



Case Study

AYURVEDIC MANAGEMENT OF PRIMARY INFERTILITY DUE TO POLYCYSTIC OVARIAN SYNDROME ASSOCIATED WITH MULTIPLE UTERINE FIBROIDS: A CASE REPORT

Archana.S^{1*}, Kalepandit¹, Anu.M.S¹, L P Dei²

*¹PhD Scholar, ²Professor and HOD, Department of Prasuti-Streeroga, IPGT&RA, Jamnagar, India.

ABSTRACT

Infertility is a disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse. As one of the leading causes of anovulatory infertility, it is believed that 5-10% of the reproductive-aged female population is living with polycystic ovary syndrome. Ayurveda considers the excellence of 4 factors- *Ritu* (ovulatory phase), *Kshetra* (*Garbhasaya*), *Ambu* (proper nourishment to embryo), and *Bija* (healthy sperm and ovum) for a successful pregnancy. Impairment to any of these factors leads to *Vandhytva* or pregnancy failure. This case study helps to plan a treatment protocol for the patient with PCOS having infertility. A 25 yr old female having regular cycles came to OPD of Streeroga of IPGT & RA, having the complaints of weight gain and failure to conceive since 2 year of active married life. On presentation she was a medium sized woman with android body habits and had mild hirsute and acanthosis nigricans over nape of neck. Gynaecological examination revealed a normal sized uterus with no other abnormalities. Sonography revealed bulky ovaries with multiple small follicles with no evidence of ovulation along with small fibroids on anterior wall (1.8cm×1.5cm) and posterior wall (2.7cm×2.8cm). Her husband's semen analysis was normal. Based on clinical findings and investigation, anovulatory factor infertility due to PCOS was diagnosed along with fibroid. *Virechana* and *Samana* were decided due to both of these factors and *Sthanyasodhana gana kashaya* was selected as *Samana* drug. Treatment was done for 3 months, during treatment itself ovulation occurred and the patient conceived after 3 months. This case being a *Krichrasadhya vyadhi*, proper care was taken including correction of the lifestyle and food habits. This case will help to understand the importance of *Sodhana* in gynecological disorders and explore the probable mode of action of *Sthanyasodhana gana kashaya* which helped in menstrual regulation.

KEYWORDS: *Sthanyasodhana kashaya*, Uterine myoma, *Virechana*, PCOS, Infertility.

INTRODUCTION

Infertility has been a major medical and social preoccupation since the dawn of human existence and women have always been the symbol of fertility. In fact both men and women are equally responsible for infertility, although 10% of all cases will remain unexplained. Infertility is a disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse. [1] The WHO estimates the overall prevalence of primary infertility in India to be between 3.9 and 16.8 %. [2] The main causes of female infertility are: the age of the patient, the high incidence of polycystic ovarian syndrome, which is related to anovulation and the presence of endometriosis. Other important causes such as pelvic infection, myomas especially sub mucous and cervical factors should be ruled out.. As many as 20% of women with infertility problems (including

fecundability and early pregnancy loss) have been diagnosed with PCOS.[3] The polycystic ovary syndrome (PCOS) is a syndrome of ovarian dysfunction along with the cardinal features of Hyperandrogenism and polycystic ovarian morphology.[4] The patient complains of increasing obesity (abdominal-50%), menstrual abnormalities (70%) in the form of Oligomenorrhoea, Amenorrhoea or Dysfunctional uterine bleeding (DUB) and Infertility.[5] Though symptomatic treatments are available for controlling hyperinsulinaemia, ovulation induction, oral hormonal therapy & surgical intervention for correcting the PCOS but no definitive treatment is of success. In addition, it may produce some iatrogenic systemic disorders. Fibroids prevent rhythmic uterine contractions during intercourse and hinder the sperm transport and hence adversely affect fertility. Fibroids also cause congestion and

dilatation of the endometrial venous plexus, which causes defective implantation and leads to early abortion.

