

An Ayurvedic and Contemporary Overview of PCOS (Almighty Curse): A Conceptual Approach

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Abstract- ⁽¹⁾ PCOS is the most common endocrine disorder of reproductive-aged women and affects approximately 6 to 16 % in general population studies. Although symptoms of androgen excess may vary among ethnicities, PCOS appears to affect all races and nationalities similarly. The underlying cause of PCOS is unknown. However, a genetic basis that is both multifactorial and polygenic is suspected, as the syndrome aggregates within families and first-degree relatives. By far the most common, although the least understood, cause of androgen chronic anovulation and polycystic ovaries. ⁽¹⁾ ⁽²⁾ Approximately 75% of anovulatory women of any cause have polycystic ovaries and 20-25% of women with normal ovulation demonstrate ultrasound findings typical of polycystic ovaries. ⁽²⁾ ⁽³⁾ Women with PCOS also display greater degrees of insulin resistance and compensatory hyperinsulinemia and obesity. ⁽³⁾ ⁽⁴⁾ This particular feminine disorder is not described word to word in Ayurveda. PCOS can be better understood with the help of three basic principles given by Acharya Charka i.e., vikarprakriti, adhishtanantara, samuthanvishesha. ⁽⁴⁾ Maximum congruence of PCOS can be established with bandhya yonivyapad, arjaska, lohikshya, pushpaghni jatharni, granthibhoot artava dushti and nashartva. PCOS can be considered as rasamedodhatu vikara and has to be managed depending on dosha dushya vitiation. Ayurvedic management principal as amahara chikitsa, shodhana and shamana and rasoprasadana therapies along with vatakaphahara dravyas diet and lifestyles modifications proves to be beneficial in management of PCOS. ⁽⁵⁾ PCOS is considered now a days as silent epidemic So a holistic approach is demanded especially in Indian subcontinent because of high prevalence here (52%). ⁽⁵⁾

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I. Introduction

⁽⁶⁾ Polycystic Ovarian disease is a heterogeneous, multisystem endocrinopathy in women of reproductive age with the ovarian expression of various metabolic disturbances and a wide spectrum of clinical features such as obesity, menstrual abnormalities and hyperandrogenism. This disease was discovered by and named as Stein-Leventhal syndrome in 1935. To diagnose PCOS, adrenal and androgen secretory ovarian tumour should be excluded. Current incidence of PCOS is fast increasing lately due to change in lifestyle and stress. It is also becoming a common problem amongst adolescents, developing soon after puberty. Amongst infertile women, about 20% infertility is attributed to anovulation caused by PCOS.

Initially, the ovaries were thought to be the primary source which set the changes in the endocrine pattern. Genetic and familial environmental factors were later added as aetiological factors in the development of PCOS. The environment factor may function in the utero or in early adolescent life, manifesting clinically a few years later as PCOS. CYP₂₁ gene mutation has been discovered in this connection. Another view held for occurrence of PCOS is enhanced serine phosphorylation unification activity in the ovary (hyper androgen) and reduced insulin reception activity peripherally (insulin resistance).

Obesity is related to PCOS. The adipose tissue is considered an endocrine and immunomodulatory organ; it secretes leptin, adiponectin and cytokines which interfere with insulin signalling pathways in liver and muscles resulting in insulin resistance and hyperinsulinemia. Polycystic ovarian syndrome may set in early adolescent life, but clinically manifest in the reproductive age with long term implications of diabetes, hypertension, hyperlipidaemia and cardiovascular disease. ⁽⁶⁾

PCOS is the single disease that present with a variety of symptoms. While PCOS is not specifically identified in the ayurvedic text there are terms that can be used to talk about the symptoms associated with the diseased condition. If we summarize this than we can find these symptoms in ayurveda as-

1. Menstrual irregularities have been described under artava vyapads or yonirogas.
2. Anovulation is included under Vandhya.
3. Obesity is the condition described as Sthoulya, a santanpanajanya vikara.
4. Acne and Baldness have been described as Mukhadooshika and Khalitya, two independent pathogenesis.

5. Hyperinsulinemia leads to type 2 diabetes mellitus, and is described under prameha. It is also manifest as a complication of sthoulya.

6. Since menstrual irregularities including anovulation and obesity are the commonly seen symptoms these two has to be taken care with due attention.

According to Ayurveda, disease should be examined by fivefold examination system (Nidanpanchaka). None of Yonivyapada and Aartvadoshti is described in these five aspects; there is description about Nidana and Chikitsa only. In the same way, all the abnormalities associated with PCOS should be seen as different pathological conditions of Dosha, Dushya, Roga Adhithana. Only the variation in these constituents' results variation in onset and symptoms of the disease.

II. Aims And Objectives

To study aetiopathogenesis of polycystic ovarian syndrome and establish its Ayurveda congruence.

To evaluate symptomatology of PCOS w.s.r.to Ayurveda symptoms.

To find out possible line of treatment of disease in Ayurveda texts

III. Materials And Methods

Ayurveda classics, commentaries, modern literature, other recently published books and research journals were thoroughly studied and then an effort was made to understand this syndrome.

