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A Case Study On Management Of PCOS With A Herbal Formulation

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ABSTRACT: -

Nowadays, in the name of urbanization, there is increase in sedentary lifestyle, eating disorders, excessive stress from work and study, excessive exercise or physical activities. Due to this, women have been suffering from menstrual abnormalities such as oligomenorrhea, anovulation, infertility, etc. All these disorders are found together under a condition known as polycystic ovarian syndrome. Polycystic ovarian syndrome is a condition of hormonal imbalance characterized by oligomenorrhea/anovulation, polycystic ovaries and clinical or biochemical hyperandrogenism. Any 2 of these 3 criteria are enough to define this condition. In Ayurveda, this condition is very much similar to conditions like *Artava Kshaya* (Oligomenorrhea), *Pushpaghani Jatiharini* (Anovulatory cycle), *Kaphaj-vataj Artavdushti* (Hyperandrogenic condition). When not treated early, it leads to complications like glucose intolerance, dyslipidemia, cardiac disease, infertility. A 22 year old female of married life of 2 years presented to PTSR OPD of RGGPGA College and Hospital, Paprola, with the complaints of irregularity of menses with increased interval since about 5 and half years and inability to conceive since 2 years. Ultrasonographic findings showed Polycystic ovarian pattern. A *Samshaman regimen*, *Nagaradi Kwath* was planned for the management of oligomenorrhea which was the major symptom of the patient. The regimen included of composition of medicinal plants (ref. Harita Samhita) given as decoction orally. Soon after 6 months of intake of the Ayurvedic regimen along with practice of appropriate diet and Yogasana, menstrual pattern was established in natural way and the patient conceived on the 6th month of her treatment.

Keywords: Polycystic Ovarian Disease, *Artava Kshaya*, *Pushpaghani*, *Kaphavataj Artavdushti*



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INTRODUCTION

Polycystic Ovarian Syndrome is a metabolic and endocrinological disorder which is characterized by oligo ovulation or anovulation along with signs of hyperandrogenism and multiple small ovarian cysts. Any two out of these three criteria, i.e. Clinical and/or biochemical hyperandrogenism, Oligo-/anovulation and Polycystic ovarian pattern [1] must be present to define condition of PCOS. It is also usually associated with impaired glucose tolerance, hyperinsulinemia and dyslipidemia. Signs of hyperandrogenism include irregularity in menses, hirsutism, acne, alopecia. Acanthosis Nigricans is another sign that is manifested due to insulin resistance. When left untreated, complications like dyslipidemia, metabolic syndrome, cardiovascular disease, endometrial neoplasia, infertility, pregnancy loss occur. With reference to aforementioned signs and symptoms, PCOS can be closely related to certain conditions like *Artavakshaya*, *Pushpaghani* *Jataharini*, *Kaphavataj Artavdushti* mentioned in Ayurveda Classics. Among these, *Artavakshaya* is a condition when menstruation doesn't occur within an interval of a month with reduced flow of *Artava* (menstrual blood) or flow for less duration (less than 3 days) due to deficit amount of *Artava* [2] (menstrual blood/hormonal activities) which is in conventional science called as Oligomenorrhoea. In case of *Pushpaghani*

Jataharini [3], there are features similar to PCOS like the woman menstruates but is of no significance, i.e. the cycles are anovulatory (anovulation); she has hairy and fatty cheeks (due to hirsutism and obesity due to Hyperandrogenism and dyslipidemia respectively that are associated with PCOS). In this condition, there is sometimes anovulation causing oligomenorrhea or scanty menses. *Kaphavataj Artavdushti* on the other hand also known as *Granthibhuta Artavadushti* is caused by the vitiation of *Kapha* and *Vata* and has association with features of the both *Doshas*. [4] *Kaphaj* features that are present in *Kaphaj Artavadushti* are not typically present in PCOS whereas other features like obesity, *Medogata Granthi* (multiple cysts in the bilateral ovaries), impaired glucose tolerance are present. Similarly, the features of *Vataja Artavdushti* like dark/black colored *Artav*, *Vataja* type of pain like *Toda* (piercing or perforating pain), *Vedana* (throbbing type of pain) may be present. Hence, the condition of Polycystic Ovarian Disease couldn't be exactly equivalent to *Granthibhoota Artavadushti* but it can be explained as a condition where there is vitiation of *Kapha* and *Vata Doshas*. Also, there may be atrophic changes in endometrium due to higher levels of androgen. Due to prolonged and sustained exposure of endometrium to the estrogen with no or less level of progesterone, hyperplasia of the endometrium may take

place. These explain the evidences of scanty menses or acyclic bleeding with metrorrhagia in PCOS.

