

## EVALUATE EFFICACY AND SAFETY OF THE LAPAROSCOPIC OVARIAN DRILLING IN WOMEN SUFFERING FROM ANOVULATORY INFERTILITY IN PCOD.

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### ABSTRACT

**Introduction:** Polycystic ovarian disease is the common cause of infertility in women of reproductive age. Initially, it is treated conservatively but latter on procedure can be applied if the medical therapy trials fail to respond. Clomiphene citrate is the common drug used. It successfully treats PCOD in majority of the patients. Among the surgical options, the best option with many advantages is laparoscopic ovarian drilling that is minimally invasive with better results. It enhances the sensitivity of ovary to gonadotropins. **Objective:-**To detect the effectiveness and find out safety of LOD in women of infertility due to presence of Ovarian Cysts. **Methodology:-**This is a cross sectional study done in Deptt of Gyn/Obs at PMCH Nawabshah. Only non pregnant ladies aged from 23 to 35 were taken for the study. Duration of study was one year. Inclusion and exclusion criteria were also strictly followed. Patients were optimized and treated accordingly. **Results:** Age of patients was between 23-35 years only. 22 (59.45%) patients were form 29-31 years. After Laparoscopic ovarian drilling (LOD), spontaneous pregnancy was found among 32 (86.4%) patients. 1 (2.85) patients had ectopic pregnancy. Infertility was seen in 4 (10.8%) patients. After LOD, 7 (18.9%) had postoperative pain. 1 (2.7%) had infection and 1 patient had bleeding. No iatrogenic injury to viscera and no any case were noted to have anesthesia related complications. **Conclusion:** - It is concluded that LOD is the best procedure with maximum efficacy and safety.

**KEYWPRDS:** Infertility, Reproductive, Clomiphene Citrate, Ectopic.

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### INTRODUCTION

Polycystic ovarian disease affects 5-15% of women of reproductive age and is the most common cause of infertility owing to anovulation. In these cases, the first line of treatment is medical one which usually includes clomiphene citrate. This therapy resumes ovulation in 75-80% of women.

Hyperandrogenism, obesity, high ovarian volume and anovulation predict the failure of this medical therapy. The surgical therapy in this case is ovarian drilling. The drilling leads to a lower risk of multiple pregnancies and avoids hyperstimulation syndrome. Medical management involves biological and ultrasound follow-ups. A laparoscopic ovarian drilling involves general anesthesia.

This procedure has a big advantage over themedical treatment which is long term efficacy and restoration of ovulation.<sup>1</sup>

The wedge resection was unveiled by Stein-Leventhal in 1930. Palmar fist introduced the laparoscopic ovarian drilling (LOD) and replaced wedge resection with many advantages. It is considered to be the second line of treatment in patients having resistance to clomiphene citrate.<sup>2</sup>

LOD removes androgen secreting stroma which subsequently decreases the amount of abnormal steroid production in ovary resulting in normalization of LH:FSH. It improves sensitivity of ovary to gonadotropins. It also improves pituitary sensitivity to GnRH. It produces growth factors due to tissue injury with sensitized ovary to circulating follicular stimulating hormone causing follicular growth.<sup>3</sup>

Indications for LOD include failure of medical therapy in infertile PCOD, risk of hyperstimulation syndrome, clomiphene citrate resistant PCOS and those who do not want to take risk of multiple pregnancies.<sup>4</sup>

Contraindications are pelvic adhesions, cardiopulmonary decompression and past history of bowel injury. Side effects are anesthesia related, pelvic adhesions 30-40%, premature ovarian failure, wound infection, hemorrhage, iatrogenic visceral injury and abdominal distension.<sup>5</sup>

It gives an ovulation rate of 70% per cycle and live birth rate of 64%. Ovulation occurs within 2-4 week and menstruation start within 4-6 week. It improves endocrine profile and restores fertility. Pituitary LH response to GnRH administration is decreased, serum LH reduces in response and there occurs transient increase in prolactin level. FSH,LH increase on 1<sup>st</sup> day after ovulation then return to pre surgery value.<sup>6</sup> No change in insulin sensitivity or fasting blood sugar and progesterone and lipid profile occurs. Effect on adrenal hormone is limited. Dihydrotestosterone initially reduce but then return to preoperative level. Androgen level is decreased consistently. Sex hormone binding globulin level is decreased.<sup>7</sup>

The rationale of our study is to evaluate the outcome of laparoscopic ovarian drilling in infertile women due to polycystic ovarian disease.

### Material methods

This study was conducted in Department of Gyn/Obstetrics at PMCH Nawabshah. This is a tertiary care hospital receiving the patients from all over Sindh and also other provinces. It is a cross sectional study done from February 2016 to July 2017. Total 37 patients were included in this study. All the

patients were taken from Gyn/Obs OPD and Casualty center.

Only non pregnant ladies from 23 years to 35 years were selected for the study having polycystic ovarian disease diagnosed after history, clinical examination and imaging investigations. The patients excluded from the study included tubal blockage, anatomical defect in uterus, subnormal level in husband semen analysis, goiter, hyperprolactinemia, BMI >30 and age <22 and >35 years.

