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RESEARCH PAPER

History of Polycystic Ovarian Disease (PCOD) in Indian medical literature

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Abstract

Polycystic Ovarian Disease (PCOD) is a hormonal disorder that affects the reproductive system of females. Understanding the background of PCOD makes the concept clear. PCOD was previously considered just an Ovarian Disease but it was later recognised to be a hormonal metabolic disorder. An analysis of PCOD history clarifies the evolution of its diagnostic criteria. Modern diagnostic techniques are the result of long term historical development. Earlier the focus was on only surgery and ovaries but now it is on the modification of lifestyle and control of insulin resistance. History shows what was effective and what was not. It is called polycystic Ovary Syndrome (PCOS) in Western books. In India, it is called PCOD. According the Western medical research, PCOS is a long-term condition. This is not just a period issue: It's related to hormonal and Metabolism. Periods are late or absent, high Androgen hormone (Male hormone) and the appearance of small cysts in the ovaries are the main problems in PCOD Western Literature and scientific studies focus more on blood tests, ultrasound and clear diagnostic criteria. Indian medical studies agree with the Western definition, but they highlight a few extra points such as lifestyle factors (junk food, physical inactivity and stress). In India, PCOD is often a late diagnosis. Irregular Periods are considered normal. Periods and infertility are not discussed openly in society.

KEYWORDS:
Polycystic Ovarian Disease(PCOD), Polycystic Ovary Syndrome(PCOS),Indian and Western literature, infertility and obesity.

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Introduction

PCOD is a hormonal disorder characterised by ovarian dysfunction, irregular ovulation, and the presence of multiple small cysts in the ovaries, often associated with menstrual irregularities and metabolic disturbances. Recent studies indicate PCOD affects approximately 10% -13% of women of reproductive age globally. High-quality studies indicate a global Prevalence of about 7%-11% with minimal regional variation and a slightly higher prevalence in adults than in adolescents. PCOD is now recognised disorders but its symptoms such as irregular periods, infertility, obesity, acne etc. All these are found in Ayurveda and ancient medical texts with different names and descriptions. Such as **Artava-dushti, yonivyopad, Pushpaghni jataharini.** PCOD is a **"Modernly defined disease".** However, its clinical features were already described in ancient literature. The only difference is that it wasn't clarified by this

name before.

Methodology:
A systematic literature review of published research articles review papers, and clinical guidelines related to PCOD was conducted for the case study. Only studies published in English focusing on the clinical features and historical aspects were considered.

Early Description of PCOD- like symptoms:
(Pre- 20th century)

Ancient Indian medical literature:
Although PCOD as a medical entity was defined only in the 20th century, many of its clinical features were described much earlier in ancient Indian medical texts, especially in **Ayurveda**.

Classical texts such as the **Charka samhita, Sushruta samhita and Ashtanga Hridaya** mention conditions related to menstrual irregularities (**Artava-dushti**), an ovulation, infertility (**Vandhyatva**), Obesity (**Sthaulya**). One notable description is "**Pushaghni jataharini"** which is characterised by absence or irregular mensuration, infertility and features suggestive of hormonal imbalances, closely resembling the clinical picture of PCOD/PCOS. Similarly, disorders grouped under **Yonivyapad** and **Artava-vyapad** describe abnormalities of the menstrual cycle and reproductive function, which parallel modern concepts of ovarian ovarian dysfunction. Thus, while PCOD is a modern diagnostic term, its complex was clearly recognised and described in ancient Indian medical literature long before the 20th century, indicating that the condition on is not new, only newly classified in modern medicine.

"**Ayurveda does not define syndromes; rather, it describes cluster of symptoms."**

Ancient and medieval Western medicine:
Although PCOD/PCOS was formally defined only in the 20th century, several PCOD- like symptoms were recognised in ancient and medieval Western medicine. Greek physicians such as **Hippocrates** described women with irregular or absent mensuration, infertility and obesity linking these features to disturbances in bodily humour. Later, **Galen** expanded on these ideas and associated menstrual irregularities and infertility with systemic imbalance and metabolic factors.

During the medieval period, medical scholars in Europe continued to document conditions involving Amenorrhea, subfertility and excessive body weight, although the ovarian pathology was not understood. These descriptions focused more on symptoms and clinical presentation rather than anatomical or hormonal causes. Thus, similar to ancient Indian medicine, Western medical traditions recognised the symptoms complex of PCOD long before it was classified as a distinct disease indicating that the condition existed historically but lacked a modern diagnostic framework.

