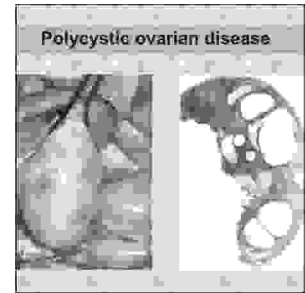


ORIGINAL

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## POLYCYSTIC OVARIAN DISEASE; THE DIAGNOSIS AND MANAGEMENT



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**ABSTRACT... Introduction:** Poly Cystic Ovarian Disease (PCOD) is probably one of the most common endocrinological disorders amongst the women during their reproductive years. Using USG criteria only 20-33% of apparently healthy women in childbearing period, have been found to have PCOD in population study. Whereas prevalence of 4-10% in women of reproductive age is commonly reported when the diagnosis is based on clinical, biochemical and US scan features. **Objective:-**Diagnosis and management of polycystic ovarian disease. **Setting** Seyal Medical Centre, Multan. **Duration** From January 2002 to December 2003. **Material and Methods:** Sample size: 200 patients. **Results:** Most of the patients were in the age group of 21-30 years. The youngest patient was of 17 years and eldest was of 42 years. Majority of the women were nulliparous or of low parity comprising 92% of cases. The commonest symptom was menstrual disorder in 168 Patients (84%). Ultrasound is very helpful for diagnosis of POD. About 80% of patients were diagnosed as PCOD on ultrasound. There is increased level of LH in 72% patients, 8% have raised prolactin levels. All patients were first treated with clomiphene citrate while surgical treatment is done in only 30% of cases. GnRH analogue and purified FSH were not used because they are quite expensive. **Conclusion:** PCOD is found to be one of the commonest problem in reproductive years of life. Clomiphene citrate is first line treatment in PCOD for infertility. Laparoscopic drilling has very good results especially in clomiphene resistant cases.

**Key words:** PCOD, Infertility, Ultrasound, Clomiphene citrate, Laparoscopic ovarian drilling (LOD)

### INTRODUCTION

Poly Cystic Ovarian Disease (PCOD) is probably one of the most common endocrinological disorders amongst the women during their reproductive years. Using USG criteria only 20-33% of apparently healthy women in child

bearing period, have been found to have PCOD in population study<sup>1,2,3,4</sup>. Whereas prevalence of 4-10% in women of reproductive age is commonly reported when the diagnosis is based on clinical, biochemical and US scan features<sup>3,5,6</sup>. Although sclerotic and cystic changes

in the ovary had been described as long ago as 1845, but it was only in 1935 that association of polycystic ovaries with obesity, oligomenorrhoea or amenorrhoea, hirsutism and anovulatory sub-fertility was recognized by Stein and Leventhal<sup>7</sup>. In this paper they described the dramatic effects of bilateral ovarian wedge resection in 7 women with enlarged polycystic ovaries who were complaining of oligomenorrhoea or amenorrhoea. All the women menstruated regularly postoperatively. For some years the condition was commonly known as Stein Leventhal syndrome, but it is now usually referred to as polycystic ovarian disease (PCOD). The main recent advance in the definition of PCO was agreed to Rotterdam PCO consensus workshop<sup>8</sup>.

The workshop agreed that two of the following three criteria were required in order to diagnose the condition after exclusion of other causes of androgen excess. These three criteria were;

1. Oligo and/or anovulation.
2. Clinical and/or biochemical signs of hyperandrogenism.
3. Polycystic ovarian morphology on ultrasound scan, defined as the presence of 10 or more follicles in each ovary (with one ovary being sufficient for diagnosis) measuring 2-8 mm in diameter and for increased ovarian volume (>10 ml).

The clinical features in PCO usually range from asymptomatic to those of menstrual irregularities, hirsutism, obesity, acne and subfertility<sup>9</sup>. The biochemical changes in PCOD are increase in LH level, reversal of LH/FSH ratio and in some cases may be increase testosterone and prolactin levels. Transvaginal ultrasonography is very useful for diagnosis of PCOD.

