

## EFFECT OF PATHADI KWATHA IN THE MANAGEMENT OF POLYCYSTIC OVARIAN SYNDROME – A REVIEW

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### Abstract

Polycystic ovarian syndrome is a metabolic, hormonal disorder and a group of symptoms develop in the body in this disease. This is a burning issue in females in today's era. In this study data from total 2 research works has been taken which includes *Pathadi Kwatha*. The data of total 58 patients who were treated by *Pathadi Kwatha* is collected in this study. The patients were enrolled in the studies from the OPD of PTSR dept. IPGT & RA Jamnagar & *Pathadi Kwatha* was prepared in Pharmacy of GAU Jamnagar. In 1<sup>st</sup> study total 38 patients between 16 to 40 years age group were treated by *Pathadi Kwatha* for 3 months in 25 ml (prepared from 10 gm *Yavakuta*) b.d dose before meal orally. In 2<sup>nd</sup> study 20 patients between 18 to 40 years age group were treated for 2 months in 20 ml (prepared from 10 gm of *Yavakuta*) B.D. dose before meal. Results showed that there was significant results found in the symptoms like menstrual irregularities, acne, reduction of BMI, obesity, follicular growth, hirsutism, acanthosis nigricans, on reduction of ovarian volume & infertility in 1<sup>st</sup> study and in 2<sup>nd</sup> study significant results found in all the symptoms except hirsutism & acanthosis nigricans. So it can be concluded that *Pathadi Kwatha* is an effective drug for managing the sign and symptoms of PCOS.

**Key words:** Polycystic ovarian syndrome; *Pathadi Kwatha*; Hormonal disorder; Menstrual irregularities; Obesity.

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## INTRODUCTION

The polycystic ovary syndrome (PCOS) is an endocrine, metabolic, reproductive and dermatological disturbance affecting women and is the foremost cause of Anovulatory Infertility.<sup>[1]</sup> Sedentary lifestyle and stress filled modern era has lead to alterations in the activities of neuro-endocrine system causing newer health challenges like PCOS The poorly understood etiopathogenesis contributes adversely to this burning health problem of women. Changing of life style of modern human has created several disharmonies in his biological system. PCOS affects women of all age groups from early adolescence (Acne, Hirsutism, Menstrual irregularities and Secondary Amenorrhoea); reproductive aged women (Anovulatory Infertility, recurrent pregnancy loss and menstrual irregularities, glucose intolerance) and also peri-menopausal and post-menopausal aged women (long standing health consequences like cardiovascular risks, diabetes mellitus, metabolic syndrome, endometrial carcinoma).<sup>[2]</sup> The ovaries of women with PCOS frequently contain a number of small cysts, hence the name poly (many) cystic ovarian syndrome. It is known that the ovaries of women with PCOS produce excess amounts of male hormone known as androgen. This excessive production of male hormones may be a result of the abnormalities in insulin production. Its prevalence <sup>[3]</sup> is increasing day by day. 1 among 15 women have PCOS globally, Adolescent girls in schools - 9.13% - 36%, Reproductive age- 30% , Peri-menopausal women - 6-10%. On Polycystic ovarian syndrome 1<sup>st</sup> study done by Dr. Ashokan<sup>[4]</sup> in 2014- Total 38 patients between 16 to 40 years age group were treated by *Pathadi Kwatha* for 3 months in 25 ml(prepared from 10 gm *Yavakuta*) b.d dose before meal orally. *Pathadi Kwatha* had shown good result in menstrual irregularity, weight reduction, Acanthosis nigricans, hirsutism, conception, acne. 2<sup>nd</sup> study done by Dr. Ashiya in 2018<sup>[5]</sup> (P.G. study):- Total 20 patients between 18 to

40 years age group were treated by *Pathadi Kwatha* for 2 months in 20 ml (prepared from 10 gm of *Yavakuta*) b.d. dose before food. *Pathadi Kwatha* had shown good results in managing menstrual irregularity, weight reduction, conception, acne.

## MATERIALS AND METHOD

Diagnosed patients of PCOS based on clinical and USG findings, fulfilling the selection criteria were selected and registered from P.T.S.R, O.P.D. of I.P.G.T. & R.A. Jamnagar. The drug was procured from Pharmacy of Gujarat Ayurved University, Jamnagar in 2<sup>nd</sup> study while *Patha* was procured from SNA Pharmacy, Trissur, Kerala in 1<sup>st</sup> study and identified in Pharmacognosy lab, I.P.G.T. & R.A., Jamnagar.