In context of PCOS, certain symptoms that occur may be explained as:-

- Oligomenorrhea/Anovulation:- Due to inappropriate nutrition, sedentary lifestyle and intake of *Kapha-Vatakar-aahar*, there is *Agnimandya*. *Agnimandya* causes *Ama* production and improper nourishment of *Rasa Dhatu* and subsequently improper nutrition of *Artava*. This causes inadequate production of *Artava*, thereby manifested as oligomenorrhea.
- Intake of inappropriate *Aaharvihar* causes *Vatakapha dushti* causing *Agnimandya* which subsequently causes the production *Saam Rasa* from inappropriate *paaka* of *Aahar ras*. *Saam Rasa* further leads to formation of vitiated *Artava* manifesting the symptoms related to menstrual abnormalities like oligo-amenorrhoea-excessive-irregular menstrual bleeding. Further, *ama* causes *Strota-avarodhjanya saam-medo-dhatuvidhi* and *Vataprakopa*. These causes manifestation of symptoms like obesity and hyperandrogenism. Here *Medo dhatu dushti* also may be needful for the explanation of the signs of insulin resistance, impaired glucose intolerance, dyslipidemia, cardiovascular diseases and metabolic syndrome.
- Also, *Dushti* of *medodhatu* and vitiation of *Apana vayu* explains the formation of *Granthibhoot artav* in ovaries giving the appearance polycystic ovaries. All these facts mentioned above helps in justifying the Samprapti Ghatak (aetiological factors) of the condition of Polycystic ovarian disease.

Samprapti ghatak [5]

- **Dosha- Vata-Kapha**

- **Dushya- Rasa, Rakta, Artava**
- **Strotas- Rasavah, Artavavaha**
- **Agni- Jatharagnimandya**
- **Strotodushti type- Sang**

CASE STUDY

A female patient aged 22 years, married since 2 years, presented with the complaints of irregularity in menses with increased interval since 5 and half years and inability to conceive since 2 years. On further enquiry, her menstrual cycle lasted for 2-3 days only, occurred after 35 days-45 days. Bleeding was of mild to moderate quantity; dark brown to reddish color, decreased in amount than before i.e. she used 1-2 quarter to half soaked pads per day for 2-3 days. It was associated with pain in lower abdomen and back which was relieved on intake of NSAIDs. There was no history of sudden gain in weight, no significant hair growth in face and other body parts. There was mild to moderate acne in face and back. After marriage, she has been living regularly with her husband, has been having unprotected intercourse of adequate frequency ever since her marriage but was unable to conceive. There was no evidence of inter-menstrual bleeding or heavy bleeding. Ultrasonographic study showed bilateral polycystic ovaries and otherwise with normal findings. Hormonal assays were done for TSH, LH, FSH, Total Testosterone and Serum Insulin which were all within normal range. There was no history of hypertension, diabetes mellitus, thyroid disorders or any other chronic and infectious diseases. There was also no history of surgical interventions, blood transfusions or organ transplantation. No any history of chronic or infectious diseases among family members. On enquiry, she said that she is fond of eating packaged and processed food and living sedentary lifestyle.

Menstrual History:**Table no.1: Present and Past menstrual history**

	Past	Present
Duration	3-5days	2-3days
Interval	28-32 days	35-45 days
Amount	2-3 pads/day	1-2 pads/day
Pain	Not present	Present
Clots	Not present	Not present
Smell	Not present	Not present

General Examination: No Abnormality Detected.

