

Review Article



Polycystic Ovaries Disorder (PCOD): From Hormonal Imbalance to Herbal Products

Diksha Mankar*

The Royal Gondwana College of Pharmacy, Nagpur, Maharashtra, India.

*Corresponding author's E-mail: dikshamankar614@gmail.com

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ABSTRACT

Polycystic Ovarian Disorder (PCOD) is one of the most common endocrine disorders affecting women of reproductive age, with an estimated prevalence of 3–4 out of every 10 women. It is increasingly reported in the age group of 18–30 years and is characterized by hormonal imbalance, metabolic dysfunction, and reproductive complications. PCOD often leads to insulin resistance, weight gain, irregular menstruation, and psychological disturbances, which significantly affect quality of life in young women. The etiology of PCOD is multifactorial, involving genetic predisposition, sedentary lifestyle, and lack of physical activity. Importantly, PCOD is considered a reversible condition when addressed through timely lifestyle modifications such as balanced diet, regular exercise, and stress management. Alongside conventional pharmacological approaches, herbal remedies including Shatavari, Ashwagandha, and Turmeric have shown promising potential in restoring hormonal balance and improving overall health. This review highlights the role of hormonal imbalance in the development of PCOD and emphasizes the therapeutic scope of herbal products in its management.

Keywords: Polycystic ovaries disorder, mental health, hormonal imbalance, physical activity, insulin resistance, herbal products.

INTRODUCTION

Polycystic Ovarian Disorder (PCOD), also called Polycystic Ovarian Syndrome (PCOS), is a common health problem seen in young women between 18–30 years of age¹. It happens due to hormonal changes in the body. In this condition, the ovaries make more testosterone, which causes symptoms like excess facial hair, irregular periods, and development of small cysts on the ovaries. Women with PCOD also suffer from weight gain, insulin resistance, and may later develop type 2 diabetes, high blood pressure, and heart problems.²

PCOD does not only affect physical health but also mental health. Women may have mood changes, anxiety, sleep problems, and low confidence³. These symptoms reduce the quality of life and create both medical and emotional challenges.

Although there is no permanent cure, PCOD can be managed. Simple lifestyle changes like healthy diet, regular exercise, and weight control are very useful in reversing the condition². Herbal products such as Shatavari, Ashwagandha, and Turmeric are also studied for balancing hormones, reducing stress, and improving overall health in women with PCOD³. Doctors usually confirm PCOD by ultrasound, which shows cysts in the ovaries, and by blood tests to check hormone levels⁴. A combination of lifestyle modification, medicines, and herbal products may help women manage this disorder effectively.

Etiology and Pathophysiology

The exact cause of PCOD is not completely understood, but both genetic and lifestyle factors play an important role. In many cases, the disorder is hereditary and runs in families. Nowadays, lack of physical activity, frequent consumption of junk and fried foods, and increased stress are common

lifestyle problems that contribute to PCOD. Poor sleep patterns and the use of hormonal pills to delay menstruation can also disturb the hormonal cycle and increase the risk of cyst formation.⁵

In a normal menstrual cycle, the egg matures in the ovary, gets released during ovulation, and passes into the fallopian tube. This process requires proper hormonal balance. In PCOD, however, there is a disturbance in the balance of hormones such as luteinizing hormone (LH), follicle-stimulating hormone (FSH), and androgens. Due to this imbalance, the egg does not mature fully or is not released. As a result, small cysts form on the surface of the ovary, leading to irregular or absent ovulation. This hormonal imbalance also increases testosterone levels, which causes symptoms such as acne, hair loss, and excess hair growth on the face and body⁶, refer fig 1.

