

REVIEW ARTICLE ON PATHOPHYSIOLOGY OF PCOD AND LABORATORY
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ABSTRACT

Polycystic Ovarian Syndrome (PCOS) affects women of reproductive age groups and it is considered as most common endocrine disorder which affects more than 10% women world widely. It has a spectrum of symptoms like Asrikdosh, Anartava, Alpa artava, Medovridhi, Granthi Vikara and Prameha. Ayurveda classified PCOS in the combined category of Yonivyapadas and Aartavadushti. It is considered as a disorder of Dhatus leading to imbalance in the functioning of hormonal system and reproductive system. There are no single criteria sufficient for clinical diagnosis because of multiple etiologies and presentations. Thus sonography and multiple hormonal tests are required for the investigation.

KEYWORDS: Ayurveda, Polycystic Ovary Syndrome (PCOS), Granthi Vikara, Yonivyapadas.

INTRODUCTION

Polycystic Ovarian syndrome (PCOS) is an endocrinopathy whose incidence is increasing now days because of sedentary lifestyle, pollution and excessive intake of junk food. It is the fastest growing health hazard having complex manifestations such as obesity, insulin resistance, irregular menstrual bleeding, abnormal menstrual cycle, polycystic ovaries and infertility.

In Ayurveda, this is considered as *Jataharini* and *Nashtartva* involving imbalance of *Dhatu*, *Upadhatu* and *Dosha*. Disturbances in *Vata* & *Kapha* together with *Mamsa*, *Shonita* and *Meda* resulted formation of circular, knotted inflammatory swelling called *Granthi* in the ovaries.

Some predisposing factors responsible for PCOS such as; genetic factors, high maternal androgen, androgen-secreting tumors, diabetes mellitus, obesity and insulin resistance.

NIDANA

1. *Mithyachara*

This includes *Mithyaahara* and *Mithyavihar*. Abnormal diet includes spicy, oily, junk food and abnormal life style includes *Diwaswapna*, *Ratrijagrana*, stress and *Mansikbhawa*.

2. *Pradushtartava*

Under the influence of various hormones cyclic shedding of endometrial lining occur which results in production of menstrual blood. In patients with PCOS, dysregulation

occurs in androgen forming enzyme resulting hyperandrogenism.

3. *Bijadosha*

Chromosomal and genetic abnormalities.

Ayurveda Aspect on Patho-physiology of PCOS

Ayurveda does not consider PCOS as a single disease but relates it to the many different conditions like *Anartava* and *Yonivyapad*; anatomical and physiological disorder of the reproductive system like *Arijaska*, *Lohitakshaya*, *Vandhya*, *Pushpaghni-Revati*, *Abeejata* and *Ashtartava Dushti*.

The organs responsible for reproduction in the female body are called *Artava Dhatu* and *Artavaha Srota* is the channel that helps in the supply, nourishment and movement of the ovum to the uterus. In *Ayurveda* PCOS is described as the disease occurring due to the combination of *Dosha*, *Dhatu* and *Upadhatu*. All the three doshas play important and distinctive roles in the processes of the ovarian cycle and the menstrual cycle.

Kapha's heavy and cool qualities helps in the nourishment and development of the tissues of reproductive system which helps in the growth of the follicle during the ovarian cycle. It is also responsible for the maintenance of mucosa layer of the fallopian tubes and uterus. *Kapha* affects the metabolic aspect of *Dhatu Agni* which in turn affects the *Artava Dhatu* (female reproductive system). Alteration in *Kapha* results in increased weight, subfertility, hirsutism, increased

tendency for diabetes. Due to the *Vishama Ahara* and *Vihara* (improper diet and activities) body produces immature *Rasa* which affects the menstrual blood and increases *Meda-Dhatu-Kapha* resulting in obstruction of body channels. All this along with *Vata Prakopa* and

*Kapha-Pitta Dosh*a causes incomplete metabolism and hormonal imbalance resulting in obesity, hyperinsulinemia and hyperandrogenism leading to amenorrhea, anovulation and *Granthibhuta Artava Dushti* (polycystic ovaries) as mentioned in **Figure 1**.