### 1<sup>st</sup> study

#### Inclusion Criteria

1. Patients aged between 16-40years.
2. Patients presenting with clinical manifestations of PCOS like
  - a) Menstrual irregularities like Oligomenorrhoea, Amenorrhoea, Menorrhagia.
  - b) Diagnosed cases of anovulatory Infertility due to PCOS.
  - c) Hyperandrogenism- Acne, Hirsutism, Acanthosis Nigricans
3. Obesity (BMI grading WHO)<sup>[6]</sup>
4. Satisfying the diagnostic Rotterdam revised criteria 2004 (with 2/3 criteria)<sup>[7]</sup>
  - a) Clinical or Biochemical evidence of Hyperandrogenism.
  - b) Oligomenorrhoea, Amenorrhoea or Menorrhagia.
  - c) Anovulation /Oligo-ovulation
  - d) PCO features on USG (>10 follicles in a ovary/or one cyst > 10 mm in size)

5. History of PCOS in mother /sibling with clinical manifestations.

### Criteria for Exclusion

1. Pelvic /Systemic diseases (like endometriosis, hydrosalpinx, fibroid uterus) causing oligomenorrhoea and anovulation.
2. Organic lesions of reproductive tract like T.B, carcinoma and congenital deformities

Patients suffering from the following clinical conditions were excluded

1. Adrenal Hyperplasia
2. Androgen secreting neoplasm
3. Thyroid dysfunction
4. Diabetes Mellitus
5. Hypertension
6. Chronic hepatic / renal disease
7. Cushing's syndrome
8. Cardiac diseases
9. Hyperprolactinaemia
10. Current or previous (within last 6 months) use of OC Pills, Gluco-corticoids, anti-androgens, ovulation induction agents, anti diabetic, anti-obesity drugs, or other hormonal drug

### Laboratory Investigations

#### Haematology

Haemoglobin, T.L.C., D.L.C., E.S.R.

**Urine:** Routine and Microscopic

#### Bio-chemistry

Lab investigations like

1. Fasting Blood Sugar
2. S. Fasting Insulin
3. S.FSH, S.LH, S.LH: S.FSH Ratio
4. S. Fasting Insulin: Fasting Blood Sugar Ratio
5. S. Cholesterol, S. Triglycerides
6. S.TSH (B.T)

and USG

### 2<sup>nd</sup> study

#### A) Inclusion criteria:

1. Both married /unmarried female patients in the age group of 18-40yrs.
2. Patients with clinical features of PCOS like- amenorrhoea or Oligomenorrhoea, Anovulatory Infertility, Acne, Hirsutism, Obesity, Acanthosis Nigricans.

#### Diagnostic criteria

Rotterdam revised criteria 2004 (2 out of 3 symptoms if present)<sup>[8]</sup>

- a) Anovulation or Oligo-ovulation.
- b) Hyperandrogenism-

- 1) Clinical -(Acne, Hirsutism)
- 2) Biochemical - (S. testosterone > 70 ng/ml).

- c) PCOS features on USG ( ≥12 Follicles of 2-9mm in size in each ovary ) or ovarian volume >10 cc.

#### Exclusion criteria

- Age group – Less than 18 yrs and more than 40 yrs.
- Any pelvic or systemic diseases:- causing Oligomenorrhoea and Anovulation.
- Organic lesions of reproductive tract like Carcinoma and congenital deformities.
- Patients suffering from uncontrolled HTN, Hepatic/Renal disease, Cushing's syndrome, Cardiac diseases etc.

#### Laboratory investigations (BT & AT)

#### General

- i. Hb%, T.L.C., D.L.C., ESR; BSL – FBS & PPBS, LFT, RFT, S. Cholesterol, S. Triglycerides.

ii. Urine –Routine and Microscopic.

### Special

- Biochemical & Hormonal: Sr. Testosterone (B.T. Only)
- USG (TVS/TAS): Evidence of PCOS, Follicular study, 3times (BT, AT & After follow up). (Table 1 to Table 3)

### Method of *Kwatha* preparation<sup>[9]</sup>

As per the standard method of preparation of *Kwatha*, the drugs were cleaned boiled with 16 times water and reduced to 1/8<sup>th</sup>. Then the prepared *Kwatha* is cooled down and filtered. (Table 4)

## RESULTS

### Results of 1<sup>st</sup> study

#### Effect of therapy on menstruation

##### Menstrual interval

*Pathadi Kwatha* had shown highly significant result on reducing the interval of menses. There was 75.58% improvement noted.

##### Duration

There was 74.17% improvement noted in increasing the duration of menses.

##### Amount of bleeding

65.35% increase in bleeding was found after treating with *Pathadi Kwatha*.

Effect of therapy in reducing the passage of clotted menses was highly significant with  $p < 0.001$  with 87% reduction.

#### Effect of therapy on weight reduction, BMI and WHR

*Pathadi Kwatha* had shown highly significant results with  $p < 0.001$  and percentage wise reduction of weight was 4.066 %.