Emergence of PCOD as a clinical entity
(20th century)
Although symptoms such as irregular periods, obesity and acne had been described in medical literature for centuries. PCOD was not recognised as a distinct clinical condition until the 20th century. Before this period, these features were usually treated as separate gynaecological or endocrine problems rather than as part of a single syndrome.

A major break though came in 1935, when **Lrving F. Stein** and **Michal L. Leventhal** described a group of women with Amenorrhea, enlarged polycystic ovaries Hirsutism, and infertility. This condition later become known as **Stein-Leventhal syndrome,** and it marked the first clear clinical recognition of what is now called PCOD/PCOS. Their work established a direct link between ovarian morphology and a characteristic set of clinical symptoms.

During the mid and late 20th century, advances in Endocrinology, pathology and imaging techniques (such as ultrasound) further clarified the nature of this disorder. Researchers began to understanding that PCOD is not only a gynaecological condition but also a hormonal and metabolic disorder, involving hyperandrogenism, ovulatory dysfunction and insulin resistance.

Evolution of Diagnostic criteria:
With the growth of Endocrinology in the late 20th century the understanding of PCOD shifted from a purely gynaecological disorder to a hormonal disorder. This led to the development of the **NIH criteria (1990), which** emphasized chronic an ovulation and clinical or Biochemical hyperandrogenism, there by highlighting the endocrine basis of the condition.

A major expansion of the diagnostic framework occurred with the introduction of the **Rotterdam criteria (2003),** which Incorporate ultrasound evidence of Polycystic ovaries along with ovulatory dysfunction and hyperandrogenism, requiring any two of these three features for diagnosis.

The **Androgen excess society (AES) criteria (2006)** refined the diagnostic approach by making hyperandrogenism a mandatory features, there by re-emphasizing the endocrine core of PCOS and distinguishing it from broader morphology-based definitions.

Criteria	Irregular periods	Androgen excess	Ultrasound
NIH	✔	✔	✖
Rotterdam	✔ (any 2 of 3)	✔	✔
AES	Optional	✔	✔/✖

Changing scientific models of PCOD:
The scientific understanding of PCOD has evolved considerably over the past century. Initially viewed as a localized ovarian disorder, PCOD is now recognised as a complex, multisystem condition involving endocrine, metabolic, neuroendocrine and genetic factors. This conceptual shift is reflected in the development of several scientific models, each representing a different stage in the understanding of the disease.

Ovarian-centric model:
The earliest model of PCOD was primarily Ovarian-centric, based on the classic description of Stein and Leventhal (1935). In this model, the disorder was attributed mainly to structural and functional abnormalities of the ovaries, particularly enlarged polycystic ovaries associated with anovulation, Amenorrhea, and infertility. The ovary was considered the primary site of pathology, and PCOD was largely interpreted as a gynaecological condition with characteristic morphological changes.

Endocrine disorder model:
With advances in Endocrinology during the mid to late 20th century, PCOD began to be understood as a hormonal disorder rather than a purely ovarian disease. This model emphasized hyperandrogenism, disordered gonadotropin secretion (LH/FSH imbalance), and chronic anovulation as central features. The focus shifted from ovarian morphology to hormonal dysregulation, highlighting the role of the **hypothalamic-pituitary-ovarian** axis in the pathophysiology of PCOD.

Metabolic and insulin resistance model:
Further research revealed that many women with PCOD exhibit insulin resistance, Hyperinsulinemia, and increased risk of type 2 diabetes and cardiovascular disease**.** This led to the development of the metabolic model, in which insulin resistance is considered a key driver of hyperandrogenism and ovarian dysfunction**.** In this framework, PCOD is viewed not only as a reproductive disorder but also as a metabolic syndrome-like condition with long term systematic health implications.

Neuroendocrine and Genetic perspectives:
More recent models have expanded the concept of PCOD to include neuroendocrine dysregulation and genetic susceptibility. Abnormalities in gonadotropin- releasing hormone (GnRH) pulsatility, altered central regulation of reproduction, and familial clustering of PCOD suggest a neuroendocrine-genetic basis for the disorder. This perspective recognise PCOD as a heterogeneous, multifactorial condition, resulting from the interaction of genetic predisposition with environmental and lifestyle factors.

PCOD in Indian medical and clinical literature:
(Post-independent)
Following India independence in 1947, the development of modern medical Education, research Institutions, and specialty hospitals led to a significant expansion of gynaecological and endocrine research in the country. During the early post -independence decades, PCOD /PCOS was largely discussed in Indian medical literature within the boarder framework of menstrual disorders, infertility, and endocrine dysfunctions, often drawing upon Western clinical descriptions such as the Stein-Leventhal syndrome.

