

# Laparoscopic Ovarian Diathermy in Clomiphene Citrate Resistant Cases

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**Objective:** The objective was to demonstrate the effect of laparoscopic ovarian diathermy (LOD), in Polycystic Ovarian Syndrome (PCOS) patients with associated infertility. **Methods:** It was a descriptive study, carried out at Hameed Latif Hospital, Lahore. Fifty clomiphene resistant infertile women with PCOS were treated with laparoscopic ovarian drilling. **Results:** Menstrual cycle and FSH:LH returned to normal in 70%. Out of 50, 33 conceived, 25 had spontaneous pregnancies while 8 conceived after IUI/ ICSI. **Conclusion:** LOD is an effective mode of treatment in infertile women who have failed to respond to clomiphene citrate.

**Key Words:** Laparoscopic Ovarian Diathermy, PCOS

Around one in ten couples of reproductive age are affected by infertility. The adverse effects range from personal distress to social implications on a society level. The most common reasons for failure to conceive are tubal disease, ovulatory dysfunction, endometriosis and abnormalities of semen. Some of these problems can be managed by surgery, ovulation induction or intrauterine insemination, but in selected cases or where there is infertility of long duration due to unexplained aetiology; assisted reproductive technology becomes the treatment of choice.

Polycystic ovarian syndrome is the commonest cause of anovulation. The incidence of PCOS is variable amongst different populations. Overall incidence once thought to be as low as 8%, with use of ultrasonography is quoted to be 20% twenty percent (4). In patients with hirsutism, the incidence of polycystic ovaries may be as high as 40%.

The aim of management in PCOS is to make the ovaries ovulate regularly and hence achieve pregnancy. This can be done medically by clomiphene citrate, metformin and gonadotrophins. When medical treatment fails for three to six cycles the surgical option is laparoscopic ovarian diathermy.

Ovarian wedge resection, which was in vogue in the forties, has gone out of favour, because of postoperative adhesions. It has been replaced by LOD, where expertise and facilities are available. The objective of LOD is to achieve spontaneous ovulation. In addition to spontaneous ovulation and pregnancy; there is reduced risk of ovarian hyper stimulation syndrome. It is an out patient procedure, which provides opportunity of achieving spontaneous pregnancy without high incidence of abortion and multiple pregnancies. If spontaneous ovulation does not occur following laparoscopic ovarian diathermy, the patient can still be treated by controlled ovarian stimulation by the use of fewer doses of gonadotrophins.

## Objectives

The objective was to demonstrate the effect of laparoscopic ovarian diathermy (LOD), in Polycystic Ovarian Syndrome PCOS patients with associated infertility. Outcome measures were change in FSH / LH ratio and to find out the success in terms of achieving ovulation and pregnancy.

## Material and Methods

It was a descriptive study, carried out at Hameed Latif Hospital, Lahore

## Criteria for Inclusion

- 1 Polycystic ovarian syndrome and Infertility.
- 2 Failure of ovulation with prior medical treatment.

## Criteria of Exclusion

- 1 Patients who refused to have LOD
- 2 PCOS with presentation other than infertility.
- 3 No prior medical treatment.
- 4 Unmarried girls.

## Intervention

After initial workup of infertility those patients who had anovulatory cycles and P CO picture on transvaginal ultrasound (TVS) and hormonal status suggestive of PCOS were given treatment with clomiphene citrate for 3 cycles, they were monitored by serial TVS to find out the response. Those patients who failed to respond were advised LOD.

During LOD bipolar diathermy was used and 3-6 diathermy holes were made in each ovary and subsequently the ovaries were cooled down with normal saline.

These patients were followed up by for hormonal changes and TVS for spontaneous ovulation. Those patients who failed to show spontaneous ovulation were treated with clomiphene or gonadotrophins

## Subject:

Fifty consecutive patients were treated by LOD at this hospital, during the period of study. All patients were included in the study who had LOD treatment during the study period of 25 months i.e. 1<sup>st</sup> of October 1998 to 30<sup>th</sup> October 2000.

## Results

Table 1: Age at presentation

Age (Yrs)	No	%age
20-34 yrs	24	48
35 -39 yrs	25	50
40 and >	1	2
	50	100

Table 2: Change in menstrual cycle

Symptoms	Pre LOD	Post LOD
Regular menstrual cycle	-	32(64%)
Irregular menstrual cycle	25 (50%)	14(28%)
Oligomenorrhoea/amenorrhoea	25 (50%)	-
No information	-	4(8%)

Table 2: Change in FSH

FSH	Pre LOD	Post LOD
<9	34 (68%)	34(68%)
10 - 20	15 (30%)	12(24%)
21 - 30	-	-
Not done	1(2%)	4(8%)

Table 3: Change in LH

LH	Pre LOD	Post LOD
<9	17 (34%)	35 (70%)
10 – 20	15 (30%)	10(20%)
21 – 30	15 (30%)	1(2%)
30>	2 (4%)	0
Not done	1 (2%)	4(8%)

Table 4: Change in FSH:LH

FSH:LH	Pre LOD	Post LOD
1:1	24 (48%)	03(6%)
1:2	14 (28%)	02(4%)
1:3	11(22%)	06(12%)
2:1	-	35 (70%)
Not done	01 (2%)	04 (8%)

Table 5: Ovulation &amp; spontaneous pregnancy outcome

Ovulation	Number	Spontaneous pregnancy
Spontaneous	9	5
CC	14	10
HMG/FSH	18	10
Total	41	25

Table 6: Pregnancies achieved after LOD

Pregnancy	Number
Pregnancies achieved	33 (66%)
Spontaneous	25
After IUI	5
After IVF/ICSI	3
No pregnancy	17 (34%)

### Discussion

The study demonstrated the benefits of laparoscopic ovarian drilling in clomiphene resistant cases. FSH levels were of no significance in making the diagnosis, they were less than 9mIU/ml in 68% patients. The levels of LH were of greater significance than FSH because they were raised in 66% patients. The ratio of FSH:LH was 1:2 or higher in 50% patients. After LOD LH decreased to less than 9mIU/ml in 70% patients proving that surgical trauma to the ovaries causes correction of FSH:LH ratio and lowering of LH levels. Campo(1) and Greenblatt<sup>2</sup> reported similar success rate after LOD.

Menstrual cycle returned to normal in most of the patients and ovulation took place in 70% patients. In series of Armar and Lachelin<sup>3</sup> ovulation took place in 86% patients and in most of them during the first month after LOD. Osterzenski<sup>4</sup> and Farhi<sup>5</sup> achieved high ovulation rates after LOD with clomiphene citrate and gonadotrophins respectively.

After LOD out of 50 women 33 conceived. IVF/ICSI was carried out in 8, there were 3 pregnancies and per patient success rate 38%. Over all success rate was 66%. These results compare favorably with the results generally reported in the published data Kriplane<sup>6</sup> and Tozer et al<sup>7</sup>. These rates are favourably compared with the studies internationally cited LiTC<sup>8</sup> Alnaser<sup>9</sup>. The success of IUI per patient was 35.1% and success of IVF/ICSI per patient was 37.3%.

### Conclusion

LOD is effective mode of treatment in infertile women who have failed to respond to clomiphene stimulation.

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