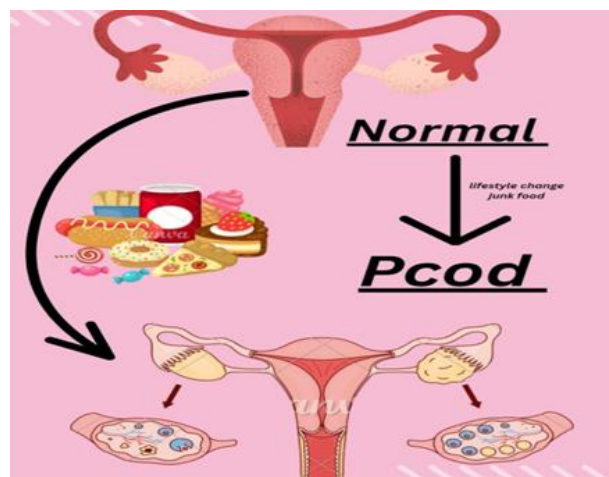


Figure 1: Comparison of normal ovaries and ovaries affected by PCOD, highlighting the impact of unhealthy diet and lifestyle.



Causes and Associated Symptoms

The main causes and risk factors linked with PCOD include irregular menstruation, stress and poor sleep cycle, unhealthy diet (junk food, deep fried food), lack of physical activity, hereditary factors, and misuse of hormonal pills.⁷

The common symptoms associated with PCOD are abdominal pain, back pain, weakness, weight gain, acne, hair loss, excess facial hair, anxiety, migraine, and high blood glucose levels, which may lead to type 2 diabetes.^{5,7}

Diagnosis of PCOD

PCOD is primarily diagnosed through clinical evaluation, biochemical analysis, and imaging techniques⁸. Ultrasound (USG) is commonly used to detect multiple small cysts on the ovaries and increased ovarian volume⁹. Blood tests include LH, FSH, Testosterone, Insulin, Prolactin, and Progesterone to assess imbalance. Thyroid profile is also done to rule out related disorders¹⁰ refer table 1.

Table 1: Comparison of Blood Test Values in Normal Women vs PCOD Patients

Test	Normal range	Pcod range
LH (Luteinizing Hormone)	5–20 IU/L	Often elevated
FSH (Follicle Stimulating Hormone)	5–20 IU/L	Low
Estradiol	30–400 pg/mL	Normal
Testosterone	0.2–0.8 ng/mL	Elevated
DHEAS (Dehydroepiandrosterone Sulfate)	35–430 µg/dL	Elevated in some cases
Prolactin	4–30 ng/mL	May be slightly elevated
TSH (Thyroid Stimulating Hormone)	0.5–4.5 µIU/mL	elevated Thyroid
Fasting Blood Glucose	70–100 mg/dL	Elevated in insulin resistance Common in metabolic PCOD
Fasting Insulin	2–25 µIU/mL	Elevated Indicates insulin resistance
Lipid Profile (Cholesterol / LDL / HDL / Triglycerides)	Varies (Chol <200 mg/dL, LDL <100, HDL >50, TG <150)	Dyslipidemia: ↑ LDL, ↑ TG, ↓ HDL Common metabolic complication
Anti-Müllerian Hormone	1–4 ng/mL	elevated (>4–5 ng/mL) Reflects increased ovarian follicle count
17-Hydroxyprogesterone	(17-OHP) <2 ng/mL	May be mildly elevated

Management

. Lifestyle Modifications^{11,12}

- Balanced protein-rich diet with reduced sugar and refined carbs
- Regular exercise (aerobic + strength training)
- Yoga and meditation for stress reduction
- Adequate sleep regulation

2. Herbal Products^{3,15,17}

Several herbs have shown potential in the management of PCOD symptoms. These include Shatavari, Ashwagandha, Turmeric, Ashoka, and Fenugreek, which have been traditionally used for improving reproductive and metabolic health.

Herbal Remedies:

The details of the herbal plants, their biological names, chemical constituents, and uses are summarized in table 2.

