



**ORIGINAL RESEARCH PAPER**

**Ayurveda**

**THE AETIOPATHOLOGICAL STUDY OF PCOS: A LEADING CAUSE OF FEMALE INFERTILITY WITH AYURVEDA PERSPECTIVE**

**KEY WORDS:** Polycystic ovary syndrome, Insulin resistance, hyperandrogenism, Ayurvedic view like Yonivyapad.

<b>Khare Manish*</b>	Ph.D.Scholar, P.G.Dept. of Kaya Chikitsa, G.A.M.,Puri (Odisha) *Corresponding Author
<b>Khare Kumudini Mala</b>	M.D., Roga Nidana evum Vikriti Vigyan.
<b>Khuntia. B. B</b>	Professor and HOD, Dept. of Kriya Sharir, G.A.M.,Puri (Odisha).

**ABSTRACT**  
 The erratic life style and refined diet, increased stress, strain and restlessness have resultantly expanded the spread of PCOS. Polycystic ovarian syndrome is known by the name of STEIN LEVENTHAL SYNDROME. It is systemic endocrine and metabolic disorder and considered as gynecological disorder. It is almost growing faster among young women (age 18-44yrs) coming for infertility. Women with PCOS are at increased risk of reproductive problems including infertility, endometrial cancer, late menopause and also metabolic aberrations including insulin resistance, type 2 diabetes mellitus, dyslipidemia and cardiovascular diseases. In ayurveda few disease in group of yonivyapad (like arajaska lohikshaya, vandhya ,puspaghani ,jatiharini) and arthava kshaya have some similarities with this entity but easily recognition and intervention such as the development of further complication and treatment may involve lifestyle changes such as weight loss and exercise. In allopathy hormonal therapy, medical and surgical treatment are advised according to need and severity of disease. In ayurveda prevention of disease by following pathya aahar vihar , kapha reducing and insulin resembling and obstruction clearing aushadh can helps to prevent PCOS. This disease involves pitta, kapha, meda and ambuvahashrotus and aartava dhatu.

**INTRODUCTION**

PCOS is a heterogeneous disorder. It was originally described by Stein and Leventhal in 1935 as a clinical triad of hyperandrogenism, anovulation and obesity in women with enlarged polycystic ovaries. Current incidence of pcos (5 to 6%) is fastly increasing due to change in lifestyle & stress, sedentary lifestyle, pollution, excessive intake of junk food.<sup>1</sup> It is obviously observed in women seeking medical advice for infertility as well as irregular menstrual bleeding; majority of these cases could be treated either by hormonal therapy or surgical intervention. The best known allopathic treatment for PCOS includes medicines such as clomiphene citrate, metformin, letrozole, tamoxifene and troglitazone. All these medicines have mild to severe side effects including hot flushes, arthritis, joint or muscle pain and psychological side effects as irritability, mood swings, depression and bloating. Due to the adverse effects caused by the allopathic medicines, alternative medicines which have a safer profile are the areas of interest these days. So this article is an attempt to compile and analyze an Ayurvedic approach to management of PCOS.<sup>2</sup>

Ayurveda suggests that this is vata disorder (Apan vayu) though the involvement of other dosha can be there but in some measure because the gynaecological disorder are mainly supposed to be due to vitiation of vata. Pcos is a disorder involving Pitta, Kapha, Medas, Ambhuvahasrotas & Artava Dhatu .The causes of PCOS as per ayurveda can be taken as eating excessive sweet and kaphaja foods, mandagni because of this is kapha getting aggravated in PCOS, we find kapha disorder. As well as pitta and vata dosha disorder. Because of all three doshas play important & distinctive role in the production, development, maturation & release of ovum & therefore the ovarian cycle & menstrual cycle is under control of three doshas.<sup>3</sup>

**ETIOLOGY**

The exact cause of Pcos is unknown or heterogenic in nature, however it has certainly linked to variety of etiological factors.<sup>4</sup>

**1.Genetic Factor-** Pcos is a genetically determined ovarian disorder and the genetic links to the disease. A research at the university of oxford of London revealed that a gene implicated in the development of obesity is also linked to susceptibility to pcos.