In Ayurvedic classics, majority of Gynaecological disorders have been described under the 8 *Artava dushti* and 20 *Yonivyapads*. PCOS cannot be included in any one of the *Yonivypad* due to its various symptomatology and complex interactions with various systems. Ayurveda explained mainly four etiological factors like unhealthy lifestyle (*Mithyachara*), menstrual disorders (*Artava dushti*), genetic defects (*Beeja Dosha*) and certain unknown factors (*Daivata*) are responsible for the development of female genital disorders^[6] and it seems that all these aetiologies contribute to the development of PCOS as a whole. *Mithyachara* along with existing *Artava dushti* plays an important role in the pathogenesis of PCOS as well as fibroids. As the ultimate effect of *Artava dushti* being *Abeejatva* (anovulation), diagnosis and treatment of *Artava dushti* is of most important as it hinders the main function of female genital tract. Uterine fibroids are mostly considered as *Garbhasaya arbuda* having *Vata kapha* predominance and *Asraya* in *Mamsa*. According to Susruta, the excellence of 4 factors i.e., *Ritu* (ovulatory phase), *Kshetra* (*Garbhasaya*), *Ambu* (proper nourishment to embryo), and *Bija* (healthy sperm and ovum) are essential for conception and a successful pregnancy.^[7] In this case, anovulation denotes the absence of *Ritukala* and fibroids leads to distortion in *Kshetra* (*Garbhasaya*). Fibroids may also cause impairment in the blood supply and nourishment to embryo during the pregnancy, leads to early pregnancy loss.

Despite the growing incidence of this syndrome, limited research has been done that encompasses the entirety of PCOS Spectrum. The indefinite diagnostic criteria in addition to its immense complexity make PCOS a challenging area of research. PCOS can be considered as a *Vata kapha* predominant *Tridoshoja vyadhi* mainly affecting the reproductive system. Infertility due to multiple etiologies is always serious concern to patients as well as to physicians. There are different treatment modalities in Ayurveda which gives promising results in the management of infertility due to PCOS. This case is a humble attempt to introduce a different way

of drug selection which was based on the basic principles of Ayurveda.

Case Report

Presenting Complaints: A 25 yr old female who was a house wife came to OPD of Streeroga department of IPGT& RA, Jamnagar on 10 August 2016, having the complaints of weight gain and failure to conceive since 2 years of active married life.

History of present illness: She narrated her history of presenting complaints as follows, after 3 years of menarche at the age of 16 yrs she had developed the complaint of irregular and increased menstrual bleeding during her periods and done all investigations and found to be normal. She took Ayurvedic treatment and complaints got relieved. After 7 years, she got married with a non-consanguineous man of age 29 yrs. In 2016 March at the age of 25 yrs, she went to a gynecologist for the complaint of failure to conceive even after 2 years of active married life. During that time her cycles were regular and had no history of abortion, MTP or contraceptives. During the evaluation of infertility, sonography revealed a posterior wall subserosal fibroid (2.2×1.8) cm, and both ovaries were bulky with multiple small follicles. She took medicine for 2-3 month and discontinued after that. Then the patient came to OPD of IPGT & RA.

Family History: Father was hypertensive

Personal History: On analyzing her habits, it was found that the patient had the history of intake of high carbohydrate diet along with sedentary lifestyle. She had a normal appetite and bladder habit and occasional constipation with irregular sleep habits.

Husband Factor: Husband - Private Job. Semen analysis was normal.

General Examination: On presentation she was a medium sized woman, with android body habits. Her height was 154 cm, weight 65 kg, Body mass index of 27.4kg/m² and blood pressure of 120/80 mm of Hg. The patient was mild hirsute (over lips, chin and abdomen) and acanthosis nigricans over nape of the neck.

Gynecological examination: An anteverted normal sized uterus with no other abnormalities.

Investigations: The blood values of the patient before treatment (B.T.) and after treatment (A.T.) are as under i.e. Table No 1.

