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MARZ AKYAS KHUSYAT-UR-RAHIM (POLYCYSTIC OVARIAN SYNDROME): AN INTEGRATIVE ANALYSIS FROM UNANI PERSPECTIVE AND MODERN MEDICINE

[1]*Faria Nawab, [2]Samreen Imlak, [3]Irshad Ahmad Ansari, [4]Saddam Husain Ansari

[1,2,3,4]Department of Manafeul Aza (Physiology) State Unani Medical College and H.A.H.R.D.M Hospital, Prayagraj, Uttar Pradesh, India.

***Corresponding Author: Faria Nawab**

Department of Manafeul Aza (Physiology) State Unani Medical College and H.A.H.R.D.M Hospital, Prayagraj, Uttar Pradesh, India. **DOI:** https://doi.org/10.5281/zenodo.17891534

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ABSTRACT

Polycystic Ovary Syndrome (PCOS) *Marz Akyas Khusyat-ur-Rahim* is one of the most common endocrine and metabolic disorders affecting women of reproductive age, with a global prevalence estimated to range between 6% and 20%, depending on the diagnostic criteria and population studied. It is characterized by chronic anovulation, hyperandrogenism and polycystic ovarian morphology. PCOS is frequently associated with obesity, insulin resistance, menstrual irregularities, infertility, increased risk of type 2 diabetes and cardiovascular diseases. While modern medicine explains PCOS in terms of hormonal imbalance, altered gonadotropin secretion and metabolic dysfunction, Unani medicine interpret the condition through disturbances in *Mizaj* (temperament), imbalance of *Akhlat* (humours) and dysfunction of *Quwā Tabi'iyya* and *Quwwat-e-Mudabbira*. This paper aims to explore PCOS from an integrative perspective by correlating contemporary physiological mechanisms with classical Unani concepts. It highlights similarities in the understanding of etiopathogenesis, clinical manifestations, and progression of the disorder. By bridging modern science with Unani theoretical frameworks, this study offers a more holistic interpretation of PCOS, emphasizing individualized temperament-based management strategies. The findings suggest that combining modern diagnostic protocols with Unani principles of balance restoration, diet modulation and lifestyle correction may enhance therapeutic outcomes.

KEYWORDS: PCOS, Unani medicine, hyperandrogenism, insulin resistance, *ihtibas-i-tams*, *mizaj*, lifestyle disorders.

INTRODUCTION

Polycystic Ovarian Syndrome (PCOS) or *Marz Akyas Khusyat-ur-Rahim* is among the most prevalent endocrine and metabolic disorders affecting women of reproductive age. PCOS was first described by Stein and Leventhal in 1935 and is therefore also known as Stein Leventhal syndrome. They characterized it by a typical triad of amenorrhoea, obesity and hirsutism, along with enlarged ovaries showing a polycystic appearance.

Its worldwide prevalence is estimated to range between 6–20%, 3.4–19.6% of adolescent girls. In India, reported prevalence rates vary from 3.7% to 22.5%, and may reach as high as 36% among adolescents and may be even higher when broader diagnostic criteria are used. Due to modern lifestyle patterns have significantly contributed to the increasing burden of PCOS. Sedentary habits and frequent consumption of unhealthy, calorie-dense foods somehow disrupt the hypothalamic-pituitary-ovarian axis, thereby promoting the development of lifestyle-related disorders such as PCOS. Several risk factors play a role in its development, including genetic predisposition, a positive family history, insulin resistance and obesity. The clinical manifestations of PCOS commonly include menstrual irregularities such as oligomenorrhoea or amenorrhoea, which may be followed by heavy menstrual bleeding. Other prominent features include excessive hair growth (hirsutism) on the face and body, as well as acanthosis

nigricans typically observed on the neck, in the groin, and beneath the breasts.