General Composition- Fair

General Appearance- Normal

BP-118/76 mm of Hg

PR- 82 bpm

RR- 16/min

FSH: 8.40mIU/ml (D3)

LH: 10.02mIU/ml (D3)

FBS= 84 mg/dl

Serum Insulin (Fasting): 9.51mIU/ml

Total Testosterone: 26.19ng/dl

USS Pelvis- B/L Polycystic Ovaries.

Systemic Examination:

CNS- Intact, well oriented to time, place and person.

CVS- S1S2 Normal, no added sounds.

Chest- Bilateral chest clear, Normal Vesicular Breathing Sound heard

GIT (Per abdominal examination)- Soft, non-tender, no organomegaly.

Local Examination:

Per Speculum Examination: cervix- Nulliparous size, regular, no congestion, thin white discharge present

Per Vaginal Examination: Cervix- Nulliparous size, regular, mobile, no motion tenderness.

Uterus- Normal size, anteverted, mobile, non-tender

B/L fornixes- Clear, non-tender

INVESTIGATIONS:

T3-1.15ng/ml

T4-5.00mcg/dl

TSH-3.081uIU/ml

MATERIALS AND METHODS:

The treatment formulation, *Nagaradi Kwath* context has been referenced from *Harit Samhita*, from a chapter dedicated to explain *Vandhyatva Chikitsa*.^[6] The composition of *Nagaradi Kwath* has been depicted in context of treatment of *Artavdushti* due to *Vataj Dosha*. These kinds of *Doshaj Artavdushti* are explained to cause *Vandhyatva* (infertility). The characteristics like painful menses, blackish colored *Artava* are found when there is *Vataj Artavdushti*. Above mentioned composition is mentioned to treat the *Vataj Artavdushti*. When treatment of vitiated *Dosha* is done, the female can subsequently conceive.

Drug Given: *Nagaradi Kwath* of the mentioned composition.

Mode of Administration: 100ml twice daily orally for 6 months

Nagaradi Kwath has following ingredients discussed along with their therapeutic actions^[7]:-

Table no.2: Constituents of Nagaradi Kwath with respective therapeutic actions.

S.No.	Name	Latin Name	Properties	Action
1.	<i>Naagar</i>	<i>Zingiber officinale</i>	<i>Katu-Ras, Laghu, Snigdha-Guna, Madhur-Vipaka, Ushna -virya</i>	<i>Kaphavatashamak, Sheetaprashaman, Shothahar, Vedanasthapan, Deepan, Vatanuloman,</i>
2.	<i>Pippali</i>	<i>Piper longum</i>	<i>Katu-Rasa, Laghu, Snigdha, Tikshna-Guna, Madhur-Vipaka, Anushnasheeta-virya</i>	<i>KaphaVata Shamak, Deepan, Vatanulomana, Raktavarhak, Raktasodhak, Garbhasayasankochaka, Rajorodha Nashak</i>
3.	<i>Musta</i>	<i>Cyperus rotundus</i>	<i>Tikta, Katu, Kashaya-Rasa, Laghu, Ruksha-Guna, Katu-vipaka, Sheeta-Virya</i>	<i>Deepan, Pachan, Grahi, Raktaprasadan, Garbhasaysankochak, RajorodhaNashak</i>
4.	<i>Dhanvayas</i>	<i>Alhagi camelorum</i>	<i>Madhur, Tikta, Kashaya Ras, Guru, Snigha-Guna, Madhur-Vipaka, Sheeta-Virya</i>	<i>VataPitta Shamak, Kaphanisaarak, Shothahar, Vedanasthapak, Raktarodhak, Vrishya</i>
5.	<i>Kantakari</i>	<i>Solanum surattense</i>	<i>Tikta Katu Ras, Laghu, Rukshya, Tikshna-guna, Katu-vipaka, Ushna-Virya</i>	<i>KaphaVatashamak, Vedanasthapak, Shothahar, Deepan, Pachan, Tikshna, Garbhasayasankochak, Garbhasasthapak</i>
6.	<i>Brihati</i>	<i>Solanum indicum</i>	<i>Katu, Tikta-Ras, Laghu, Ruksha, Tikshna-Guna, Katu-vipaka, Ushna-virya</i>	<i>Kaphavatashamak, Vedanasthapak, Deepan, Pachan, Shothahar, raktashodhak, Garbhasayasankochak, Vajikaran, Rajorohanashak</i>
7.	<i>Patala</i>	<i>Stereospermum suaveoloens</i>	<i>Tikta, Kashaya-Ras, Laghu, Rukshya-Guna, Katu-Vipaka, Ushna-Virya</i>	<i>Tridoshashamak- esp. Kaphavatashamak, Vedanasthapak, Vranaropana, Shothahar, Vajikaran</i>