Table No 1: Laboratory investigations

Hematology	B.T.	A.T.	Differential WBC Count (%)	B.T.	A.T.
Total WBC (/ Cu.mm)	7200	9200	Neutrophils	55	56
Hb (g %)	11.07	11	Lymphocytes	39	37
E.S.R.(mm / First hr /	14	40	Eosinophils	3	4

Westergren.)					
			Monocytes	3	3
Biochemistry	B.T.	A.T.	Biochemistry	B.T.	A.T.
FBS (mg/dL)	81	56	S.Insulin(m IU/L)	9	11.2
PPBS(mg/dl)	90	70	S. TSH(μ U/ml)	1.839	1.839
S.Cholesterol (mg/dL)	136	122	S. Testosterone (ng/dL)	24.35	22.7
S. Triglyceride(mg/dl)	122	57	S.Prolactin(ng/ml)	7.6	8.1
			Glycosylated Hb	5.6	5.1

USG Findings

July 2016: Sonography showed multiple uterine fibroid, one on posterior wall (2.7×2.8cm) and other on anterior wall (1.8×1.5cm). Follicular study by ultrasonography showed no ovulation with multiple small follicles. Sonography report of patient during treatment is as depicted in Table 2.

Table 2: Ovulation study

Date	Day of LMP	Right ovary	Left ovary	Endometrium	
10/8/16	5 th day	10cc	11.2cc 8×10 mm follicle	4.2mm	PCOD++
20/8/16	15 th day	-	20×20 mm follicle -	4.8mm	
22/8/16	17 th day	-	CLH	4.8mm	ovulation++
11/9/16	4 th day	-	-	3 mm	
7/11/16	5 th day	8.1cc	9cc	5mm	
12/11/16	10 th day	16×14mm	-	4.4mm	
14/11/16	12 th day	18×16mm	-	4.4mm	
17/11/16	15 th day	Ruptured follicle	-		Ovulation++

Based on the clinical findings and investigations, the anovulatory factor infertility due to polycystic ovarian syndrome was diagnosed. Here uterine fibroids were also a risk for conception and pregnancy. The treatment was mainly aimed to restore the fertility potential of the patient by regulating the menstrual cycle and ovulatory cycle, and preventing the further growth of fibroids.

The treatment protocol included both *Sodhana* and *Samana*. The procedure of *Sodhana chikitsa* is depicted in Table No.3

1. Sodhana Chikitsa

Table No.3: Sodhana Chikitsa

No.	Procedure	Drug & Dose	Duration
1	<i>Deepana, Pachana</i>	<i>Trikatu Churna</i> 3 gm BD with luke warm water	3 Days (from 5 th day of menses)
2	<i>Snehapana</i>	<i>ShudhaGoghrita</i> (Started with 20 ml and gradually increased upto 120 ml on 7 th day)	7 Days
3	<i>Sarvanga Abhyanga & Sweda</i>	<i>BalaTaila</i> – 2 times a day	2 Days
4	<i>Abhyanga, Swedana, Virechana Karma</i>	<i>Trivritaleha</i> – 100 gm (empty stomach)	1 Day
5	<i>Sansarjana Karma</i>	Dietary regimen	7 Days

*Dose of *Sneha* decided as per the appetite of patient and time taken for the digestion of *Sneha*.

*The patient showed *Samyak snigdha lakshanas* like loose stools, aversion to ghee, tiredness and an oily skin on 7th day

*After the intake of *Trivrut lehyam*, 10- 12 *Vegas* were noted with no other complications.

2. Samana Chikitsa: *Sthanyasodhana gana kashaya* (11) 48ml BD, ½ hr before food was given for next 3 months. The patient was advised to do proper exercise (walking ½ hr regularly in the morning) and maintain low calorie healthy diet.

Follow up and Outcomes: After the *Virechana* the weight of patient was reduced to 62kg. During the treatment, sonography was done to evaluate the follicular status and ovulation and on 22nd August 2016 ovulation study became positive. The patient was advised regular coitus with husband during the ovulation period. In November sonography is done to evaluate the ovarian size and it is found that volume also reduced significantly. Again the patient came on 9th January 2017 with the complaint of missed periods. Her last menstrual period was on 2/12/16. The patient was advised to do urine pregnancy test and was found to be positive. The pregnancy went on with mild complications like back ache, constipation etc and an elective caesarian section was planned due to complicated pregnancy. On 1st September she delivered a female baby having weight 3.1kg through elective caesarian section.