By the 1960s and 1970s, with the growth of departments of obstetrics and gynaecology and endocrinology in Indian medical colleges, clinical case series and hospital-based studies began to appear, documenting Indian patients with features of anovulation, hirsutism, obesity and infertility consistent with PCOD. These studies helped establish that PCOD was not limited to Western populations but was also a significant and prevalent condition among Indian women.

The late 20th century saw a major shift with the increasing availability of hormonal assays and ultrasonography in India. This allowed clinicians to move beyond purely clinical diagnosis and Incorporate biochemical and imaging criteria, aligning Indian practice with international standard such as the NIH and later Rotterdam criteria. Indian researchers also began to highlight ethnic and regional variation in the clinical presentation of PCOD, including differences in body composition, metabolic risk, and severity of hypoandrogenic features.

In 21st century, Indian medical literature has increasingly emphasized the metabolic and public health dimensions of PCOD, particularly its association with insulin resistance, type 2 diabetes, obesity and cardiovascular Risk- conditions of growing Importance in the Indian population, Numerous studies from India have focused on epidemiology, lifestyle factors, adolescent PCOD, and long-term health consequences, reflecting a broader and more integrative understanding of the disorder.

Thus, in post -independence India, PCOD evolved in medical and clinical literature from a relatively uncommon, specialist-described condition to a widely recognised, multidisciplinary health problem, encompassing reproductive, endocrine, and metabolic aspects and holding major significance for woman's health in the Indian context.

Current Gaps in historical under standing:

Limited Indian Archival research:

One major gap in the historical understanding of PCOD is the limited use of Indian archival sources. Most historical narratives rely heavily on Western medical literature, while hospital records, early Indian medical Journals, institutional archives, and regional publication remain underexplored. As a result, the development of clinical knowledge about PCOD in India especially during the early and mid 20th century has not been systematically documented, leading to an incomplete and Western-centric historical account.

Lack of documentation or oral traditions:

Another significant gap is the absence of documented oral medical traditions. In India, a large body of clinical knowledge has historical traditions. In India, a large body of clinical knowledge has historical been transmitted experience, particularly in traditional systems of medicine and early clinical practice. These observation, case experiences and treatment approaches related to menstrual disorders and infertility-conditions now associated with PCOD were rarely recorded in formal publications. Consequently, valuable experiential knowledge has been largely lost to historical analysis.

Disconnect between Ayurveda and Modern medicine:

A further gap lies in the conceptual and scholarly disconnect between Ayurveda and Modern biomedical framework. Although Ayurveda contains detailed discussion of menstrual disorders, Infertility and metabolic imbalance that may overlap symptomatically with PCOD, these descriptions have not been critically and systematically correlated with modern clinical concepts. The lack of interdisciplinary historical studies had presented the development of an integrated narrative that bridges traditional Indian medical knowledge and contemporary scientific understanding.

Conclusion:

The historical evolution of PCOD reflects a remarkable transformation in medical understanding -from early descriptive accounts of menstrual irregularities and infertility to its recognition as a complex, multisystem endocrine-metabolic disorder. Over the 20th century, advances in clinical observation, endocrinology, imaging and metabolic research reshaped PCOD from an Ovarian centric condition into a heterogeneous syndrome involving reproductive, hormonal, metabolic, and neuroendocrine dimensions.

The development and refinement of diagnostic criteria, from the Stein-Leventhal description to the NIH, Rotterdam and AES guidelines, illustrate how scientific progress continuously redefined the boundaries of the disorder. Similarly, changing scientific models- from ovarian to endocrine, metabolic and neurogenetic perspectives – demonstrate a growing appreciation of the complexity and systemic nature of PCOD.

In the Indian context, post Independence medical and clinical literatures shows a gradual but significant expansion in research, clinical recognition, and public health prevalence of PCOD. However, important gaps remain, particularly the limited use of Indian archival sources, the loss of undocumented oral traditions, and the persistent disconnect between Ayurveda and Modern biomedical frameworks.

Addressing these gaps through interdisciplinary, historical, and cross culture research will not only enrich the historical narrative of PCOD but also contribute to a more context sensitive and holistic understanding of the disorder. Such as approach is essential for integrating past knowledge with present science and for shaping more Inclusive and effective perspectives on women's health in the future**.**

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