

Review Article

"A COMPREHENSIVE AYURVEDIC REVIEW ON POLYCYSTIC OVARIAN DISEASE (PCOD): PATHOGENESIS AND MANAGEMENT APPROACHES"

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ABSTRACT:

Polycystic Ovarian Disease (PCOD) is a common endocrine disorder affecting women of reproductive age, characterized by polycystic ovaries, anovulation, hyperandrogenism, and menstrual irregularities. The global prevalence of PCOD ranges from 5% to 10% of women of reproductive age. Despite its widespread occurrence, Ayurveda does not categorize PCOD as a singular disease but rather as a collection of symptoms arising from various imbalances. This review explores the pathogenesis of PCOD from both modern and Ayurvedic perspectives, focusing on the etiological factors, symptomatology, and management approaches. Modern treatment modalities primarily address symptom management, including hormonal therapy for regulating menstrual cycles, inducing ovulation, and controlling hyperandrogenism. In contrast, Ayurvedic management emphasizes holistic approaches such as *Samshodhana* (detoxification), *Agneya Dravya* (metabolic stimulants), and *Nidan Parivarjana* (avoidance of causative factors), aiming to restore doshic balance and improve overall reproductive health. This article examines the overlap between Ayurvedic and modern treatments for PCOD, highlighting integrative strategies for managing the condition. Key Ayurvedic formulations, including *Kanchnar Guggulu*, *Rajah Pravartani Vati*, and *Arogyavardhini Vati*, are discussed as effective therapeutic agents. The review underscores the potential of combining modern medical and Ayurvedic approaches to provide a comprehensive treatment plan for women with PCOD.

Keywords: Polycystic Ovarian Disease, Ayurveda, Samshodhana, Nidan Parivarjana, Hyperandrogenism, Agneya Dravya, Integrative Medicine.

INTRODUCTION

The most prevalent condition affecting women of reproductive age is PCOD. Approximately 9.13% of menstrual women in Southern India and Maharashtra have PCOS, while 22.5% have PCOD, according a study done there. Anovulation-related symptoms were initially described by Irving F. Stein and Michael L. Leventhal in 1935. Follicles were unable to reach the ovary's surface because of the thicker tunic behind that. For many years, this illness was referred to as Stein-Leventhal syndrome. It is the most frequent cause of anovulatory infertility, hyperandrogenism, obesity, and irregular menstruation. Multiple symptoms and the potential for multisystem involvement with ovarian dysfunction are indicated by the phrase "polycystic ovarian disease." When considering PCOD symptoms as they are now characterized, it is evident that while they are not grouped together as a sickness or syndrome in Ayurveda, the majority of them have been identified as signs of distinct illnesses or ailments [1].

PCOD is associated with several critical organs within the body. The ovaries, or female gonads, are located on either side of the uterus and play a central role in the condition. Additionally, the adrenal glands, located above each kidney, are involved in the regulation of hormones, including those implicated in PCOD. The pancreas, which produces insulin, is also an essential organ in PCOD pathogenesis due to its influence on metabolic processes and insulin resistance. The pituitary gland, situated just below the brain, regulates various hormones that influence ovarian function. This condition is prevalent in a significant proportion of women, particularly those experiencing infertility, with the issue more commonly observed during times of hormonal regeneration and imbalance in the body.

The primary aim of this study is to comprehensively understand the clinical presentation of Polycystic Ovarian Disease (PCOD) by comparing the symptoms observed in both modern medicine and Ayurveda. The study aims to explore the Ayurvedic aetiopathogenesis of PCOD, focusing on the underlying imbalances in the doshas and their influence on the condition.

Furthermore, the study seeks to investigate the relationship between PCOD symptoms and those described in Ayurvedic texts, exploring the potential for Ayurvedic interpretations of modern-day diagnostic criteria. Another key objective is to examine the treatment approaches for PCOD in both Ayurvedic and contemporary medical literature, with the goal of integrating these practices to offer a holistic management strategy for patients.

Materials and Methods:

The study utilized a wide range of sources, including classical Ayurvedic texts (Samhitas), modern gynecological literature, and relevant online journals. The integrative concept of PCOD was analyzed through a comparison of Ayurvedic and modern clinical perspectives.

Understanding of PCOD

Irregular Menstruation

Menstruation is closely linked to a woman's normal functioning state and serves as a gauge of her wellbeing; nevertheless, when it stops or becomes irregular, it can be a curse. In PCOD, irregular menstruation manifests as either oligomenorrhea or amenorrhea. Under several categories, including *Anartava*, *Artavakshaya*, *Rajakshya*, and *Rajaksheenata*, this ailment has been mentioned in Ayurvedic scriptures [2,3].