DISCUSSION

There is no direct correlation of polycystic ovarian syndrome in Ayurveda. On review of Ayurvedic literature, there are many conditions which may be point towards the symptomatology and complications of PCOS. By analyzing the causes of *Yonivyapad*, *Mithyachara* and *Artavadushti* having a crucial role in the pathogenesis of PCOS. Early diagnosis and treatment of *Artava dushti* is of most important as it further leads to *Abeejatva* (Anovulation) [12] and thus infertility. In this case, multiple fibroids were also diagnosed having direct impact on reproductive capability. All the metabolic manifestations of the disease may be due to the

Dhatvagni mandya existed at the level of *Rasa, Rakta, Mamsa*, and *Medo dhatu*. *Sodhana* and *Samana* is an essential part of Ayurvedic management of PCOS. Since it is a metabolic disorder, *Virechana* was planned for normalising the functions of *Pitha* and *Agni*. *Trivrut leha* was selected for *Virechana* due to its *Tridosahara* (especially *Kaphahara*) and *Hridya* properties. Thus *Sodhana* helped to eliminate the vitiated *Doshas* and removed the *Srotodushti* existed at the level of *Rasa, Rakta, Mamsa, Medas* and *Artavavahasrotas*. To maintain *Agni* and proper formation of *Artava*, *Sthanyasodhana gana kashaya* was selected. *Stanya* and *Artava* being the *Upadhatus* of *Rasadhatu*[13], *Sthanyasodhana kashaya* may have an action in the proper formation and excretion of *Artava* also. *Artava* having the synonym *Pushpa* denotes *Stribeeja* (ovum) also. *Stanyasodhana gana* also known as *Pathadi gana* contains *Patha, Sunti, Devadaru, Musta, Murva, Guduchi, Vatsaka Phala, Kiratat ikta, Katurohini* and *Sariba*. Most of the drugs having *Tikta Katu rasa, Laghu, Rooksha guna, Ushna veerya* and *Katu vipaka* and *Deepana, Pachana, Kaphahara* in action. All these properties helped in removing the *Sanga*, correction of the *Agni*, and normal functioning of *Vata* especially *Apana* and thus helped in proper formation and excretion of *Artava* (regularization of menstrual cycle and ovulatory cycle) and maintained its normal function, that is *Garbhakrit*. [14] Here the drug action was augmented due to *Sodhana*. Finally the cycles became ovulatory and the patient ultimately conceived. In most of the cases multiple uterine subserosal fibroids didn't affect the conception and maintenance of pregnancy and in this case the size of fibroids didn't show an increasing tendency during pregnancy also, which was a favoring factor for the pregnancy.

Table 4: Ingredients of Trikatu churna

No	Drug name	Latin Name	Part
1	<i>Sunti</i>	<i>Zingiber officinale</i> Roscoe	1
2	<i>Marich</i>	<i>Piper nigrum</i> Linn.	1
3	<i>Pippali</i>	<i>Piper longum</i> Linn.	1

Table 5: Ingredients of Trivrita leha

No	Drug name	Latin Name	Part
1	<i>Trivrita (Kwath)</i>	<i>Operculina turpenthum</i> Linn.	2
2	Sugar	<i>Saccharum officinarum</i> Linn.	2
3	<i>Trivrita Churna)</i>	<i>Operculina turpenthum</i> Linn	1
4	<i>Honey</i>	<i>Mal depuratum</i>	1
5	<i>Twak</i>	<i>Cinnamomum zeylanicum</i> Breyn.	1/24
6	<i>Tamalapatra</i>	<i>Cinnamomum tamala</i> Nees and Eberm.	1/24
7	<i>Marich</i>	<i>Piper nigrum</i> Linn.	1/24