Unani physicians have described conditions resembling PCOS under categories such as amenorrhoea, female infertility, obesity, phlegmatic disorders, and diseases of the liver. Development of PCOS is primarily attributed to the predominance of *khilt-e-balgham*. *Sū-i-mizāj bārid* (abnormally cold temperament) of the liver can lead to excessive and abnormal production of phlegm. When the liver fails to properly transform food extract into *khilt -e-Dam,* it instead produces *Balgham* in excessive amount. One such abnormal variety, *balgham mā'ī*, is relatively thin in nature and may accumulate within cavities, eventually forming cyst-like structures.

Other major features of PCOD, including amenorrhoea, oligomenorrhoea and obesity are also linked to increase in phlegm. Viewing PCOS through both modern physiological concepts and Unani principles offers a broader and more holistic understanding of the disorder, recognizing the role of biological, metabolic, environmental, and constitutional influences. This integrated perspective supports more comprehensive management by addressing hormonal disturbances, metabolic imbalances, lifestyle factors, and temperamental characteristics. Therefore, the present research aims to connect these two medical frameworks by identifying their similarities and differences in order to develop a more unified and patient-centred understanding of PCOS.

METHODOLOGY

This review article is based on an extensive literature survey combining classical and contemporary sources. Classical Unani manuscripts, modern reviews and research articles on PCOS were also searched.

Unani and modern perspective of *Marz Akyas Khusyat-ur-Rahim (PCOS)*

Unani physicians mentioned the description of PCOD under the headings of amenorrhoea, obesity, phlegmatic diseases and liver disorders.[1,2,3] Unani concept of PCOD is mainly based on the dominance of *khilt balgham*. One such condition, *Ihtibas-i-Tams* (amenorrhoea) is defined in classical Unani literature as the absence of menstruation.[4,5,6] This absence may range from reduced menstrual flow to complete stoppage or it may occur at prolonged intervals of two months or more. Normally, when duration of menstrual cycle exceeds the normal range, it is regarded as pathological and termed *Ihtibās al-Tamth*[1,4,8]

Polycystic Ovarian Syndrome (PCOS) was first formally described in 1935 by Stein and Leventhal, who reported a group of women presenting with amenorrhea, hirsutism, obesity, and enlarged polycystic ovaries.

PCOS is a heterogeneous disorder primarily marked by excessive ovarian androgen production. It is a multifactorial and polygenic condition, and its diagnosis is established when any two among the three specified criteria are present. Oligomenorrhoea or anovulation, hyperandrogenism, polycystic ovaries.

Histologically, the tunica albuginea is thickened and the cystic structures represent follicles at different stages of maturation and degeneration. Hypertrophy of the theca cells, known as stromal hyperthecosis, is commonly observed. Affected individuals may also exhibit features associated with insulin resistance, including manifestations related to diabetes mellitus.

Etiopathogenesis

***Zo'af-i-Jigar* (weakness of the liver)** contributes to amenorrhoea through several mechanisms. First, the liver is unable to properly separate and refine the blood from other bodily fluids, causing inadequate circulation to distant organs such as the uterus. Second, defective *Tawlid-i-dam* (impaired blood formation) occurs. Third, obstruction within the liver itself disrupts the flow of blood toward the uterus.[1,2,3,8,10]

***Su'-i-Mizaj Barid* (cold derangement of temperament)** causes the formation of *sudda* (obstructions) in the uterine blood vessels, often due to excessive fluid intake. These obstructions interfere with normal menstrual flow, leading to amenorrhoea and, in many cases, infertility.[2,3,10]

Akhlāt-i-Ghaliz, particularly an excess of *balgham*, increases the thickness and stickiness (*lazujat*) of the blood. The consumption of heavy and viscid foods further promotes the accumulation of this thick material in the vessels, resulting in *sudda* formation within the uterine blood supply and consequent amenorrhoea.[1,2,8,10]

***Farbihi* (obesity)** is another important factor. Excess fat around the uterus compresses the blood vessels, while increased accumulation of *balgham* within these vessels promotes further obstruction. Additionally, the dominance of moisture (*rutubat*) and coldness (*burudat*) in the body alters ovarian function, leading to chronic anovulation. This ultimately results in menstrual disturbances and infertility.[1,2,3,8,10]

Classical Unani texts state that *Su-i-Mizaj Barid* (abnormally cold temperament) of the liver interferes with its normal function of converting chyme into healthy blood. Instead, the liver produces *balghami* or thick, viscid material. One abnormal form, known as *Balgham Ma'i,* is thin in consistency and tends to collect in sac-like spaces, leading to cyst formation.