**2.Environmental factor-** Lifestyle affects the phenotypic expression of pcos. Weight gain, metabolic and reproductive abnormalities of pcos, as evidenced by increase obesity as well as insulin resistance, hyperandrogenism and menstrual irregularity in women with the most severe pcos phenotype.

**3.Psychological factor-** Pcos is often caused by psychological factor like stress can disturb menstrual cycle and changes of hormone such as raised level of cortisol and prolactin which affects menstruation that normally resumes.

**4.Insulin Resistance-** Pcos is a multifaceted metabolic disorder that shows a higher insulin resistance. Most women with Pcos are young and develop hyperinsulinemia, with impaired glucose tolerance testing than by basal glucose measures.

**5.Hormonal imbalance-** In women suffering from pcos the imbalance of hormone is very common. Low sex hormone binding globuline(SHBG), hormone that allows the expression of hyperandrogenism high testosterone level leading to sign of hyperandrogenism, high luteinizing hormone whose excessively increased level of proper ovarian function.

**6.Miscellaneous-** Sedentary lifestyle, lack of physical exercise, dietary variations also have been contributing factors for weight gain and hormonal imbalance .

**7.Mild Inflammation-** Women with PCOS have mild inflammation, this type of low-grade inflammation stimulates polycystic ovaries to produce androgen in the body.

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.<sup>5</sup> And one among of them is pradustaartava which includes the both bijarupa and rajorupaartava. Ayurvedic interpretation of disease goes in line with rasapradoshajavyadhi, santarpana ahara and vihar causing vatakaphadushti,<sup>6</sup> and medodushti<sup>8</sup>, will be the key factors causing the expression of the syndrome.

Ahartmaka nidan	Viharatmaka nidan	Manasa nidan	Anya nidan
Adhyashana (Taking food after lunch or dinner)	Avyayama (No Exercise)	Harshanityatva (Happiness)	Amarasa (Indigestion)
Atisampurna (Binge eating)	Avyavaya (No sexual activities)	Achintana (No worries)	Snighda, Madhura Basti sevena (Enema which contain Oily and sweet drugs)

Ati Brimhana (Over nourishment)	Diwaswapa (Day sleeping)	Manasonivritti (Idle Mind)	Tailabhyanga (Oil Massage)
Guru Ahara Sevana (Taking food which is heavy to digest)	Sukha Shayya (Very Comfortable bedding)	Priyadarshana ()	Snigdha Udvartana (Powder massage with oily drugs)
Madhura Ahara sevana (Excessive use of Sweets)	Atisnana Sevana (Excessive Bathing)		
Shleshmala Ahara Sevana (Food which will increase Kapha)			

Ayurveda has given number of causes for this kind of diseases under the broad heading of santarpanotta vyadhi's. 90% of pcos patients will be suffering with obesity, this makes it clear that it is a type of santarpanotta vyadhi. All these nidana can be probably compared with sedentary life style, junk food, improper work schedules, stress etc which are consumed by almost all women in today's era.

**PATHOPHYSIOLOGY Mechanism of Ovarian Cyst**

An FSH surge stimulates the emergence of a new follicle formation, from which a single dominant follicle is selected at the time of ovulation. Through a positive feedback loop oestradiol stimulates GnRH and LH pulsatility, which in turn supports growth and development of the dominant follicle. Upon reaching preovulatory size, follicular steroidogenic activity reaches a peak and produces a preovulatory oestradiol surge. This surge either fails to elicit a GnRH and subsequent LH surge or the GnRH/LH surge is delayed. The dominant follicle, therefore, does not ovulate but, due to the ongoing LH pulsatility, continues to grow and becomes a cyst.<sup>9</sup>

Exact pathophysiology of PCOS is not clearly understood. It may be discussed under the following heads:

- a) Hypothalamic-Pituitary compartment abnormality:** Increased pulse frequency of GnRH leads to increased pulse frequency of LH. The LH:FSH ratio is increased.
- b) Androgen excess:** Abnormal regulation of the androgen forming enzyme is thought to be the main cause for excess production of androgens from the ovaries and adrenals.
- c) Anovulation:** because of low FSH level, follicular growth is arrested at different phases of maturation.
- d) Obesity and insulin resistance:** Obesity (central) is recognized as an important contributory factor. Apart from excess production of androgens, obesity is also associated with reduced SHBG (sex hormone binding globulin). It also induces insulin resistance and hyperinsulinaemia which in turn increases the gonadal androgen production.
- e) Long-term consequences:** Endometrial hyperplasia, risk of developing diabetes mellitus, risk of developing endometrial carcinoma, risk of hypertension and cardiovascular disease Fertility problems experienced by women with Poly Cystic Ovarian Syndrome may be related to the elevated hormone insulin or glucose levels, all of which can interfere with implantation as well as development of the embryo. Increased Leutenizing hormone reduces the chance of conception and increase miscarriage. Additionally abnormal insulin levels may also contribute to poor egg quality, making conception more difficult<sup>10</sup>.

**PATHOPHYSIOLOGY ACCORDING TO AYURVEDA<sup>11</sup>:**

PCOS is due to kapha blocking vata and pitta, hence the movement is obstructed and the transformation process is suppressed.

**1) Diminision of Agni-** Kapha vardhak aahar and vihar lead to increase in Kapha, which results in Kapha dominance in the body. Kapha dosha because of its properties like sheet, manda, sthir,

guru[3] causes diminision of **jathara agni** and starts affecting the metabolic aspect of the seven tissues called **dhatu agni** which further cause amasanchaya in thebody.

The dhatus that are affected are -

- rasa dhatu – lymph and plasma
- meda dhatu – adipose tissue and
- artava dhatu – the female reproductive system

**2) Kapha predominance-** agnimandya cause improper digestion and assimilation of Dhatu and lead to formation of excessive Kleda or Kledak kapha. Kledak kapha begins to move out of GI tract and enters the channel of the first tissue rasa vaha strotas affecting the rasa dhatu agni. The byproduct of rasa dhatu is rajah– that is the menstrual fluid. As there is kapha dosha dominance in the body, the menstrual fluid will also take on the quality of kapha which will in turn begin to **block Apana vayu** in artavavaha strotas.

**3) Amasanchaya-** The increased quantity of Kledak kapha and agnimandya in the body leads to amasanchaya. The increased rasa dhatu coating over cells, further lead to decrease in the permeability of the cell membrane; thus affecting the cellular intelligence. Due to the decreased cellular permeability, the insulin secreted in the body is unable to engage with the cellular receptors. Thus insulin begins to build up in the blood stream. Thus we see an **increase in the levels of insulin in Pcos.**

**4) Dhatu agni mandya-** The increased quantity of Kledak kapha and ama in the body also lead to dhatu agni mandya. According to the saamanya Vishesh siddhant, the Kledak kapha and ama affects the meda dhatu Agni. The meda dhatu Agni mandya leads to meda Viruddha leading to obesity. The free androgens moving throughout the body are processed at the level of meda dhatu. Here it takes on the guru, sheet properties of meda dhatu. This is further expressed as estrogen. Thus we can see an **increase in the levels of estrogen in Pcos.**

**5) Srotodushti-** The kapha dosha and ama cause stroto dushti in the artavavaha strotas. The apana vayu in artavavaha strotas becomes stagnant i.e. sanga of apana vayu; blocking the channel impeding the flow of vata in the ovarian cycle. The blocking of channels of apana vayu leads to disturbances in the outflow of menstrual fluid. Thus the patient suffers from menstrual disturbances like **oligomenorrhoea, amenorrhoea** in Pcos. Menstrual problems manifest due to the aggravation of all three doshas but mainly apana vayu.

**6) Agneyatva of artava dhatu-** The main property of artava dhatu is agneyatva. The blocked artava dhatu leads to agravation of Pitta dosha. Pitta aggravation at the level of bhrajaka pitta and ranjaka pitta manifests as acne and **increased body hair** seen in Pcos.

