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Ayurveda

AYURVEDIC REVIEW OF POLYCYSTIC OVARY SYNDROME: REVIEW ARTICLE

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ABSTRACT Polycystic ovary syndrome (PCOS) is a complex condition characterized by elevated androgen levels, menstrual irregularities, and/or small cysts on one or both ovaries. The disorder can be morphological (polycystic ovaries) or predominantly biochemical (hyperandrogenemia). Hyperandrogenism, a clinical hallmark of PCOS, can cause inhibition of follicular development, microcysts in the ovaries, anovulation, and menstrual changes. According to the National Institutes of Health Office of Disease Prevention, PCOS affects approximately 5 million women of childbearing age in the U.S. Costs to the U.S. health care system for the identification and management of PCOS are approximately $4 billion per year. Research suggests that 5% to 10% of females 18 to 44 years of age are affected by PCOS, making it the most common endocrine abnormality among women of reproductive age in the U.S. Women with PCOS have higher rates of endometrial cancer, cardiovascular disease, dyslipidemia, and type-2 diabetes mellitus. In Ayurveda, all diseases are described according to the involved Dosha, Dushya and Srotasa, etc. Diseases in the body are the result of Dosha Vaishamyata which is directly connected to symptoms and the relation between Dosha and Lakshanas is permanent. For example, vitiated Vata will always be expressed through any of its Lakshanas like Shoola, Rukshatwa, Laghava, etc.

KEYWORDS : Polycystic ovary syndrome, PCOS, Ayurveda, Dosh Vaishmayata.

INTRODUCTION

Tridoshas, Tridhatus, and Mala are the main pillers of the body. They are made from the Panchamahabhoota. The equilibrium of Doshas is mainly responsible for health; any derangement to this will lead to an unbalanced condition called disease.

Charaka has said that every disease could not be named. So, Vaidyas should know the diseased condition according to the involvement of Doshas, Dhatus, and Srotasa etc.

Hence even if there is no direct mention of a disease in ayurveda which is having direct correlation with any modern diseases; a detailed analysis of the lakshanas, the state of Doshas, Dhatus, Agni, Srotasas, etc., will guide us to formulate ayurvedic management by understanding its Samprapti or pathogenesis. Symptoms seen in the diseased condition may be due to the over-functioning of deranged dosha, some may be due to the masked functioning of doshas having the opposite qualities and some may be the result of the formation of Ama etc.

In Polycystic Ovarian syndrome, there will be multi-systemic involvement with ovarian dysfunction.

1. Menstrual irregularities in the form of amenorrhoea or oligomenorrhoea
2. Anovulation causing infertility
3. Obesity
4. Hyperandrogenic symptoms are hirsutism, acne, and male pattern baldness.

Nidana

From ayurveda perspective this can be considered as the result of some disturbances of Shariika doshas, dhatus, and upadhatus with menstrual irregularities including anovulation and obesity are the commonly seen symptom. While analysing the Nidana, the abnormal ahara, vihara, and other manasika factors in the form of Vyanjaka nidana which leads to the Doshaprakopa which initiates the disease process.

Beejadosha As The Cause

If a mother or father indulges in the dosha prakopaka ahara-vihara there will be vitiation of the Shukra or Shonita. This dushti lakshana may be carried to the offspring after conception. In such cases the female may suffer from related diseases of Rasavaha and or Medovaha Srotodushti Vikaras as well as the Garbashayagata Vikruti Lakshanas. The consequence or the manifestation of the beejadosha depends upon the extent and site of Beeja Dusti.

Genetics Of PCOS

PCOS is an extremely heterogenic and complex disease. The genetic basis of PCOS is different between families and within families but is related to a common pathway.

Genes Involved In Ovarian And Adrenal Steroidogenesis

Several genes have been reported to be associated with PCOS, like gene CYP11a, CYP21, CYP17 and CYP19. It is reported that in PCOS patients reported increased expression of CYP17 in theca cells. The CYP19 gene responsible for aromatase p450, lower activity of aromatase is reported in both obese and lean women with PCOS. Variation in CYP 21 leads to ineffective anabolism of steroidogenesis, which further causes PCOS. CYP11a is also said to be an association factor with PCOS.