Furthermore, cardinal features of PCOS such as amenorrhoea, oligomenorrhoea, and obesity are also attributed to an excess of *balgham*. Therefore, it is believed that the predominance of *balgham* in the body results in ovarian cyst formation, menstrual irregularities, and weight gain.[11,12]

In modern medicine PCOS is a multifactorial pathological disease affected by many pathological disorders both genetic and environmental factors, different gene loci have been implicated in the disorder, including those that control gonadotropin activity, insulin signaling pathways, and steroid genesis.[13,14] Genes contribute to disrupted formation of follicles, altered steroid hormones, and metabolic dysfunction.

Studies have shown that first-degree female relatives (mother, grandmother) of PCOS patients have more chances to developing the disease, indicating a genetic tendency. several studies also showed higher concordance rates for PCOS among monozygotic twins compared to dizygotic twins, further support a genetical component.[15]

Genetic factors, such as in utero altered to androgens and postnatal environmental influences e.g., obesity, diet, and decreased physical activity, may interact with genetic susceptibility to developed the clinical manifestations of PCOS.

Neuroendocrine Dysfunction A key factor in the pathophysiology of PCOS is the disruption of the hypothalamic-pituitary-ovarian (HPO) axis. In a typical cycle, the hypothalamus secretes gonadotropin-releasing hormone (GnRH) in a pulsatile manner, which regulates the secretion of luteinizing hormone (LH) and follicle-stimulating hormone (FSH) from the anterior pituitary. In PCOS, the frequency of GnRH pulses is increased, leading to disproportionately elevated LH secretion relative to FSH. This increased LH/FSH ratio enhances androgen production by the theca cells of the ovaries, contributing to hyperandrogenism and anovulation.[16,17]

Elevated androgens not only disrupt follicular maturation but also contribute to clinical manifestations such as acne, hirsutism, and alopecia. Additionally, these hormonal imbalances perpetuate the development of polycystic ovaries, with multiple small follicles arrested in development.

Hence, Unani and modern perspectives both acknowledge that central dysfunction, whether hormonal or psycho-spiritual, plays a significant role in the genesis and perpetuation of PCOS.[18]

Hyperprolactinemia In approximately 20% of cases, a mild elevation in prolactin levels may occur, attributed to increased pulsatility of gonadotropin-releasing hormone (GnRH), dopamine deficiency, or a combination of both. Elevated prolactin can further promote androgen production by the adrenal glands.[23]

Metabolic Features and Insulin Resistance
Insulin resistance affects 50–70% of PCOS women, leading to compensatory hyperinsulinemia. Excess androgen production is a central feature of Polycystic Ovarian Syndrome. It primarily originates from the ovarian theca cells, which become hyper-stimulated due to elevated luteinizing hormone (LH) levels and hyperinsulinemia associated with insulin resistance. Insulin acts synergistically with LH to enhance androgen synthesis and also suppresses hepatic production of sex hormone-binding globulin (SHBG), resulting in increased levels of free and biologically active androgens amplifying free testosterone levels.[19,20,21] It also predisposes to type 2 diabetes and cardiovascular complications.[22] This hormonal imbalance interferes with normal follicular development and ovulation, leading to the characteristic reproductive and dermatological manifestations of PCOS, such as hirsutism, acne, and menstrual irregularities.[25]

Diagnostic criteria
NIH 1990: Patient demonstrate both: Clinical or biochemical sign of hyperandrogenism**,** Menstrual irregularities /Oligo or chronic anovulation.