**CLINICAL FEATURES**

The clinical features of Pcos are as follows:-<sup>12</sup>

- 1. Irregular menses-** This is the most common characteristic of PCOS. It includes menstrual intervals longer than 35 days, fewer than eight menstrual cycles a year.
- 2. Ammenorrhoea-** lack of menstruation for four months or longer.
- 3. Variation in menstrual bleeding-** Prolonged periods that may be scanty or heavy flow with clots. Bleeding may extend to more than 9days.
- 4. Infertility-** Unable to get pregnant because of anovulation.
- 5. Hirsutism-** Increased male hormones cause excess hair growth on the face, chest, stomach, back, thumbs or toes.
- 6. Skin Changes-** Includes Acne, oily skin, or dandruff.
- 7. Obesity-** Abnormal weight gain, usually with extra weight around the waist and difficulty in reducing weight.
- 8. Hair thinning-** Increased androgen levels may cause male pattern baldness due to excessive hair fall.
- 9. Acanthosis nigricans-** Patches of skin on the neck, arms, breasts, or thighs.
- 10. Skin tags-** Excess flaps of skin in the armpits or neck area.
- 11. Pelvic Pain**

12. Sleep apnea.

**AYURVEDIC PERSPECTIVE OF PCOS**

It does not be correlated to any single disease or syndrome in Ayurveda, but the symptoms bear a resemblance to the different terminologies mentioned in different Ayurvedic texts, such as:

**1.ArajaskaYonivyapad** - As per Acharya Charaka, when Pitta situated in Yoni and uterus vitiates Rakta, the woman becomes extremely emaciated and discoloured. This condition is known as Arajaska.<sup>13</sup> Acharya Chakrapani has described amenorrhoea as a symptom.

**2. LohitakshayaYonivyapada** - Vagbhatta described that due to vitiation of Vata and Pitta, the amount of menstrual blood is decreased and the woman suffers from burning sensation, emaciation and discoloration.<sup>14</sup>

**3.VandhyaYonivyapada** - Sushruta has mentioned amenorrhoea or oligomenorrhoea as a symptom of sterility.<sup>15</sup> Harita, while elaborating the six types of Vandhyayoni, mentions Anapatya Vandhya (infertility) as one of them where in Dhatukshaya is the etiological factor of Nashtartava. Anapatya Vandhyayoni can be fairly compared with PCOS due to the similar features of anovulation and absence/irregularity of menstruation, thereby resulting in sterility.

**4.Ashtartava Dushti** - Vagbhatta states that the Artava can be vitiated by the Doshas, resulting in eight types of Artavadushti. Such vitiation leads to Abeejata, which can be correlated to the anovulatory menstruation feature of PCOS.<sup>16</sup>

**5.Nashtartava** – Sushruta says that the Tridoshas can obstruct the Srotasas regulating menstruation and cause arrest of the menstrual flow.<sup>17</sup>

**6.Pushpaghni Jataharini** – As per Kashyapa, such women menstruate in time but it is useless (Vyathpushpa, i.e. anovulatory cycle), has corpulent and hairy cheeks (hirsutism- may be due to hyperandrogenism).<sup>18</sup> Thus Pushpaghni Jataharini seems to be very near to PCOS.

**7.Abeejata (Anovulation):** Sushrutacharya states the aetiological factors of Shukradushti (vitiation of sperm) in males to be similar to those of Rajodushti in females leading to Abeejata. The same factors are also responsible for the vitiation of Doshas in females causing the vitiation of Raja/ Artava. Hence, just as 'Shukramabeejata' (azoospermia) is seen as a result of vitiation of Shukra, a condition of 'Artavaabeejata'(anovulation) is noted in females due to vitiation of Artava. Charakacharya too quotes frequent or untimely coitus, overexercise, unbalanced diet that includes Ruksha (dry), Tikta (bitter), Kashaya (astringent), Atilavana (excessively salty), Amla (sour) and Ushna (hot) Aahar, as also Chinta / Shoka (stressrelated tension), Bhaya (fear), Krodha (anger) and Aghata i.e. injuries due to Shastra (weapon) or Kshara (alkali) as the causative factors of Shukradushti.<sup>19</sup> These can be correlated with the current lifestyle changes.