Genes Involved In Steroid Hormone Effects

Androgen Receptor Gene And Sex Hormone-binding Globulin Gene:- Mutations and structural disruption of the Androgen Receptor Gene and single nucleotide polymorphism in the SHBG gene are reported to cause PCOS.

Genes Involved In Gonadotropin Action And Regulation

Lutein Hormone (LH) and Its Receptor Gene has been studied in PCOS to find the possible association. Initially, a point mutation (Trp8Arg and Ilg15Thr) in a gene encoding the B subunit was reported in patients with PCOS.

AMH Gene

The AMH gene is located on the long arm of chromosome 19 at cytogenetic location 13.3. The gene consists of five exons and encodes a protein that is involved in infertility. Variation in the AMH gene is associated with PCOS.

Follicular Stimulating Hormone Receptor (FSHR)

FSHR is located on the "p" arm of chromosome 2 and consists of 14 exons. The gene encodes a protein G-coupled receptor, which is required for gonad development. Mutation in the gene disrupts the structural protein, thus causing an imbalance of the hormone.

Genes involved in Insulin action and secretion

The Insulin Gene, PCOS1 and SRD5A2 and SRD5A1

Insulin also plays a significant role in the production of androgen by receptors present on theca cells. This act of insulin is provoked through the pathway (phosphoinositide 3-kinase/protein kinase B), which becomes active in PCOS theca cells. PCOS1 was identified in two sisters in 1971. Later on, the study was replicated in 2005 by Urbanek et al. In 2006, SRD5A2 and SRD5A1 were tested as susceptibility to PCOS in hirsutism patients, and it was reported that a variant in SRD5A2 was associated with protection to PCOS while variants in SRD5A1 were associated with risk of hirsutism and thus PCOS.

This shows the possibility of the genetic predisposition or the hereditary transfer of a disease. Also, further references suggest that the defects in the Matruja, Pitruja, Rasaja, Satwa, Satmyaja etc Garbhotpadakabhavas can also be carried on to the child and have the same manifestation as in the parents. Here in the disease, Meda,

Mamsa, Rakta, Hrudaya, Yakruta, Garbhashaya, etc all of which are derived from the Matrujabhava can be considered to be vitiated and carried to fetus which manifests in later life. Also, the Kesha, Shmasru, Shukra, etc factors obtained from the paternal side have also been involved.

These manifestations can be more evident in the child by further indulgence in the same Nidana. Equating PCOS in these terms, there are several genes studied to have been associated with the disease. It's also considered that the male phenotype also manifests certain symptoms pertaining to the disease like premature balding, obesity, type II DM etc. All of which suggests the genetical predisposition.

Mithyahara/Santharpanotha Nidana

Ahara: Overindulgence in snigdha, madhura, guru, picchila, nava-anna, navamadhya, aanupa, milk and milk products, (food articles prepared out of jaggery) and adyashana.

Vihara: Cheshta-dweshi, Divaswapna, Shayyaa-asana-sukha. Overindulgence in any of the above said Aharaja factors which have close proximity with that of the Kapha dosha and Medo dhatu may lead to the disease process which manifests as the Santharpanotha vikaras. Amapradoshaja vikara, Klaibya, Sthoulya, and Srotolepa are the clinical presentations in these conditions. Srotasa, avarana or Srotavarodha is the pathology in this condition as a result of impaired ahara vihara and Agni.