Rotterdam criteria 2003: Presences of any two of the following criteria Menstrual irregularity or ovulatory dysfunction, Hyperandrogenism (clinical /biochemical), Polycystic ovarian morphology on USG.

Androgen Excess and PCOS society criteria 2006
Patient demonstrates both: Hyperandrogenism (clinical/biochemical), Oligo or anovulation and Polycystic ovarian morphology.

Clinical features
Patients commonly present with progressive obesity, particularly central (abdominal) adiposity (approx. 50%), and menstrual disturbances (approx. 70%) such as oligomenorrhea, amenorrhea, or dysfunctional uterine bleeding, often accompanied by infertility. Hirsutism and acne are prominent manifestations, seen in nearly 70% of cases, while virilization is uncommon.

Acanthosis nigricans presents as characteristic skin changes associated with insulin resistance, marked by thickened, hyperpigmented (grey-brown) areas. The most commonly involved sites include the nape of the neck, axillae, groin, and inner thighs.

HAIR-AN syndrome in patients with PCOS is characterized by hyperandrogenism, insulin resistance and acanthosis nigricans.[24]

Endometrial carcinoma, hypertension, cardiovascular diseases, diabetes mellitus, obstructive sleep apnea are late sequele of PCOS.

Diagnostic assessment of *Marz Akyas Khusyat-ur-Rahim* in unani system of medicine
We can diagnose *Marz Akyas Khusyat-ur-Rahim* according to unani system in different ways –

In ***Zo'af-i-Jigar***, the patient often has a history of liver disease and complains of a feeling of heaviness in the

right hypochondriac region, whitish urine occasionally mixed with blood, and noticeable changes in skin colour.

In case of ***Ghalba-i-Balgham***, the patient is typically obese with a soft, puffy, and flabby body, cold skin, a pale complexion, and prominent veins. The pulse is slow and irregular, urine is whitish, thick, and excessive in quantity, and stools are *balghami* in nature. Menstrual blood, if present, is red and thin in consistency.[1,3,10]

In case of ***Sudda*** (obstruction), menstruation gradually ceases and is associated with a feeling of heaviness in the body, abdominal distension due to flatulence, and discoloration of the skin.

In some patients, prolonged amenorrhoea leads to marked physical changes, such as excessive body and facial hair growth, a deepened or hoarse voice, and altered body temperament. These changes are more commonly seen in multiparous women with muscular build, prominent blood vessels, and masculine features.

General symptoms may include headache, shortness of breath and chest discomfort on exertion, palpitations, fainting, indigestion, loss of appetite, nausea, excessive thirst, constipation, a sensation of heaviness in the body, restlessness, painful or difficult urination, reduced urine output, dark-coloured urine, extreme fatigue, and obesity.[1,2,3,8,10]

Hirsutism: In Unani literature, hirsutism is described as a complication of prolonged amenorrhoea and is associated with other masculine characteristics such as a deepened or hoarse voice, a male-pattern body build, and acne. *Ibn Sina* and *Ismail Jurjani* attributed the underlying cause of hirsutism to a disturbance in the normal temperament of women. When amenorrhoea persists for an extended period, it alters the internal environment of the body and disrupts the natural balance, thereby promoting excessive hair growth.

According to Unani theory, prolonged amenorrhoea leads to the transformation of *balgham* into *sawda* through a process called *ihtiraq*. This change gives rise to hirsutism, hyperpigmentation (which may be compared to acanthosis nigricans).[1,3,8]

Acne Vulgaris (*Buthūr Labaniyya*): In Unani medicine, acne is referred to as *Buthūr Labaniyya* small, whitish eruptions on the face resembling condensed drops of milk, that is why Ibn Sina called them *Muhasa*. formation of undesirable substances that are eliminated through the skin in the form of *Buthūr Labaniyya*. These lesions are believed to result from *madda-i-ṣadidiya* (infected or impure matter) that is driven toward the surface of the skin by internal body vapours (*bukharat-i-badan*). Such eruptions are most commonly observed in adolescent and young women, particularly between 16 and 25 years of age, and are often linked to menstrual irregularities or amenorrhoea.[8,10]