Different treatment options are available for PCOD in infertility. The most commonly prescribed drug is clomiphene citrate. Metformin is being used now-a-days which improves menstrual cyclicity and ovulation in patients of PCOD. The gonadotropin can be used for ovulation induction but they are expensive and need strict monitoring. There are chances of hyper stimulation of

ovaries and increase risk of multiple pregnancies. The laparoscopic ovarian drilling now performed in clomiphene resistant cases. It has got ovulation rate 75% and pregnancy rate between 40-60%<sup>10</sup>.

## MATERIAL AND METHODS

A study of polycystic ovarian disease was conducted in Seyal Medical Centre, Multan from January 2002 to December 2003.

A total 200 patients in reproductive age group that was married, subfertile (primary or secondary) previously untreated, where PCOD was the only cause of infertility, androgen and prolactin excess and with no other medical and surgical disorder were selected.

The diagnosis was made on clinical presentation, ultrasonographic findings and hormonal profile. For the diagnosis, a proforma of each patient was completed with special emphasis on age, parity, duration of marriage, type of subfertility, detailed history of menstrual cycle, previous obstetrical history and any medical or surgical disorders.

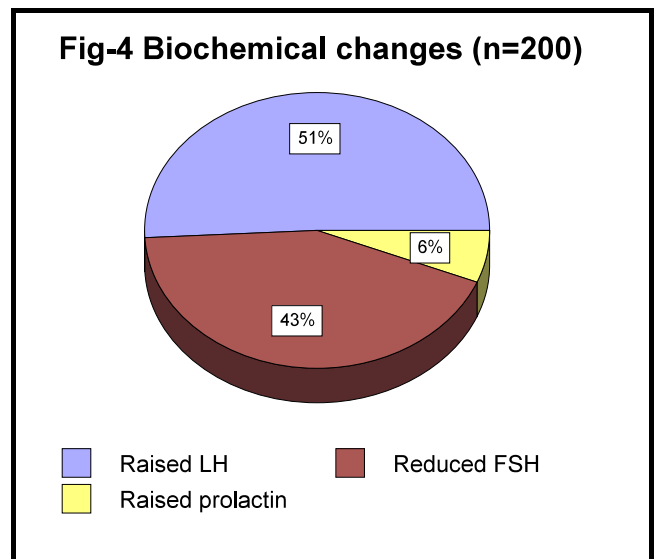
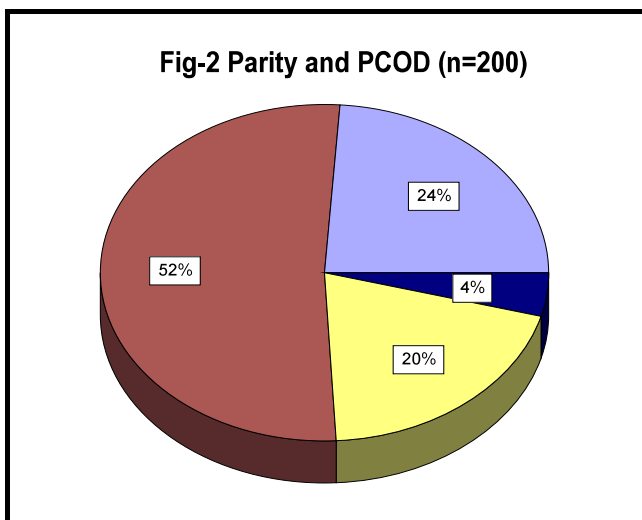
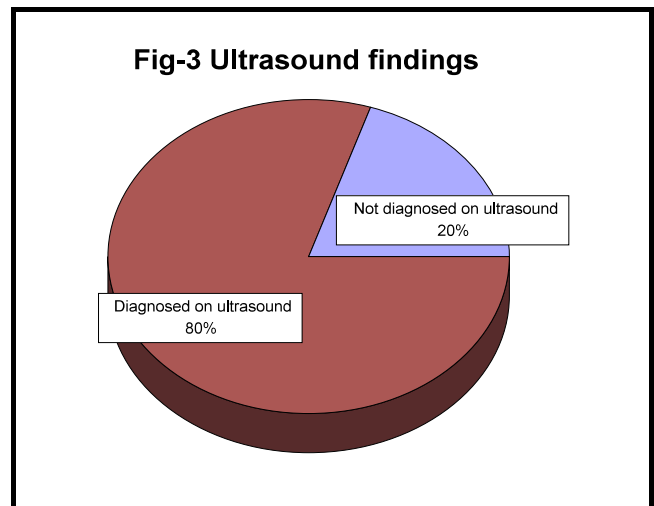
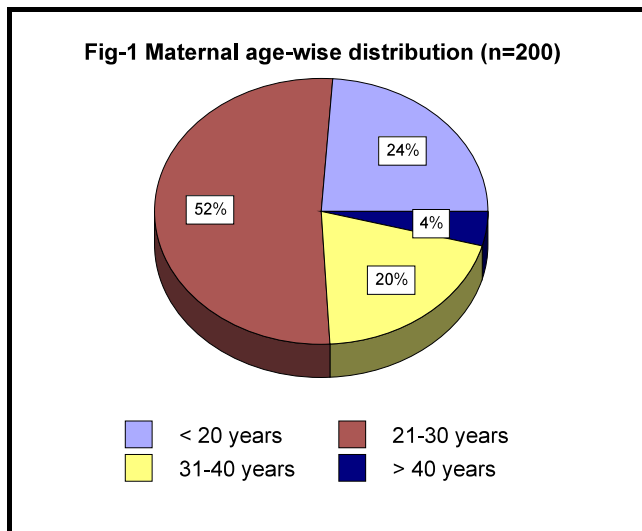
In general physical examination, height and weight of patients was measured. Presence of hirsutism and demonstration of galactorrhea was noted. To rule out any pelvic pathology, routine pelvic examination was done. Then ultrasonography was performed. Ovarian size with peculiar morphology of PCOD in ovary was noted. After that hormonal profile such as LH, FSH and prolactin were performed along with FSH and LH ratio. Androgen levels were only performed in hirsutism patients.

