up in 206 infertility patients with polycystic ovarian syndrome after laparoscopic electrocautery of the ovarian surface. *Hum Reprod* 1994; 9: 2342-49.
19. Al-Ojaimi EH. Pregnancy outcome after laparoscopic ovarian drilling in women with polycystic ovarian syndrome. *Saudi Med J* 2006; 27: 519-25.