Complications

According to *Ibn Sina*, menstrual blood normally exits in the body through the uterus. If this pathway becomes obstructed and the blood is unable to be expelled, it is reabsorbed back into the body. When this process occurs repeatedly, it can lead to several complications, including *Ikhtināq al-Rahim* (hysteria), *Sayalan-al-Rahim* (leucorrhoea), *Waram Sulb Sawdawi wa Saqirus Rahim* (uterine swellings and malignancy), *Uqr* (infertility), *Waram al-Jigar* (inflammation of the liver), *Istisqa* and *Awrām-i-Ahsha* (ascites and visceral inflammation), *Malankholia* (melancholia), and generalized anasarca.

Ibn Sina also described a close relationship between amenorrhoea, chronic anovulation, *Farbihi*, and *Uqr*, noting that women affected by these conditions may develop masculine features. This classical description reflects the strong correlation between anovulation, menstrual irregularities, obesity, and infertility, which are key features recognized in modern descriptions of polycystic ovarian disease.

Investigations

Luteinizing hormone (LH) levels are increased and LH:FSH ratio exceeds 2:1, Both estradiol and estrone concentrations are elevated, with estrone showing a more marked rise, Levels of sex hormone–binding globulin (SHBG) are reduced, Biochemical hyperandrogenism is evident, primarily of ovarian origin (with a smaller adrenal contribution), reflected by increased androstenedione levels, Serum testosterone is elevated (>150 ng/dL), while dehydroepiandrosterone sulfate (DHEA-S) may be slightly increased.

Insulin resistance is indicated by raised fasting insulin levels (>25 µIU/mL) and a fasting glucose-to-insulin ratio of <4.5 in approximately 50% of cases. A post-glucose load (75 g) insulin response of >300 µIU/mL at 2 hours suggests severe insulin resistance.[23,24]

Transvaginal ultrasonography is particularly useful in obese patients. The ovaries typically show an increased volume (>10 cm^3), with more than 12 small follicles measuring 2–9 mm in diameter arranged peripherally.[23]

Comparative Analysis

Both Unani and modern medical systems recognize PCOS as a disorder involving ovulatory dysfunction, androgen excess, and metabolic disturbances such as insulin resistance. However, their diagnostic and therapeutic frameworks differ significantly. Modern medicine focuses on biochemical markers, ultrasound imaging, and pharmacological interventions to manage symptoms and prevent complications. In contrast, Unani medicine views PCOS like conditions as disruptions in the natural balance of humours and temperament, particularly involving *balgham* and a cold moist *mizaj*. This imbalance is thought to cause *sudda* (obstruction) and dysfunction in the reproductive system. Diagnosis is based on pulse reading (*nabz*), examination of signs and

symptoms, and assessment of the patient's temperament and lifestyle.

Despite their different methods, both systems aim to restore balance whether hormonal or humoral and improve fertility, metabolism, and quality of life. By recognizing overlaps in clinical features and treatment goals, an integrative model can be formed. Such an approach may offer the advantages of precise diagnostics and evidence-based pharmacology alongside the holistic, preventive, and personalized strategies found in Unani medicine.

CONCLUSION

Polycystic Ovary Syndrome is a complex, multifactorial condition involving hormonal, metabolic, and ovarian dysfunction. Modern medicine explains it through insulin resistance, endocrine imbalance, and disruption of the hypothalamic-pituitary-ovarian axis, while Unani medicine attributes it mainly to *khilt-e-balgham* dominance and *sū- mizāj bārid* of the liver. Despite using different terminologies, both systems recognize the central role of metabolic disturbance, obesity, and menstrual irregularities in the development of the disease.

Integrating modern pathophysiology with Unani concepts offers a more holistic and individualized understanding of PCOS. This combined approach can support more comprehensive management strategies that address not only the biological aspects, but also lifestyle and constitutional factors, ultimately improving patient outcomes and quality of life.

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