Treatment was started with clomiphene citrate after diagnosis. Initial dose was 50 mg that was raised upto 150 mg. pregnancy rate was maximum on 100 mg of clomiphene citrate. Metformin was not added in this study. In clomiphene resistant patients, ovarian drilling was performed. Clomiphene citrate was not added in first 3 months after ovarian drilling. But in some patients, where required result, not appeared then clomiphene citrate again added.

**RESULTS**

Most of the patients were in the age group of 21-30 years. The youngest patient was of 17 years and eldest was of 42 years as shown in Fig-1. Majority of the women were nulliparous or of low parity comprising 92% of cases Fig-2. Ultrasound is very helpful for diagnosis of PCOD. About 80% of patients were diagnosed as PCOD on ultrasound Fig-3. There is increased level of LH in 72%, 8% of patients have in addition, raised prolactin levels Fig-4.

(30%) of the cases as shown in table-I. Out of 200 patients treated with clomiphene ovulation occurs in 120 (60%) patients, restoration of menstrual cycle occurs in 152 patients (76%). Pregnancy occurred in 71 patients (35.5%) which is too low and incidence of early miscarriage (in 19%) is very high as given in Table-II. laparoscopic ovarian drilling is done in 60 (30%) patients, ovulation occurs in 50 (83%) patients, pregnancy rate 37 (62%) while miscarriage rate is low. Only in 9 patients (15%) as is evident from Table-III.



All subfertile patients of PCOD were treated initially with clomiphene citrate while surgical treatment is done in 60

This study shows that 200 patients of PCOD, were treated with clomiphene citrate. It is cheaper than any

other treatment of PCOD. Ovarian drilling was done in clomiphene resistant cases. With clomiphene ovulation occurs in 60% of patients but pregnancy rate was only in 35.5%, which is quite low. Similarly miscarriage rate was 19% which was quite high.