Table 6: Ingredients in *Stanyasodhana kashaya* and their properties

Drug	Botanical name	Pharmacological properties	Part used
<i>Patha</i>	<i>Cissampelos pareira</i> L.	Hypoglycemic, antioxidant, and anti-inflammatory [15]	Whole plant
<i>Sunti</i>	<i>Zingiber officinale</i> Roscoe	Immunomodulatory, anti-inflammatory, antidiabetic and <u>antioxidant</u> [16]	Rhizome
<i>Devadaru</i>	<i>Cedrus deodara</i> Roxb.	Antihyperlipidemic,[17] antiinflammatory,[18] immunomodulatory,[19] antioxidant[20]	Bark
<i>Musta</i>	<i>Cyperus rotundus</i> Linn.	anti-inflammatory,[21] antioxidant[22]	Rhizome
<i>Murva</i>	<i>Marsdenia tenacissima</i> Roxb.	Antiinflammatory[23]	Stem
<i>Guduchi</i>	<i>Tinospora cordifolia</i> Miers.	Immunomodulatory,[24] antioxidant[25]	Stem
<i>Kiratatikta</i>	<i>Swertia chirata</i> Buch-Ham	Hypoglycemic, anti-inflammatory and antioxidant [26]	Whole Plant
<i>Kutajaphala</i>	<i>Holarrhena antidysenterica</i> Wall	Antioxidant and antidiabetic, anti hyperlipidemic, Hypotensive[27]	Seed
<i>Katurohini</i>	<i>Picrorrhiza kurroa</i> Royle ex Benth.	Antioxidant and anti neoplastic,[28] antidiabetic,[29] hepatoprotective [30]	Rhizome
<i>Sariba</i>	<i>Hemidesmus indicus</i> R.Br.	Antioxidant and free radical scavenging,[31,32]	Root

There is emerging evidence now that chronic low inflammation is often present in women with PCOS with the possible role of increased Oxidative stress. Oxidative stress (OS) occurred as results of imbalance between pro-oxidants and antioxidants. Further elevated Reactive Oxygen Species (ROS) are being considered responsible for insulin resistance and Hyperandrogenism.[33] Gonzalez et al in their study observed that there is generation of ROS from mononuclear cells which occurred in response to hyperglycemia in women with PCOS.[34] Reports show that women with PCOS, both with obesity and normal weight, exhibit elevated serum TNF, C-reactive protein (CRP), monocyte and lymphocyte circulating levels, and inflammatory infiltration in ovarian tissue[35]. On analysing the *stanyasodhana gana* most of the drugs are having antioxidant, anti-inflammatory, antihyperlipidemic and hypoglycaemic properties. The drug may help to reduce the oxidative stress by its antioxidant properties, thus helps in maintaining a proper balance between pro oxidants and antioxidants.

CONCLUSION

Infertility seems to be increasing now days due to the change in lifestyle and stressful life of partners. PCOS which causing 80% anovulation, is one of the main contributing factor for female infertility. Although PCOS is one of the most common endocrine disorders in women of reproductive age, there is currently no cure for polycystic ovary syndrome. For this reason, early diagnosis of the disease based on established criteria is important. Obesity, insulin resistance as well as the associated

diseases can be controlled by an early diagnosis and proper management. Though this study involves a single case, it may helpful for practitioners to find new way of thinking of treatment options and tried to explore the probable mode of action of drug based on recent researches on PCOS. Along with medicines proper exercise and a healthy diet was advised, this is very much essential for lifestyle diseases like PCOS. *Sodhana* comes in the main stream of Ayurvedic management of chronic diseases as it helps to eliminate the disease at the root level.

Acknowledgment

We are thankful to our patient for the indispensable reconstruction of her case history and, most of all, for her willingness to use her anonymized data for this publication.

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Cite this article as:

Archana.S, Kalepandit, Anu.M.S, L P Dei. Ayurvedic Management of Primary Infertility Due to Polycystic Ovarian Syndrome Associated with Multiple Uterine Fibroids: A Case Report. International Journal of Ayurveda and Pharma Research. 2018;6(1):19-25.

Source of support: Nil, Conflict of interest: None Declared

***Address for correspondence**

Dr Archana.S

PhD Scholar,

Department of Prasuti-Streeroga,
IPGT&RA, Jamnagar

Email: archanas875@gmail.com

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