All these components of the above-mentioned formulation have *Kapha-vata shamak*, *Shothahar*, *AgniVardhak*, *Deepaniya*, *Aamapachak* properties. Also these have *Garbhasaya-sankochak* and *Rajorodha-nashak* properties which help in establishment of rich blood supply to the pelvic organs. This also facilitates the ovulation, fertilization and implantation by increasing the contractility of the smooth muscles.

As PCOD is a disease in which there is vitiation of *Kaphavata dosha* and there is formation of *Ama* due to *Agnimandya*. All these components together aids in strengthening the *Agni* and facilitates proper nourishment of *Rasa Dhatu*. Consequently adequate amount of *Artava* is formed.

Also *Vatanulomana* properties helps in directing the *Apana Vayu* in its natural direction and pace which ultimately helps in regularizing the functions of *Apana Vayu*, i.e. proper flow of menstrual blood, Ovulation, Fertilization and implantation.

Patient was advised *Pathya-Apathya* in relation

of dietary intake and *Yogasana*.

Apathya: Patient was advised to avoid intake of processed foods, white rice, white flour, sugar, sweets, chocolates, junk foods, deep fried foods, packaged foods, carbonated drinks and beverage.

Pathya: She was suggested to increase intake of foods with lower glycemic index like high fiber bread, oatmeal, brown rice, pulses along with intake of green leafy vegetables, seasonal fruits and nuts.

Yogasana: *Suryanamaskar* (Sun Salutation), *Titliasana* (Butterfly Pose), *Baddha-konasana* (the Bound Angle Pose), *Bhujangasan* (the Cobra pose), *Prasarita Padottasana* (Wide-legged forward bend pose) and *Pranayama* like *Anulom-vilom*, *Bhramari*.

RESULT

Patient after intake of the *Nagaradi Kwath* for 6 consecutive months started having regular cycles ultimately was able to conceive successfully in 6th month of treatment.

Table no.3: Signs and Symptoms before and after 3 months of regular intake of drug

S.No.	Symptoms	Before Treatment	After Treatment
1.	Duration of cycle	2-3days	3-4 days
2.	Interval	35-45 days	28-30 days
3.	Amount	1-2 pads/day	2-3 pads/day
4.	Pain	Mild	Not present
5.	Clots	Not present	Not present
6.	Smell	Not present	Not present
7.	Acne	++	+
8.	Darkening of skin	Not present	Not present
9.	Thinning of Hair	Not present	Not present
10.	Facial Hair	Not present	Not present
11.	Weight gain	Not present	Not present

Table no.4: Result in Investigations (before and after 3 months & after 6 months)

S.No.	Investigations	Before Treatment	3 months after Treatment	6 months after treatment
1.	USG	Endometrial Thickness: 9 mm Ovaries: Right Ovarian Volume: 5.7cc Left Ovarian volume: 9.7 cc Multiple small follicles are seen in both ovaries (>12 in number) showing predominant peripheral pattern of distribution and measuring upto 5mm. IMP: S/O B/L Polycystic Ovarian Disease	Endometrial Thickness: 4 mm Ovaries: Right Ovarian Volume: 3.5cc Left Ovarian volume: 4.1 cc Multiple small follicles are seen in both ovaries (>12 in number) showing predominant peripheral pattern of distribution and measuring upto 6mm. IMP: S/O B/L Polycystic Ovarian Disease	The enlarged uterus shows an evidence of a single gestational sac with fetal node inside. Decidual reaction is present. Fetal Cardiac Activity: Positive G.A. from LMP=7 wk 5 d CRL=7w0d GSD=7w1d EDD from USG=29/10/2021 IMP: Single Live Intrauterine Pregnancy
2.	Hormonal Assays	Sr. Testosterone, Total: 26.19 ng/dL FSH:8.40mIU/ml LH: 10.02mIU/ml	FSH:5.67mIU/ml LH: 7.90mIU/ml	