Santarpanotha Vikara

प्रमेहपिडकाकोठकण्डूपाण्ड्वामयज्वराः कुष्ठान्यामप्रदोषाश्च मूत्रकृच्छ्रमरोचकः|

तन्द्रा क्लैब्यमतिस्थौल्यमालस्यं गुरुगात्रता इन्द्रियस्रोतसां लेपो बुद्धेर्मोहः प्रमीलकः|

शोफाश्चैवंविधाश्चान्ये शीघ्रमप्रतिकुर्वतः **(Ch.Su.23/5-7)**

It's very clear that the Aama anna rasa which has the madhuratara and Atisnigdha property tends to directly vitiate the Medo dhatu. Many of the symptoms of Santharpanotha vikaras can be equated with PCOS as Klaibya, Atisthoulya, Alasya, Gurugatrata, Indriauplepa, and srotaslepa. Analyzing the causes of PCOS, one can find that obesity is one main cause for the disease and while studying the causes for obesity, overindulgence in food and improper food habits impaired dietary patterns are the main causes. Also, the association of insulin resistance is considered as the main cause of developing PCOS.

Purvaroopa And Roopa

- Menstrual irregularities as explained under Artava vyapad and Yonirogas.
- Anovulation is explained in the condition of infertility-Bandhya, Pushpaghani, Vikuta.
- Sthoulayata as explained in Santarpanottha vikara.
- Khalitaya and Mukhdushika, loss of hair and Acne.[35]
- Altered glucose metabolism and complication of Prameha.

Different other conditions where Artavakshaya, Anartava along with infertility are the main sign and symptoms.

a. Artavakshaya

"आर्तवक्षये यथोचितकालादर्शनमल्पता वा योनिवेदना च"

In the event of deficiency or loss of artava, the menstruation does not appear at its appropriate time or is delayed (the intermenstrual period is prolonged), is scanty, and does not last for three days.

b. Ksheena Artavadushti

"क्षीणं प्रागुक्तं पित्तमारुताभ्यां"

In this condition menstruation is delayed, menstrual blood is scanty and associated with pain.

c. Arajaska

"योनिगर्भाशयस्थं चेत् पित्तं संदूषयेदसृक् । साऽरजस्का मता कार्श्ववैवर्ण्य जननीभृशम्"

When Pitta situated in yoni and uterus, vitiates by Rakta, the woman becomes extremely emaciated and discoloured, this condition is known as Arajaska.

d. Lohit Kshaya

..... वातपित्ताभ्यां क्षीयते रजः । स दाहकार्श्ववैवर्ण्य यस्यां सा लोहितक्षया"

Due to vitiation of Vata and Pitta, the raja is decreased, the women suffers from burning sensation, emaciation and discolouration, this condition is known as Lohita kṣhaya.

e. Pushpaghni Jataharini

"वृथा पुष्प तु या नारी यथाकाल प्रपश्यति

स्थूललोमशगण्डा वा पुष्पघ्नि सापि"

In this condition woman menstruates in time but it is useless (Vritha pushpam i.e an ovulatory cycle) and she has corpulent and hairy cheeks (hirsutism); this may be due to hyperandrogenism. Thus, Pushpaghni Jataharini seems to be nearer to Polycystic ovary syndrome.

f. Vikuta Jataharini

"कालवर्णप्रमाणैर्याविषमं पुष्पमृच्छति

अनिमित्तबलग्लानिर्विकुटा नाम स्मृता"

Women has scanty menses or excessive menses and Oligomenorrhoea.

g. Nastartava or Anartava

"दोषैरावृतमार्गत्वादार्तवं नश्यति स्त्रियाः"

The doshas obstruct the passage or orifices of channels carrying artava (Artava- vaha srotas), thus artava is destroyed. Though artava is not finished completely, yet, it is not discharged monthly.

h. Bandhya

"यदा ह्यस्याः शोणिते गर्भाशयबीजभागः प्रदोषमापद्यते, तदा वन्ध्यां जनयति"

It is a congenital disease, in which the part of Bija responsible for the development of the uterus and artava is absent or the woman has a congenital absence of the uterus and artava, this is incurable.