Anovulation

"Anovulation" refers to the inability to produce an ovum (female egg) or to ovulate. Our classics don't describe anything as such. However, an unwritten notion of anovulation is provided by the condition known as "*Vandhya*," which is characterized by the inability to conceive due to either anovulation or some other factors. Numerous dispersed anovulation references are available, including *Beejopaghata*, *Pushpopaghata*, *Abeejatva*, and others. While there are numerous *vandhya*-related illnesses, there aren't many that link amenorrhea to infertility. In accordance with *Yogaratanakara*, *Madhava Nidana*, and *Sushruta Samhita*.

According to *Sushruta*, the *Artava* is destroyed in *Vandhyayoni*. In this case, we can think of *Vandhya* as an anovulatory menstrual cycle and *Artava* as an ovum. Because of its function in conception, the ovum, a microscopic structure, was thought to exist in those days. *Vitiated Vata dosha*

is the main cause of *Vandhya yoni vyapada*. Here, anovulation, or *Nashtartava*, is one of the *Vindhya's* symptoms. Since the ultimate result of *Artava vyapada* is "*Abeejatva*," a woman with any of these eight menstrual problems becomes sterile as a result of *Abeejatvam*.

Patients with PCOD experience menstrual disturbances such as amenorrhea with anovulation or oligomenorrhea. Therefore, PCOD falls within the general category of *Artava vyapada*. According to *Kashyapa's* description of *Jataharinies*, *Pushpaghni* is a condition in which a woman has regular periods but is unable to conceive. The other sign is cheeks that are hairy and plump. *Jataharini* is incurable. In this context, the term "*Pushpa*" refers to menstruation that occurs at regular intervals but is meaningless in the absence of ovum, which results in infertility.

Obesity

It is also provided under the *Samtarpana Janya Vyadhi* title, which also includes *Vandhyatva*. *Meda* is central to the pathophysiology of *Sthaulya*, a *Dushya-dominant Vyadhi*. All *Dhatus*, with the exception of *Meda*, are not created in fat people, according to *Acharya Charaka's* detailed explanation of the etiopathogenesis of *Sthoulya*. He was also in agreement with *Acharya Madhava*. Therefore, we can conclude that women who are obese do not generate *Rasa dhatu* and its *Upadhatu artava*, which results in irregular menstruation and infertility because of anovulation. Additional symptoms include *Daurgandhya* (bad body odor), *Krichhra vyavayta* (dyspareunia), and *Javoparodha* (tiredness) [7].

Hyperandrogenism

It is presented as a symptom of another illness. Although it is not appropriate to discuss *Atilomata* in relation to PCOD, it is claimed to be one of the *Nindita purusha* [25] that is comparable to hirsutism. Excessive body hair, or hirsutism, is a sign of one of the *Rewati* that *Kashyapa* describes, especially in women. Some of the *Rewaties* have been described as having irregular menstruation or amenorrhea. Of these, the woman with "*Pushpaghni*" *rewati* has regular periods, but they are ineffective. Her cheeks are hairy and plump. *Kashyapa* claims that it is *Sadhya rewati*.

Dosha lakshana: *Ati samshamana janya, Vegadharana janya, Manastapa janya*

As Vyadhi lakshana: *Nashtartava, Arajaska yoni, Vandhya yoni, Yoni arsha*

As Upadrava: *Pandu, Rajayakshma, Shosha, Grahani, Anashana janya, Ati samshodhana janya*
Other: one of the symptoms of *Artavavaha sroto Viddha lakshana, Nanatmaja vyadhi* of *Vata*.

While the symptoms are the similar, each of the aforementioned illnesses has a unique *Samprapti*, which *Acharyas* also describes. According to the *Vedha* of *Artavavaha srotas*, *Artavanasha* is one of the *Lakshan*. *Sushruta* used the term "traumatic injury" in the context of *Srotoviddha lakshanas*, which suggests that any trauma to the female genital tract or HPO axis causes the symptoms listed above. *Acharya Bhela* asserts that women secure all movements from the seventh night onwards because they secure the largest movement from an early age. The woman does not perceive the menstrual coloration herself because her blood does, in fact, dry out the body [4].

Acharya Sushruta also cited *Artavakshya* while discussing *Dosha dhatu mala kshaya vridhhi lakshanas*. According to *Acharya Shushruta's* explanation in *Sutrastan*, *Yathochitakale adarshanam* means that a delayed menstrual cycle can be taken; the number of menstrual cycles is reduced, and the *Yoni* or pelvic region experiences pain. Although the pathophysiology of PCOD does not result in dysmenorrhea, there are occasionally delayed menstrual cycles and a decrease in the number of menstrual cycles. Regarding PCOD pathophysiology, there is a rise in free oestrogen, which prevents androgens from acting on the endometrium, and progesterone synthesis is absent due to anovulation. Menstruation therefore happens in excess when oestrogen levels fall.