Table 2: Herbal remedies

Herbs	Biological name	Chemical constituents	Uses
Shatavari	<i>Asparagus racemosus</i>	Steroidal saponins (shatavarins), flavonoids, alkaloids, mucilage, polyphenols	Female reproductive health (galactagogue, fertility, hormonal balance), anti-ulcer, adaptogenic, immune booster
Ashwagandha	<i>Withania somnifera</i>	Withanolides, alkaloids (somniferine, anaferine), saponins, sitoindosides Adaptogen	reduces stress & anxiety, improves strength & stamina, enhances fertility, neuroprotective
Turmeric	<i>Curcuma longa</i>	Curcuminoids (curcumin, demethoxycurcumin), essential oils	Anti-inflammatory, antioxidant, antimicrobial, hepatoprotective, supports joint health, wound healing
Ashoka	<i>Saraca asoca (also Saraca indica)</i>	Glycosides, tannins, flavonoids, saponins, catechol	(menstrual disorders, uterine tonic), anti-inflammatory, antimicrobial, relieves dysmenorrhea
Fenugreek	<i>Trigonella foenum-graecum</i>	Alkaloids (trigonelline), saponins (diosgenin), flavonoids, mucilage, coumarins Lowers blood sugar & cholesterol	Antidiabetic, Lipid-lowering, Reduces cholesterol and triglycerides, supporting heart health. Digestive aid – Acts as a carminative, Galactagogue



DISCUSSION

In recent years, many women diagnosed with PCOD rely on hormonal pills such as metformin and oral contraceptives for management. These medicines can provide temporary relief by regulating menstrual cycles and improving insulin sensitivity. However, once the medication is discontinued, hormonal imbalance often reappears, indicating that these drugs offer only symptomatic relief rather than a permanent solution.¹³

Herbal products, on the other hand, are derived directly from natural sources and have shown promising effects in the management of PCOD. They not only help in regulating hormones but also improve associated problems such as stress, sleep disturbance, and metabolic imbalance.¹⁴

Shatavari (*Asparagus racemosus*, root): Supports hormonal balance, regulates the menstrual cycle, reduces stress, and improves vitality.¹⁷

Ashwagandha (*Withania somnifera*, root): Reduces cortisol levels, improves sleep, balances the endocrine system, and protects the reproductive system from oxidative stress.¹⁷

Other herbs such as Turmeric, Fenugreek, and Ashoka also play a supportive role in regulating insulin sensitivity, reducing inflammation, and managing symptoms of PCOD.^{15,16}

Future Prospects

Although current management of PCOD mainly involves lifestyle modification and pharmacological therapy, there is increasing interest in the role of herbal medicines. Future research should focus on clinical trials to scientifically validate the efficacy and safety of herbs like Shatavari, Ashwagandha, and Turmeric in women with PCOD.^{15,16}

The integration of herbal products with modern medicine may provide a holistic approach, addressing not only hormonal imbalance but also mental health, metabolic dysfunction, and quality of life. Standardized herbal formulations such as capsules or effervescent tablets could improve compliance and provide a safer alternative to long-term hormonal pills.¹⁷

Advanced molecular studies will further explain how these herbs act on endocrine pathways, ovarian function, and insulin sensitivity. With strong evidence-based support, herbal products may become recognized complementary treatments for PCOD.¹⁸

CONCLUSION

Polycystic Ovarian Disorder (PCOD) is one of the most common endocrine disorders among young women, with significant effects on reproductive, metabolic, and mental health.²¹ Although the exact cause is multifactorial, lifestyle, genetic, and hormonal factors play a key role in its development.^{5,7}

Conventional treatment with hormonal pills and insulin-sensitizing agents provides temporary relief but often fails to address long-term balance. In contrast, lifestyle

modification combined with herbal products offers a safer and more sustainable management approach. Herbs such as Shatavari, Ashwagandha, Turmeric, Ashoka, and Fenugreek show promising effects in regulating hormones, reducing stress, improving metabolism, and enhancing quality of life.²⁰

Therefore, herbal products, along with proper diet, exercise, and stress management, can be considered as complementary strategies for managing PCOD. With further scientific validation, these natural remedies have the potential to become mainstream supportive therapies in the treatment of PCOD.

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