Samprapti

Santarpanotha nidana sevana leads to the Agnimandhya, because of which there is improper digestion leading to the Aama anna rasa. This leads to the dusta Rasa dhatu formation which circulates through the whole body. The deranged dhatwagni leads to abnormal formation of upadhatu. Due to the maduratara and the atisnigdha property of the same, having close affinity to the Medo dhatu it vitiates medo dhatu. Thus there is an increase in the medo dhatu leading to Atisthoulya, and also because of the Avarana caused to the other Srotas by the Kapha dosha there is no proper formation of other dhatus. Agni in terms of dhatwagni is been basically impaired which hampers the proper formation of the respective dhatus.

The vitiated kapha and abnormal medo dhatu causes alteration the function of Artavavaha srotas due to srota avrodha and causes Alpa artava and Artava nasha. The Vata vaigunyta due to nidana leads to abnormal artava production and pushpa. The impaired dhatuvagni leads to abnormal production of updhatu and dhatu-mala which leads to abnormal production of kesha and sweda.

Samprapti Ghatak

- **Dosha-**Kapha and Vata.
- **Dushya-**Rasa, Rakta, Mamsa, Meda.
- **Updhatu-**Artava.
- **Agni-**Jathragini and Dhatvagni.
- **Srotasa-**Rasa, Rakta, Mamsa, Meda, Artava, Swedavaha.
- **Srotodushti-**Sanga, Granthi, Atipravarti.

Lakshana Of Dushya Dushti

- Rasa-Gaurava, aruchi, agninash, srotoavrodh, Klaibya
- Rakta-Alpa artava/Anartava/Asrigdara, Pidaka,
- Mamsa-Granthi, Gulma
- Meda-Sthoulayata and Prameha purvaroopa
- Asthi-Kesha and Loma
- Majja and Shukra-Klaibya and Bandhyatava

Chikitsa Siddhant

1.Nidana Parivarjana

In PCOS mainly the rasa, rakta and agni is impaired which leads to various clinical presentations. First line of treatment in any vyadhi in Nidan parivarjana.

In this condition here the main nidana is santarpana and abnormal vihara, so correction of ahara following proper dincharya and sadavritta is first line in management. Avoidance of guru, abhishyandi,

snigdha, paryushita, ahara and adding of Dipana, Pachana, dravya in diet is very essential.

2. Shodhana Chikitsa

As the disease is due to abnormal formation of ahara rasa, the correction of Agni is very important. For correction of Agni, depending on condition one may opt of Vamana and Virechana depending on doshadhikyata.

Vamana is the usual preferred and first line of Shodhana as it well improve agni, remove Srotovarodha, improve dhatvagni mandhya and removes vitiated Kapha dosha.

Virechana may also be preferred in cases when there will be pittanubandha lakshana which helps in function of Rasa and Rakta dhatus.

Basti chikitsa in preferred once amahara chikitsa is completed by using Kapha-medohara dravyas. It will improve the function of Vata dosha i.e.Apan vayu and normalise the function of srotasa and dhatus.

Nasya and Uttarbasti are other possible line of treatment once the Shodhana karma is completed which will help in reversal of pathology by their virtue of sthanika as well as sarvdehika action.

Shamana Chikitsa

It can be opted in patients in Purvaroopa Avastha or Alpadoshavastha and after completion of shodhana chikitsa.

Pathya/Apathya

Pathya Ahar

Purana Ghrita, Purana Shaali, Yava, Godhuma, Mudga, Patola, Raktashigru, Asparagus sticks, garlic, black sesame, fish.

Vihar

Strictly adhere to Dincharya and Ritucharya.

- Weight management
- Yogasanas: Anuloma-Viloma, Kapalbhati and Mandukasan Vyayam (exercise) Suryanamaskar, Bhujanasana, Salabhasana, Budhakonasana, Dhanurasana, Suptavajrasanas, Sirsasana, Sarvangasana, Matsyasana.
- Vyayama- one hour exercise or aerobic exercise, different types of exercises should be adopted for the management of PCOS. Time spent in the sedentary work should be curtailed.

Apathya Ahar

Chillies, poultry products, red meat, pizza, burger, chowmein, curd, pickles, chole bhaturey, rajma, refined wheat flour, cold drinks etc.

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