After completion of 3 months of treatment she had regular menstrual periods for successive 3 months and conceived successfully thereafter in the sixth month. Now she is coming for her

regular Antenatal visits to OPD of PTSR department of RGGPG Ayurvedic College and Hospital.

ULTRA SOUND PELVIS

UTERUS: - The Uterus is anteverted. Uterus is normal in size, outline & shows homogenous echo texture .No focal SOL seen. No intrauterine/extra uterine gestational sac is seen.

Uterus measures 5.1x4.0x3.4 cm in size.

Endometrial thickness measures 9 mm & is central.

OVARIES:- Both ovaries are normal in shape and show increased cortical echogenicity. Multiple small follicles are seen in both ovaries(>12 in number) showing predominant peripheral pattern in right and random pattern of distribution in left ovary and measuring up to 5mm.

Right ovarian volume=5.5cc.Right ovary is normal in size.

Left ovarian volume=9.7cc.Left ovary is prominent in size.

Both adnexa are normal. No mass lesion seen. Cul-de-sac is clear.

URINARY BLADDER: - Urinary bladder is well distended & smoothly outlined. No mass lesion /calculus visualized.

IMPRESSION: -

-Findings are likely s/o B/L polycystic ovarian disease

Please correlate clinically & various hormonal levels/ other relevant investigations

DR.PANKAJ SOOD
D.N.B.(RADIO DIAGNOSIS)
CONSULTANT RADIOLOGIST

CS Scanned with CamScanner

Fig.no.1: USS-PELVIS (Before treatment)

ULTRA SOUND PELVIS(TAS)

UTERUS: - The Uterus is anteverted. Uterus is normal in size, outline & shows homogenous echo texture .No focal SOL seen. No intrauterine/extra uterine gestational sac is seen.

Uterus measures 4.9x4.5x2.9 cm in size.

Endometrial thickness measures 4 mm & is central.

OVARIES:- Both ovaries are normal in size, shape and echotexture. Multiple small follicles are seen in both ovaries(>12 in number) showing predominant peripheral pattern of distribution and measuring up to 6mm.

Right ovarian volume=3.5cc

Left ovarian volume=4.1cc

Both adnexa are normal. No mass lesion seen. Cul-de-sac is clear.

URINARY BLADDER: - Urinary bladder is well distended & smoothly outlined. No mass lesion /calculus visualized.

IMPRESSION: -

-Findings are likely s/o B/L polycystic ovarian disease

Adv-TVS for further evaluation/follicle counting

Please correlate clinically & various hormonal levels/ other relevant investigations

DR.PANKAJ SOOD
D.N.B.(RADIO DIAGNOSIS)
CONSULTANT RADIOLOGIST

CS Scanned with CamScanner

THIS REPORT IS NOT VALID FOR MEDICOLEGAL PURPOSES.

Fig.no.2: USS-PELVIS (After treatment)

ULTRASOUND EARLY PREGNANCY

The enlarged uterus shows evidence of a single gestational sac with fetal node inside with CRL of 9.3 mm corresponding to gestation of 7wks0d.

Decidual reaction is present.

Fetal cardiac activity is positive.

G.A from LMP= 7wk5d

EDD from USG =29/10/2021

Foetal parameters: - CRL =7wk0d
GSD=7wk1d

No cervical dilatation seen.

OS is closed.

Both adnexa are normal. No mass lesion or free fluid is seen

Urinary Bladder is well distended, normal in wall thickness.

IMPRESSION: -

-Single Live Intrauterine Pregnancy

Note: All congenital anomalies cannot be picked upon Ultrasound.