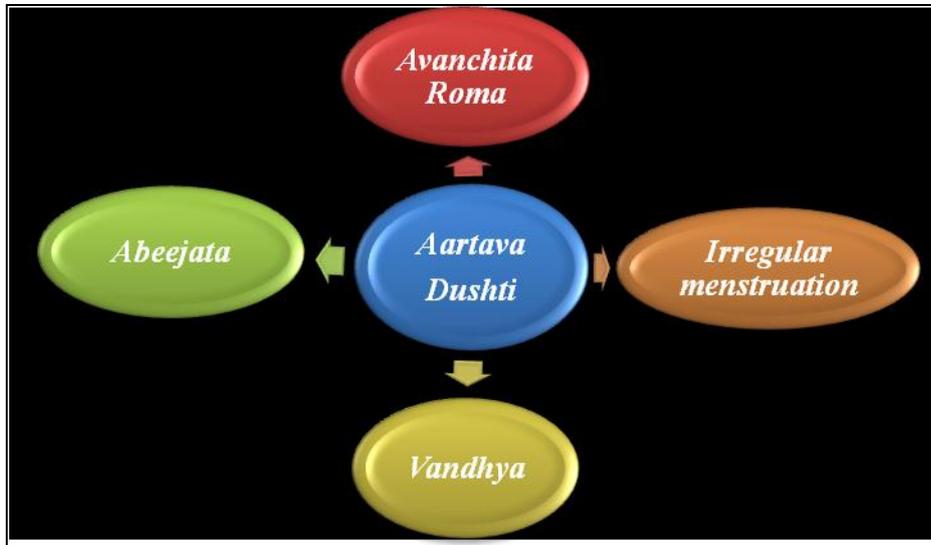


Figure 1: Diseases related to Aartava Dushti.

Ayurveda considers *Kayagni*, *Bhutagni* and *Dhatvagni* as the metabolic, neuronal and hormonal functions of the body. Thus Ayurveda considers *Agni* as a major factor in the production of many diseases. Factors aggravating *Kledaka Kapha* suppress the digestive fire in the stomach called *Jathara Agni* due to which food that is ingested is not digested properly and forms *Ama* (toxins). When *Kledaka Kapha* mixes with the toxins it enters the channel of the first tissue *Rasavaha Srota* as a result *Rasa Dhatu* increases in quantity. In woman byproduct of *Rasa Dhatu* is *Rajah* (menstrual fluid). This menstrual fluid will block the *Apana Vayu* in *Artavavaha Strotas* and *Rajahvaha Strotas* (channel that supports the functional action of the menstrual fluid). When increased *Rasa Dhatu* mix with increased *Kledaka Kapha* and *Ama*, this begins to coat the cells of the body, affecting *Pilu Agni* at the cellular level thus interfering with the cellular intelligence and prohibiting the recognition of insulin by the cellular receptors. This increases the insulin in the

blood and causes its movement towards *Artava Dhatu* where the insulin can get its cellular receptors to bind. After affecting *Rasa Dhatu*, *Kapha* and *Ama* moves through the channels to *Meda Dhatu*. The increased *Kapha Dosh*a and *Ama* affects *Meda Dhatu* causing *Meda Vriddhi* resulting in obesity as mentioned in **Figure 2**. Excessive *Meda Vriddhi* leads to the blockage of the channels of the body. Free androgens moving throughout the body are processed at the level of *Meda Dhatu*.

After affecting *Meda Dhatu*, *Kapha* and *Ama* moves towards *Artava Dhatu*. This causes *Artava Vriddhi* due to the alteration in *Artava Dhatu Agni*. When *Ama* enters the cells of *Artava Dhatu* it affects *Pithara Agni* causing error in cellular function and intelligence like insulin engages on the receptors present in the ovaries causing the production of androgens.