**8.Ashtartava Dushti:** Vagbhatacharya states that like Shukra, Artava can too be vitiated by the Doshasresulting in eight types of Artavadushti. Such vitiation leads to Abeejata.<sup>20</sup>

**9.Rajodushti:** This terminology, put forth by Sushrut acharya is a result of the vitiation of Raja by the Doshha, primarily Vata and Pitta resulting in its Ksheenata (Oligomenorrhoea). The other clinical features of PCOS are however not observed.<sup>21</sup>

**COMPLICATIONS**

Hypertension, high Cholesterol, anxiety, sleep apnea, endometrial cancer, heart attack, diabetes, breast cancer are some of the complications of Pcos.<sup>22</sup>

**INVESTIGATION**

- Ultrasonography:- 12 or more follicles in each ovary measuring 2-9mm in diameter +/- increase ovarian volume (>10ml)
- Biochemical evidence of hyperandrogenism : serum total testosterone(>150ng/dl)
- FSH & LH levels and its ratio >1:3
- Insuline resistance:- raised fasting insulin levels >25 microne IU/ml
- Follicular study<sup>23</sup>

**MANAGEMENT**

The basic principles in the management of PCOD according to

Ayurveda are as follows -

- 1) Ayurvedic Panchakarma
- 2) Ayurvedic Medications
- 3) Diet Modifications (pathyaahar)
- 4) Lifestyle Modifications (pathya vihar- dinacharya and rutucharya)

The management of PCOD according to Ayurvedic principles includes the following treatment modalities –

**1.Nidan parivarjana-** helps in preventing complications of any disease.<sup>24</sup> Kaphakara and vatadushtikara aharas- vihara, medovridhdikara ahara i.e. vishamasana, etc. should be avoided.

**2.Shodhana chikitsa-** includes panchkarma mainly vamaana, virechan and basti karma Vaman Karma- To eliminate vitiated kapha and soumaya substances from body resulting into relative increase in agneya constituents of the body, consequently artava also increases.<sup>25</sup>

- Basti – Apana vayu is responsible for the menstrual disturbances, and basti is the best treatment for vata dosha. Eg. Lekhan basti, yoga basti. Women having amenorrhoea, scanty menses, non ovulation or useless ovulation, cases of repeated abortion should be prescribed anuwasana basti (**K.S.Si 1/39-41**). Yapana basti perform both the action i.e. cleansing and oleation, so infertile couple get progeny (**C.S.Si. 12/20,22**).e.g. satvaryadi anuvasana basti, guduchyadi rasayana basti etc.
- Uttarbasti- Removes the sanga in aartavavahasrotas<sup>26</sup>
- Virechan- Vandhyatva is virechana sadhya vyadhi. Also indicated in artava kshaya and granthi chikitsa.
- Nasya- Due to the teekshna and ushna guna of the drugs in the nasya formulation, they cause irritation of the mucous membrane of the nose; increase local secretions eliminate the morbid doshas from head. In stree roga cases, the nasya karma is beneficial in hypogonadotrophic conditions. It does tremendous effect in stimulating GnRH factor.<sup>27</sup>

Panchakarma treatment	Causes of Infertility
Vamana karma	Ovarian factor, obesity
Virechana karma	Fibroid, Ovarian tumour, Hypothalamus, pituitary tumour
Nasya karma	CNS factor, Hypogonadotrophins Hyperprolactinemia conditions
Asthapan Basti karma	Bad obstetric history, repeated pregnancy loss,
Anuvasan Basti karma	Hypo estrogenic condition, Malnourishment
Uttar Basti chikitsa	Ovarian, Endometrial and Cervical factor <sup>27</sup>

**3.Shamana chikitsa- rason, satpushpa, and shatavari should be given.**

- Agni deepan – The management approach to PCOS should concentrate on treating Agnimandya at jatharagni and dhatwagni level and alleviating srotovarodham and ultimately regularizing the apanavata, Eg. Trikatu, Chitrak etc.
- Ama pachan – ama is another important factor causing PCOD. Thus ama pachan gives better result in the treatment. Eg. Aarogyavardhini vati
- Kapha nashan – tikshna and ruksha aushadhi like trikatu for treating obesity in pcos. eg. guggul kalpa
- Lekhan – as there is kapha dosha dominance and ama leading to strotorodha, lekhan treatment is to be given. Eg. Kuberakha vatietc.
- Vatakaphahara chikitsa- To clear the avarana; for the proper follicular genesis and ovulation with the help of Varunadi Kwath and Dashmool Kwath.<sup>28</sup>
- Udvartan – it helps in the management of skin disorders<sup>29</sup>