According to *Bhela*, the depletion of *Artava* and body tissues results in *Rajo nasha* because, despite the blood's ability to flow throughout the body, it is unable to nourish *Artava* due to *Alpata* and *Vikritatva*. Regarding the *Doshas, Dhatus, Srotas*, and *Lakshanas*, *Acharya Sushruta's* description fits the inconsistencies in menstruation observed in PCOD. *Artava* is destroyed because the *Doshas*, in this case exacerbated *Vata* and *Kapha*, block the path or orifices of the channels conveying *Artava*. *Artava* is not released on a monthly basis, while not being done entirely. *Pitta* plays no part in this situation because *Pitta vridhhi* causes an increase

in heavy menstruation [5].

In this case, *Artavavaha srotas*, which is Avrita by vitiated Doshas, might be interpreted as the "Marga." In addition to the female genital tract, the hypothalamo-pituitary-ovarian axis is also included in the *Artavavaha srotas*. Since the HPO axis coordinates the occurrence of menstruation, any obstruction at any level results in irregular menstruation and amenorrhea.

Chikitsa Siddhanta

Patients with PCOD should be treated primarily for their symptoms. This involved cycle control for menstrual disorder, ovulation induction for infertility, weight reduction in obesity etc.

Ayurvedic Approach of Treatment

Given the Doshic role in PCOD, the goal of treatment should be to increase *Pitta's Agneya guna*, make the *Vata anuloma*, and calm the vitiated *Kapha*. Since the etiology causes various symptoms, treatment may involve multiple entities, such as-

Treatment strategies in Ayurveda focus on restoring dosha equilibrium through:

- **Nidan Parivarjana (Avoidance of causative factors):** Lifestyle and dietary changes are essential to manage PCOD, including avoiding Kapha-aggravating foods and activities.
- **Samshodhana (Detoxification):** Panchakarma therapies, including Vamana (emesis), Basti (enemas), and Virechana (purgation), are recommended for cleansing and balancing the doshas.
- **Agneya Dravya (Heat-promoting herbs):** Herbs that enhance digestive fire (Agni) are used to stimulate metabolism and eliminate excess doshas.

Eradication of the Causative Factors

Any disease's complications can be avoided by avoiding Nidanas. They can be interpreted here as *Medovriddhikara ahara*, or *Vishamasana*, *Kaphakara* and *Vatadushtikara aharas*, and *Viharas*. In this case, it can be interpreted as avoiding junk food, baked goods, cold beverages, etc.

Samshodhana

Samshodhana is the procedure by which the waste materials are disposed of. Since Kapha is the primary prevailing Dosha in this circumstance, "Vamana" is the primary Shodhana treatment advised. "Basti" is also used to refer to the linked *Vata's Anulomana*. "Virechana" is contraindicated in this state since it is *Pittashamaka* as well, which is undesirable, even if it will also somewhat heal Kapha.

Use of Agneya dravyas

It is stated that *Agneya dravyas* are the opposite of *Vata* and *Kapha*. They are also referred to as *Pittakara*. It is advisable to use caution when using such *Dravyas* in cases of amenorrhea since they are *Vata kaphaghna* and because of *Ushna* and *Tikshna guna*, which eliminate *Srotorodha*, reduce *Medodhatu*, and enhance *Dhatu* metabolism by eliminating *Ama*. The same Swayoni-varadhana dravya aids in menstrual cycle regulation. The term "swayoni-varadhana dravya" refers to actions that support Aartava Vridhi. Since the same Guna Dravya raises the *Pramana* of *Aartava*, it is advised to administer *Dravyas* like *Tila* and *Kulatha*. The symptoms of polycystic ovarian disorders are treated with the same Ayurvedic medications, such as *Rajah Pravartani Vati*, *Kanchnar Guggulu*, *Ashoka Arishta*, and *Arogyavardhini Vati*.

Management of PCOD:

Handling Unusual Menstruation When fertility is not a problem, progesterone alone or oral contraceptives can be used to treat cycle irregularity in women. For people with hyperandrogenism (hirsutism and acne), oral pills with 35 micrograms of ethinyl oestradiol and 2 mg of cyproterone acetate may be a decent choice. This will limit the negative effects of estrogens and induce the menstrual cycle [5,6].