A complete history and clinical examination was done. Blood CP, blood sugar, blood urea, serum creatinine, urine DR, HBsAg, AntiHCV, LFT and PT, APTT. Imaging investigations particularly Ultrasound was also gotten to see the condition of ovary and number/size of cysts in the ovary.

### RESULTS

Age difference was also noted. 10 (27.02%) patients ranged between 23-28 years. 22 (59.45%) patients were 29-31 years. 05 (13.53%) patients age was 32-35 years.

Laparoscopic ovarian drilling (LOD) resulted in spontaneous pregnancy among 32 (86.4%) patients. 1 (2.85%) patients resulted in ectopic pregnancy. Infertility was found in 4 (10.8%) patients.

Patients were called up to 6 months for follow up to see the results of LOD. In 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, 4<sup>th</sup> and 5<sup>th</sup> month, the positive patients for pregnancy were 4,5,10,6,7,1 respectively. 4 patients resulted in infertility in 6<sup>th</sup> month of follow up.

Complications of LOD were minimum. 7 (18.9%) had postoperative pain. 1 (2.7%) had infection and 1 patient had bleeding. No iatrogenic injury to viscera and no any case was noted to have anesthesia related complications.

**Table no 1; AGE DIFFERENCE.**

S.NO:	AGE IN YEARS	NO OF PATIENTS	PERCENTAGE
1	23-28	10	27.02%
2	29-31	22	59.45%
3	32-35	05	13.53%
TOTAL	23-35	37	100%

**Table 2: Outcome of laparoscopic drilling.**

S.NO:	OUTCOME	NO OF PATIENTS	PERCENTAGE
1	SPONTANEOUS PREGNANCY	32	86.4%
2	ECTOPIC PREGNANCY	1	2.8%
3	INFERTILITY	4	10.8%
TOTAL	23-35	37	100%

**Tables 3; FOLLOW UP VISTS AND OUTCOMES**

S NO	MONTHS	PREGNANCY	NO OF PATIENTS	PERCENTAGE
1	1 <sup>ST</sup>	POSITIVE	4	10.8%
2	2 <sup>ND</sup>	POSITIVE	5	13.5%
3	2.5 <sup>TH</sup>	POSITIVE	10	27%
4	3 <sup>RD</sup>	POSITIVE	6	16.2%
5	4 <sup>TH</sup>	POSITIVE	7	18.9%
6	5 <sup>TH</sup>	POSITIVE	1	2.8%
7.	6 <sup>TH</sup>	INFERTILITY	4	10.8%
TOTAL			37	100%

**Table 4; Complications of laparoscopic ovarian drilling**

S.NO	COMPLICATIONS	NO OF PATIENTS	PERCENTAGE
1	Pain	7	18.9%
2	Infection	1	2.7%
3	Hemorrhage	1	2.7%
4	Anesthesia related	-	-
5	Iatrogenic injury to viscera	-	-
Total			24.3%

## Discussion

Ovarian drilling also called multiprforation / laparoscopic ovarian diathermy is the surgical option in which membranes are punctured by laser beam or a surgical needle using minimal invasive technique. It is different from wedge resection as latter cuts tissue. Wedge resection was replaced by laparoscopic ovarian drilling.<sup>8</sup>

In a study, it is concluded that 47.4% patients had one pregnancy after drilling and 56.3% were spontaneous. In another study, two drillings were done. Of them, 57.6% achieved pregnancies and 52.6% were spontaneous. In our study, spontaneous pregnancy was among 86.4%.<sup>9</sup>

LOD improves the chances of ovulation. Though the first line of treatment is clomiphene citrate for PCOD related infertility but one fifth of patients are resistant to this drug and fail to ovulate. Ovarian drilling is the surgical procedure for the treatment of PCOD with tremendous benefits. But if the patients do not become pregnant for 6 months even after re establishment of ovulation, the drug treatment may be re introduced or the option of In Vitro Fertilization (IVF) should be utilized.<sup>10,11</sup>

Baryam et al in a study concluded that the success of ovarian drilling is predicted by a mean infertility period of 2.8 years. In this study, the patients were older with longer infertility periods and lower LH/FSH rate. In a study, the live birth rate was 56% and spontaneous pregnancy rate was 61%. Nehius et al found live birth rate to be 86%. In our study, the follow up period was only 6 months because our study only noted the data of patients who became pregnant after LOD. The rate of pregnancy after this procedure in our study was nearly 89%. A study showed 61% pregnancies for at least one time only. In a study, 49% was ovulation rate, 30% of pregnancy rate and 23% of live birth rate at 6 months.<sup>12</sup>

Many authors have reported higher ovulation rate about 80% and pregnancy rate of about 60%. It is also seen that 20-30% of women with anovulatory PCOS failed to respond to Laparoscopic Ovarian drilling.<sup>13</sup> In a study, 3 to 10 punctures were made in ovaries according to size of ovaries each measuring 4 mm in diameter and 7-8 mm in depth. Of 200 total patients in study, 113 (57%) patients ovulated spontaneously and 43 patients ovulated after CC keeping the ovulation rate of 78%. Our study ovulation rate is nearly 89%.<sup>14</sup>

## Conclusion

It is concluded that the laparoscopic ovarian drilling is the effective and safe procedure to restore the ovulation of patients suffering from PCOD.

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