**Aushadh** -Kapha reducing, insulin enhancing, hormone rebalancing, and obstruction clearing herbs like Gurmar, Jambu, Tarwar, Guduchi, Amala and Haridra etc. are useful.

- Kanchnar Guggal- being ruksh in guna old Guggal and Kanchnar both decrease fat due to lekhan action. They are vatakapha shamak and pitta kapha shamak respectively.

- Methi (Trigonella foenum graecum) - reduces fasting blood sugar.
- Karela (Momordica charantia)- reduces fasting and post prandial blood sugar and appears to enhance tissue sensitivity to insulin.
- Ashwagandha (Withania somnifera) - helps to reduce stress of amenorrhoea and infertility.
- Shatawari (Asparagus racemosus)- to bring balance and strength to the menstrual system.
- Marich (Piper nigrum) - high in chromium (chromium picolinate 200-400 mcg /day (an anti oxidant) can assist in balancing blood sugar level.

**LIFE STYLE MODIFICATIONS OF PCOS**

PCOS can be prevented / treated with the help of aahar, vihar and aushadh;

**AAHAR**

- Pathya- yava,amalaki,priyangu shali shastik chawal. Balanced diet is essential for normal health. Because dietetic abnormality vitiate doshas which cause various gynecological disease may result infertility. It also produce loss of dhatu which influences hormones causes menstrual irregularity. Abnormal diet hamper nourishment of fertilized egg and implantation of zygote.
- Apathya- madhur ras pradhan aahar( potatoes sweets chocolates), Abhishyandi dravya (dahi,udad,kathal, bhindi etc), junk foods, bakery items, cold drinks, etc. should be avoided.

**VIHAR**

- Dincharya and ritucharya should be followed properly.
- Weight reduction
- Yogasanas: Anuloma-Viloma, Kapalbhati and Mandukasan Vyayam (exercise) Suryanamaskar, Bhujanasana, Salabhasana, Budhakonasana, Dhanurasana, Suptavajrasanas, Sirsasana, Sarvangasana, Matsyasana. These are helpful for weight reduction and to decrease blood sugar level as well and enhances tissue sensitivity to insulin (80% of the body's insulin mediated glucose uptake occurs in muscles).
- Vyayama- just half an hour to one hour exercise at least five days in a week either in the form or aerobic exercise, resistant training or a mix of different form of exercises should be sufficient for women suffering from PCOS. This is a target which is not very difficult to achieve, but again the time spent in sedentary lifestyle has to be cut down which is the most difficult part.
- Prajagaran<sup>30</sup>

**DISCUSSION**

Pathogenic conditions leading the ovaries to become polycystic, are still unknown, though imbalance in sexual hormones, insulin resistance and obesity have been suggested. The main aim of Ayurveda in women with PCOS is Detoxification of body and Strengthening and revitalizing the female reproductive system and regularizing menstrual cycles.

**CONCLUSION**

No such a prescribed way for treating of ovarian cyst and their growth, but pelvic examination under super most experienced gyno will decrease the risk factors of cyst formations. PCOS is just due to vishmadosha leading vishmaagni and then vishmadhatu of body. So by reducing aggravated dosha, and keeping agni in samaavastha PCOS can be controlled. Polycystic ovarian syndrome is a lifestyle disorder and the leading cause of infertility among women of reproductive age group, leading to endocrine dysfunction and multiple signs and symptoms. This condition is to be properly perceived, interpreted and diagnosed which is key to providing a better line of treatment. To treat a woman affected with PCOS need controlled and balanced diet and exercise for weight reduction along with medication, preventive measures are more important. So it will be more beneficial to follow mode of life as mentioned in Ayurveda

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