Effect of therapy on BMI was statistically non-significant with  $p > 0.05$  with percentage reduction of 2.139%.

Effect of therapy on WHR (waist hip ratio) was non-significant statistically with  $p > 0.05$  and percentage wise reduction of 0.879%.

#### Effect of therapy on ovarian volume

The therapy had shown highly significant results in both right and left ovaries volume reduction with  $p < 0.001$  and percentage wise reduction up to 21.72% & 21.43% in right and left ovaries respectively.

#### Effect of therapy on Hirsutism

The therapy had shown highly significant result with  $p < 0.001$  and percentage wise improvement was 23.99%.

#### Effect of therapy on Acne

There was significant results with  $p$  value of  $< 0.05$  with percentage relief of 26.03 %.

#### Effect of therapy on follicular maturity

The follicular growth was assessed based on the gradation of follicular maturation from 0 to 4; showed a shift of Grade 0 in mean % difference from 74% (BT) to 6% (AT) and 12% during the follow up period. Grade 1 had changes from 10% BT to 20% difference in AT; and was 22% after follow up period.

**Table 1: Treatment protocol**

Sr. No	Name of drug	Dose	Duration	Kala
1.	Pathadi Kwatha (1 <sup>st</sup> study)	25ml bd.	3 months	Apana kala (before meal)
2.	Pathadi Kwatha (2 <sup>nd</sup> study)	20 ml bd	2 months	Apana kala (before meal)

**Table 2: Ingredients of Pathadi Kwatha<sup>[12]</sup>**

Sr.No.	Drug	Botanical name	Part used	Quantity
1	Patha	Cissampelos pareira. Linn.	Root	1Part
2	Pippali	Piper longum Linn.	Dry Fruit	1Part
3	Sunthi	Zingiber officinale Roxb.	Dry Rhizome	1Part
4	Maricha	Piper nigrum Linn.	Dry Fruit	1Part
5	Vrikshaka	Holarrhena antidysentrica Linn.	Bark	1Part

**Table 3: Properties of Pathadi Kwatha<sup>[13]</sup>**

Sr.No.	Drug	Rasa	Guna	Virya	Vipaka
1	Patha	Tikta	Laghu, Tikshna	Ushna	Katu
2	Pippali	Katu	Laghu, Snigdha, Tikshna	Anusna Sheeta	Madhura
3	Sunthi	Katu	Laghu, Snigdha	Ushna	Madhura
4	Maricha	Katu	Laghu, Tikshna	Ushna	Katu
5	Vrikshaka	Tikta, Kashaya	Laghu Ruksha	Sheeta	Katu

**Table 4: Action of Pathadi Kwatha<sup>[14]</sup>**

Sr.No.	Drug	Dosha karma	Pradhana karma
1	Patha	Kapha-Pitta Shamaka	Stanyashodhana
2	Pippali	Vata-Kapha Shamaka	Kasahara
3	Sunthi	Kapha-Vata Shamaka	Triptighana
4	Maricha	Vata-Kapha Shamaka	Deepana
5	Vrikshaka	Kapha Pitta Shamaka	Aamhara (Upshoshana)

**Table 5: Overall effect of therapy of 1<sup>st</sup> study**

Parameters	Criteria	Group B (Pathadi Kwatha)
Marked Positive response	>75 %	(n=14)38%
Moderate Positive response	51-75 %	(n=11)28%
Mild Positive response	26-50 %	(n=08)20%
Unchanged	≤25 %	(n=05)14%

**Table 6: Overall effect of therapy of 2<sup>nd</sup> study**

Parameters	Criteria	Group B (Pathadi Kwatha)
Unchanged	<25 %	(n=8) 40%
Mild improvement	25-50 %	(n=10)50%
Moderate improvement	51-75%	(n=2)10%
Complete cured	76-100%	0

Grade 2 had % difference from 10% (BT) to 14% (AT) and 10% after follow up period. In Grade 3, only 6% had ovulation (BT) whereas it improved gradually in first, second and third month to 10%, 32% and 48% respectively; and the same remained 30% after follow up period.

### Effect of therapy on conception

Total 3 patients conceived during the treatment and 1 during follow up.

### Results of 2<sup>nd</sup> study

#### Effect of therapy on menstruation

Menstrual interval :- On menstrual interval the therapy had shown highly significant result at  $p < 0.001$  with 58.53% relief.

Duration:-There was 66.66% improvement noted in increasing the duration of menses and shown highly significant result at  $p < 0.001$ .

Amount of bleeding:- 71.42% increase in bleeding was found after treating with *Pathadi Kwatha* with highly significant result at  $p < 0.001$ .

#### Effect of therapy on Acne

There were significant results with p value of 0.002 with percentage relief of 52 %.