Mode of treatment	No of cases	%age
Ovulation induction with clomiphene	200	100%
Ovulation induction with gonadotrophin	-	-
Ovarian drilling	60	30%

Symptoms	No of cases	%age
Restoration of normal menstrual cycle	152	76%
Ovulation	120	60%
Pregnancy	71	35.5%
Miscarriages	38	19%

	No of cases	%age
Resstoration of normal menstrual cycle	50	83.3%
Ovulation	50	83.3%
Conception	37	62%
Miscarriages	9	15%

	Clomiphene	Ovarian drilling
Restoration of normal menses	76	83.3%
Ovulation	60	83.3%
Pregnancy	35.5	62%
Miscarriage	19	15%

While with ovarian drilling ovulation occurs in 83% and pregnancy rate was high i.e. 62% while miscarriage rate was not as high as compared with clomiphene i.e. 15%. GnRH analogue and purified FSH were not used because they were quite expensive (Table-IV).

## DISCUSSION

The true incidence of PCOD is unknown. Recently it has been reported to occur in as many as 22% of the female population<sup>3</sup>. The Incidence of PCOD in our study was 25% from 200 patients, which was not very high. This was not a true incidence for a specified population, because it is a private clinic and selected cases are referred to consultant's clinic.

In a large series of 827 women with PCOD treated with clomiphene citrate, review by Mac Gregor et al, 76% ovulated but the conception rate was only 33%. Luteal phase inadequacies, cervical mucus hostility and an increase in miscarriage rate have long been cited as possible explanation for this discrepancy. In our study out of 200 patients, 60% ovulated and conception rate was 35.5% with clomiphene citrate. But the miscarriage rate was quite high i.e. 19%.

With laparoscopic ovarian drilling, ovulation found to occur in more than 80% of women<sup>11,12,13</sup>. The success rate in terms of ovulatory cycles and pregnancies with diathermy or laser drilling of ovaries, appear to be comparable to that of wedge resection<sup>11,12,14</sup>. In our unit ovulation after ovarian drilling was 83.3%. Armar et al<sup>12</sup> found postoperative endocrine changes following ovarian drilling and transient rise in FSH on day after surgery and a persistent fall in testosterone and androstenedione levels<sup>15,16</sup>. The immediate effects on the LH were variable but there was a fall by the follicular phase of the next cycle.

In the series of Armar et al there were 3 first trimester miscarriages and 8 successful pregnancies out of first eleven pregnancies following laparoscopic ovarian drilling<sup>12</sup>. Gjonnaess reported the incidence of miscarriage as 15% whereas the incidence of miscarriage in our unit was also 15%<sup>16</sup>.

Our study shows that with laparoscopic ovarian drilling, ovulation and conception rates are high while miscarriage rate is less as compared to clomiphene citrate. Similarly with laparoscopic ovarian drilling, the adhesion formation is less as compared to laparotomy for wedge resection<sup>17</sup>.

## CONCLUSION

Polycystic ovarian disease is a common endocrinological disorder of reproductive age. There is a wide variation in the biochemical and clinical features of the disease. A few patients may present with all the classical signs and symptoms as described by the Stein and Leventhal<sup>7</sup>, but most of them may have less overt physical and endocrinological irregularities. All women suspected of having PCOD should be investigated thoroughly to rule out this disorder.

Subfertility due to PCOD is a common presentation. This is due to anovulation because of altered endocrinological function. Conventional ovulation induction techniques may be successful but quite a few number of these patients fail to respond to first line therapy of antioestrogen. Traditionally the next step of these managements has been the administration of gonadotrophins in one form or another, along with various combination regimens. This type of treatment is expensive, stressful for patient as well as demanding for clinician. The results are not very encouraging and risk of hyperstimulation, multiple pregnancy and increased chances of miscarriage remains.

Following the recent introduction of laparoscopic ovarian drilling as an alternative form of treatment, it is quite obvious and logical that this form of therapy should be the next step in management of these patients who fail to respond to antioestrogen therapy, Gonadotrophins (GnRH), purified FSH as well as GnRH analogues should be reserved for more difficult cases and for those patients who are being treated by assisted reproduction techniques.

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