Figure 2: Pathologic progression of Medhodhatu in Cyst.

Vata is the most important factor required for the proper functioning of the *Kapha* and *Pitta*. Both *Kapha* and *Pitta* are immobile without *Vata*. When *Artava Dhatu* gets affected by the *Kapha* and *Ama* this results in *Srota Dushti* in *Artavavaha Srota* and *Apana Vayu* in

Artavavaha Srota becomes *Sanga* (stagnant). Excessive accumulation of *Kapha* and *Ama* blocks the flow of *Vata* in the ovarian cycle as mentioned in **Figure 3**. Along with *Vata*, *Pitta* also gets blocked and thus inhibiting the process of transformation. Due to the blockage of *Pitta*,

the hormones that carry the energy of transformation are unable to initiate their action. Thus accumulated *Kapha* leads to the formation of cyst in the ovary.

Blockage of *Vata* and *Pitta* in *Artava Dhatu* affects the other functions also. *Pitta* aggravation at the level of *Bhrajaka Pitta* and *Ranjaka Pitta* causes acne and increased body hair. Ultimately aggravation of all three doshas results in menstrual problems.

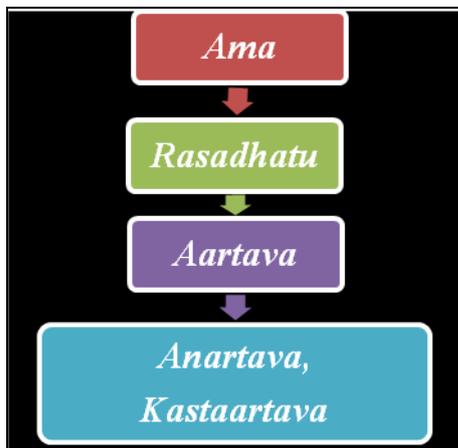


Figure 3: Pathological progression of Ama towards gynecological disorders.

Clinical Manifestations

- Infrequent and irregular menstrual cycles
- Cysts in the ovaries
- Elevated levels of male hormone
- Enlargement of ovaries
- Hair growth and obesity
- Acne

Diagnosis of PCOS

Diagnosis of PCOS can be done by noticing sign and symptoms properly and by testing the levels of different hormones.

Non-Laboratory Tests

A pelvic ultrasound may be used to evaluate the ovaries, their size, internal structure and to find cysts. In PCOS, the ovaries may be 1.5 to 3 times larger than normal and sometimes pearl necklace appearance of cysts can be seen in ovaries. Laparoscopy may also be used to evaluate ovaries.

Laboratory Tests

- ❖ Testosterone – initial test to determine the production of excess androgens. The level is usually elevated in PCOS.
- ❖ Follicle stimulating hormone (FSH) – may be low with PCOS.
- ❖ Luteinizing hormone (LH) – may be elevated. LH: FSH ratio increases more than 3:1.
- ❖ Estrogens – may be elevated.
- ❖ Sex hormone binding globulin (SHBG) – may be reduced.
- ❖ Lipid profile

Treatment

Ayurveda works on the principle of *Nidana Parivarjana* (avoiding of the causative factors) and focuses on the balancing of the *Doshas*, removal of blockages and normalization of menstrual activities. *Panchakarma* therapies, diet and lifestyle corrections and various herbal medications are used to treat this disorder.

CONCLUSION

PCOS is probably fastest growing health hazard amongst women of reproductive age. This article provides the *Ayurvedic* perspective of PCOS as better understanding of any disease enables physician to treat it more efficiently. PCOS in Ayurveda is considered as *Rasa Medo Dhatu Vikara*. It has complex manifestations such as *Asrikdoshha*, *Anartav*, *Alpa artava*, *Medovridhhi*, *Granthi Vikara* and *Avanchita Roma* thus many hormonal tests are done to diagnose PCOS.

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