#### Effect of therapy on weight reduction, BMI

*Pathadi Kwatha* had shown significant results with p 0.004 and percentage wise reduction of weight was 3.11%.

Effect of therapy on BMI was statistically significant with p 0.004 with percentage reduction of 3.14%.

### Effect of therapy on ovarian volume

Effect of therapy on reduction in size of left and right ovaries showed that the results were highly significant with  $p < 0.001$  and percentage wise reduction in left and right ovarian size was 17.76% & 18.03%.

### Effect of therapy on Hirsutism and Acanthosis nigricans

The therapy hadn't shown any improvement in both the symptoms, it may be due to shorter duration of treatment.

### Effect of therapy on improvement in follicle size and ovulation

Effect of therapy on improvement in follicle size showed that results were highly significant with  $p < 0.001$  but percentage wise improvement was 71.42% and 40% patients had ovulation.

### Effect of therapy on conception

Effect of therapy on conception was 13.33%

## DISCUSSION

In Ayurvedic classics, as we know, there is no any single condition, which can be compared to PCOS. As PCOS is represented by menstrual irregularities mainly, which are also included in *Ashto Artava Dushti*, the treatment given for *Artava Dushti* may be taken for the management of PCOS.<sup>[10]</sup> In the present study, hypothesis behind the PCOS is mainly *Kapha* and *Vata Dushti*. So *Pathadi Kwatha* specified in *Vatakaphaja Artava Dushti (Granthibhuta Artava Dushti)* was selected. Contents of *Pathadi Kwatha* are mainly having *Kapha-Vata Shamaka* properties like *Katu-Tikta Rasa, Ushna Virya* and *Katu Vipaka*.



With these properties, *Pathadi Kwatha* exerts effects like *Deepana*, *Ama Pachana*, *Lekhana*, *Medovilayana* and *Srotoshodhana* etc. Due to these actions, *Sanga* in *Artavavaha Srotas* has been removed and at the same time correction of *Agni Dushti* take place. As *Artavavaha Srotas* become free from *Avarodha* or *Avarana*, the vitiated *Kapha* and *Vata* comes to normal state. Thus normalizes functions of *Apana Vata* and causes regular *Artava Pravritti* (menstruation) and normal *Beeja Nirmana* (ovulation). With the correction of *Jatharagni*, the *Dhatwagnis* also become normal. So there is good production of *Artava* as an *Upadhatu* from the *Rasa Dhatu*. Thus this process restores normal metabolism and the state of *Medovridhi* decreases leading to reduction in weight which further supports the course of action of normal menstruation and ovulation. *Pathadi Kwatha* contains *Trikatu* as common ingredient which may augment the process of metabolism and enhance the bioavailability of the drugs.

This may be the reason for enhanced activity of *Pathadi Kwatha* in *Amapachana*, *Srotovishodhana*, *Medohara*, *Artava Janana* and *Artava Pravartana*. *Pathadi Kwatha* due to its above said properties reduced the acne; by *Srotovishodhana* and *Kapha-Medohara* action. Reduction in ovarian volume achieved by the *Srotoshodhana* and *Vatanulomana* by trial drug. Also with better *Rasa-Raktavishodhana* and *Dhatu Poshana* action reduced the abnormal stromal proliferation as well as sclerotic changes in ovarian stroma, reduced the cystic lesions and thus in turn reduced the ovarian size. A substantial raise in ovulation points towards the clinical efficacy of the trial drug in folliculogenesis and maintenance of ovulation at mid cycle by regularization of HPO axis. Trial therapy was not only effective on ovulation but also substantially reduced multiple cystic lesions of ovaries. Thus the trial drug was effective in reversal of fertility by regulating the GnRH pulsatile release and HPO axis regularization. Thus weight reduction and ovarian volume

reduction was achieved by the therapy; which may be reason for augmented follicular development and ovulation.<sup>[11]</sup> (Table 5 and Table 6)

## CONCLUSION

Seeing the results of the present study it can be concluded that *Pathadi Kwatha* had shown promising results in managing symptoms of PCOS. It is very effective in regulating menstruation in all components i.e. duration, interval and amount of bleeding, managing acne, weight and BMI reduction, reduction in ovarian volume, in improvement of size of follicle, in ovulation and in achieving conception. PCOS is a burning issue among females of nearly all age groups. As it is a multisystem disorder it is very difficult to treat. In allopathic treatment, the patients are consuming hormonal drugs, anti diabetic drugs and operative procedures like ovarian drilling. This treatment is very expensive and there is no surety for relapse of the disease. So *Pathadi Kwatha* can be used instead of all these costly treatments. This drug is cost effective, easily available, easy to use & can be taken in place of *Shodhana* therapy. So *Pathadi Kwatha* can be used as a standard drug for the treatment of PCOS.

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