I have not disclosed the sex of the foetus to the patient or her relatives

Fig.no.3: USS-PELVIS (After 6 months of treatment)

DISCUSSION

In the case discussed earlier, there were complaints of oligomenorrhea, (i.e. increased interval between consecutive menstrual cycles and decreased flow of menstrual blood) along with inability to conceive for period of more than a year despite having regular intercourse. However, there was no evidence of signs of hyperandrogenism like hirsutism, impaired glucose tolerance, insulin resistance. Depending upon the characteristic of menstrual blood of the patient, i.e. colour (dark brown/

Aruna-varna), amount, i.e. scanty/decreased flow, pain during menses, association of *Vata* vitiation could be assumed in this case. Similarly, appearance of multiple cystic follicles in bilateral ovaries could be indicator of improperly functioning *Apana Vayu*, Vitiated *Kapha* and *Medo Dhatu*.

After intake of the above-mentioned regimen for 6 consecutive months, the major complaints of irregularity in menses with increased interval, decreased flow and duration were markedly improved. Menstrual cycle was regularized to an interval of 28-30 days with

duration of 3-4 days. She had appropriate flow of menstrual blood. Similarly, there was moderate improvement in the symptoms like acne, pain during menses. On ultrasonography after 3 months, the polycystic pattern was still there, however the ovarian volume was decreased moderately. Ultimately, the patient conceived after another 3 months of the treatment. Similarly, there was also mild improvement in her hormonal assays. As the symptoms like hirsutism, insulin resistance, obesity and so on were not present since the beginning, the patient continued not having any of these symptoms afterwards as well.

The Ayurvedic regimen used i.e. *Nagaradi Kwath* for the treatment has been referenced from *Harit Samhita* from the Chapter of *Vandhyatva*, regarding the treatment of *Vataj Artavdushti* causing *Vandhyatva* or infertility. The ingredients of the regimen used are useful in pacifying vitiated *Kapha-Vata*, also regularizing the natural direction of *Vayu* of the pelvic region. Similarly, these herbal components have *Deepan* and *Ama Pachak* properties which help in proper digestion of *Aahar Rasa*. These provide adequate nutrition of *Rasa Dhatu* and subsequently adequate formation of *Artava*. *Artava* indicates the menstrual blood, ovum and reproductive hormones. Regularization of the reproductive hormones and regularization of menstrual cycles helps in restoring the fertility (proper ovulation) of an individual. In the same way, in this very case there is evidence of regularization of the menses of the patient after intake of the prescribed regimen and she successfully conceived soon after regularization of menses.

Intake of low carbohydrate diet, physical exercise and *Yogasana* prevents development of conditions like insulin resistance, dyslipidemia, obesity that are common in PCOS. Also, all suggested *Yogasana* are focused on pelvic region, opens up the pelvic

region, is considered to energy channeling in the *Mooladhar Chakra* and enhance the reproductive functions of pelvic organs. Thus, these help in reducing the stress that may be the contributing factors in infertility and PCOS.

CONCLUSION

From the discussed case study, we can ascertain that the application of *Shaman* treatment can also help in restoration of natural pattern of menses and regularization of neuro-hormonal pathways, which ultimately assures the reproductivity of the subject. The drug given helped in pacifying the *Vata* and *Kapha* doshas and set the *Apana vayu* in its natural pace. However, in severe cases of Polycystic Ovarian Disease, where there is amenorrhea/anovulation, along with severe cases of hyperandrogenism, metabolic syndrome, insulin resistance this kind of *Shaman chikitsa* alone may not be enough. In those cases, *Shaman Chikitsa* should be followed after proper *Samsodhan Chikitsa* of the patient. This case helps in justifying the efficacy of the unfound classical formulations in management of polycystic ovarian syndrome leading to infertility. Moreover, PCOS is a life style disorder, excessive use of junk food, sedentary life style are the precipitating factors. Rectifying these hidden causes along with drug management, by incorporating diet regime and *Yogasana* helped additionally to achieve main goal of reproductive life i.e. conception. Finally, we can conclude that Ayurveda can offer a lot in curing life-style related disorders instead of using synthetic hormonal preparations used conventionally having harmful side-effects.

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