Lifestyle Modifications for PCOD Management

Weight loss has been consistently shown to improve ovulation and fertility outcomes in women with PCOD/PCOS. Studies indicate that even a modest reduction in body weight—around 5% can restore ovulation and significantly enhance fertility. Clark and colleagues demonstrated the effectiveness of a structured program combining regular exercise with sensible eating, which has

become a global model for managing PCOS. Lifestyle changes, such as adopting high-protein or high-carbohydrate diets with comparable fat and calorie intake, lead to rapid improvements in body composition and fat mass. Although sustaining long-term lifestyle changes can be challenging, women motivated by the desire to conceive are more likely to adhere to these interventions, making lifestyle modification a first-line treatment for overweight women with PCOS. However, maintaining long-term weight loss remains a significant challenge for many [8,9]

Treating Infertility/Ovulation Induction

There are several methods in inducing ovulation as-

Clomiphene Citrate (CC)

It is the most basic method of inducing ovulation. The initial dosage of 50 mg is administered for five days beginning on days two, three, four, or five following spontaneous or progesterone-induced withdrawal bleeding. TVS starts tracking the patient's ovulation on the eleventh day. The patient may ovulate naturally or in response to 5000/10,000 I.U. of hCG if an ultrasound shows a mature follicle (>18mm).

GnRH Therapy

LH has been predicted to decrease if the pituitary is suppressed with a GnRH analogue prior to ovulation induction. However, since both LH and FSH will decline, more gonadotropins will need to be administered later to induce ovulation. 75 IU of FSH and 75 IU of LH are found in Human Menopausal Gonadotrophin (HMG), which is extracted from postmenopausal women's urine. 150 mg of HMG is administered for 14 days, beginning on days 3-5 of the cycle, according to the usual regimen. Dosage should not exceed 225IU per day. TVS must also keep an eye on it.

Anti-androgenic Treatment

Physical therapy techniques like bleaching, shaving, plucking, depilatory lotions, electrolysis, and laser can be used to treat hirsutism; oral contraceptive tablets can be used to treat acne. Typically, this calls for the inclusion of an antiandrogen treatment, like cyproterone acetate. In order to significantly reduce hair growth, therapy usually needs to be sustained for at least 1-2 years, though most women see a regression of extra hair within 4 to 6 months. Spironolactone is

another effective anti-androgenic medication. This can be taken either by itself or in conjunction with an OCP. Other medications that can lessen acne and hirsutism include finasteride and flutamide.

Role of Insulin Sensitizers

It has been shown that treatments that increase insulin sensitivity and lower circulating insulin can help women with PCOD diminish their hyperandrogenism. Among these measures could be insulin-sensitive medications such as Metformin (500 mg eight hours a day). It increases LH and free testosterone levels in overweight women with PCOD and improves insulin sensitivity as evidenced by a decrease in fasting plasma glucose and insulin concentrations [10].

Surgical Induction of Ovulation

In 1939, Stein and Cohen removed ovarian tissue wedges for pathologic examination (Int. J. Ayur. Pharma Research, 2022;10(10):101-105). It was noted that regular menstruation and ovulatory function were restored (available online at: <http://ijapr.in> 104). Despite the restoration of ovulation, it was shown that mechanical infertility resulted from excessive postoperative adhesions. To reestablish ovulation and a more normal hormonal milieu, procedures like "Ovarian Drilling," which involves performing laparoscopic cautery on one or both ovaries, have been employed. Laparoscopic ovarian drilling is a straightforward operation in which one or both polycystic ovaries are punctured many times [11].

CONCLUSION

Polycystic Ovary Disease (PCOD) is a complex, multifaceted condition that has significant implications for women of reproductive age, particularly in relation to fertility, hormonal imbalance, and metabolic disturbances. Both modern medicine and Ayurveda offer valuable insights into understanding the pathogenesis and management of PCOD. While modern science emphasizes the role of hormonal imbalances, insulin resistance, and genetic factors in its development, Ayurveda provides a holistic perspective by focusing on doshic imbalances, particularly the exacerbation of Vata and Kapha. The integration of both approaches reveals the shared symptoms of PCOD, such as irregular menstruation, anovulation, hyperandrogenism, and obesity, which align with the Ayurvedic concepts

of Artavavaha srotas, Vandhya, and Medovridhi. Ayurvedic treatment strategies that emphasize lifestyle modifications, detoxification through Panchakarma therapies, and the use of herbs to balance doshas provide a comprehensive and individualized treatment plan for managing PCOD. While modern treatments such as oral contraceptives, ovulation induction, and insulin sensitizers are widely used, Ayurveda offers an additional layer of intervention, focusing on restoring balance within the body's systems. Lifestyle changes, including dietary adjustments and weight management, play a crucial role in improving both metabolic health and fertility in women with PCOD. Ultimately, a combined approach that incorporates the strengths of both traditional Ayurvedic practices and modern medical treatments holds promise for effectively managing PCOD, addressing both the symptoms and root causes of the condition.

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