Conceptual reference of PCOS in Ayurveda

In Ayurveda majority of gynaecological disorders have been described under the heading of Yonivyapada. For complete knowledge of menstrual disorders, the knowledge of Yonivyapada & Aartvadoshti is essential. Acharya Sushruta described Bandhya Yonivyapada whose main feature is Nashtartava. In this condition Artava is not totally destroyed but it is not evident due to obstruction of its channels. He says the passage is encircled by Vata and Kapha and ultimately results in amenorrhoea. Word Aartava has been used extensively in Samhita in context of menstrual blood, ovum and ovarian hormones.

If we interpret word Artava with menstrual blood, in Nashtartava due to obstruction of Artavavahastotasa by Vata and Kapha Dosha, passage of Aartava carrying channels is obstructed. So Aartava is not apparent monthly as in normal menstrual cycle bleeding which results in amenorrhoea.

- Ovum is a microscopic structure. Its presence in our texts was imagined by its role in conception. If we say Aartava refers to ovum then we can consider Nashtartava as anovulatory cycles which causes infertility. Keeping this in view, we can consider Bandhyaas female with anovulatory cycle in whom menstrual flow may be normal or not. This condition is seen in PCOS as 30% of women with PCOS have normal menses.
- If Aartava is taken as ovarian hormones, the basic pathology of PCOS in context of Avarana by Dosha can be understood. This Avarana disrupts homeostasis of HPO axis causing hormonal imbalance leading to PCOS.

NIDAN (CAUSATIVE FACTORS)- Mounting evidence suggests that PCOS might be a complex multigenic disorder with strong epigenetic and environmental influences, including diet and other lifestyle issues. Heterogeneity, form aetiology to clinical presentation and long-term prognosis, is intrinsic to PCOS.⁽⁷⁾ We can correlate PCOS with Bandhya Yonivyapada, Nashtartava, Pushpaghni jatharni and Rasavah Shrotas dusti. As in our classics no specific aetiology is described, so general causative factors for Yonivyapada and Rasavah Sroto dhusti can be considered as etiological factors:

1. MITHYA AHAR VIHAR - Under this heading we can include Mithyaahara (faulty dietary habits) Mithyavihar (abnormal life style) both. In PCOS under the heading of abnormal diet we can include pizza, burger, bread, cold drinks, spicy, oily, junk food consumption. Abnormal life style may be faulty habits of sleep (Diwaswapna, Ratrijagrana), stress, competition pressure and other Mansikbhawa like Irshya, Krodh, Dwesh. We can see that all these are also causative factors for obesity, which play a very important role in appearance of this particular disease also.

2. Pradushtartava: The word Aartva should be regard for ovarian hormones. As menstrual blood is a result of cyclic endometrial shedding under the influence of various hormones of HPO axis. In patients with PCOS ovarian compartment is the biggest contributor of androgens. Dysregulation of CYP 17, the androgen forming enzyme in both adrenals and ovaries may be the central pathologic mechanism underlying Hyperandrogenism in PCOS.

3. Bijadosha: Various chromosomal and genetic abnormality comes under this heading. Its genetic origins are likely polygenic and/or multifactorial. This is complex multigenic disorder that results from the interaction between multiple genetic and environmental factors. A high

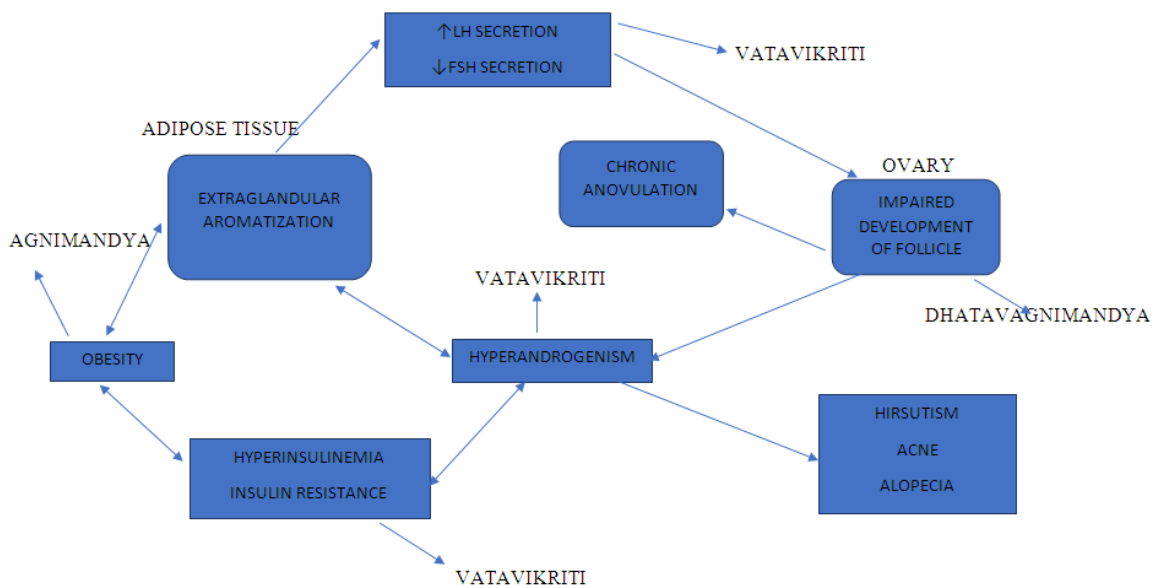
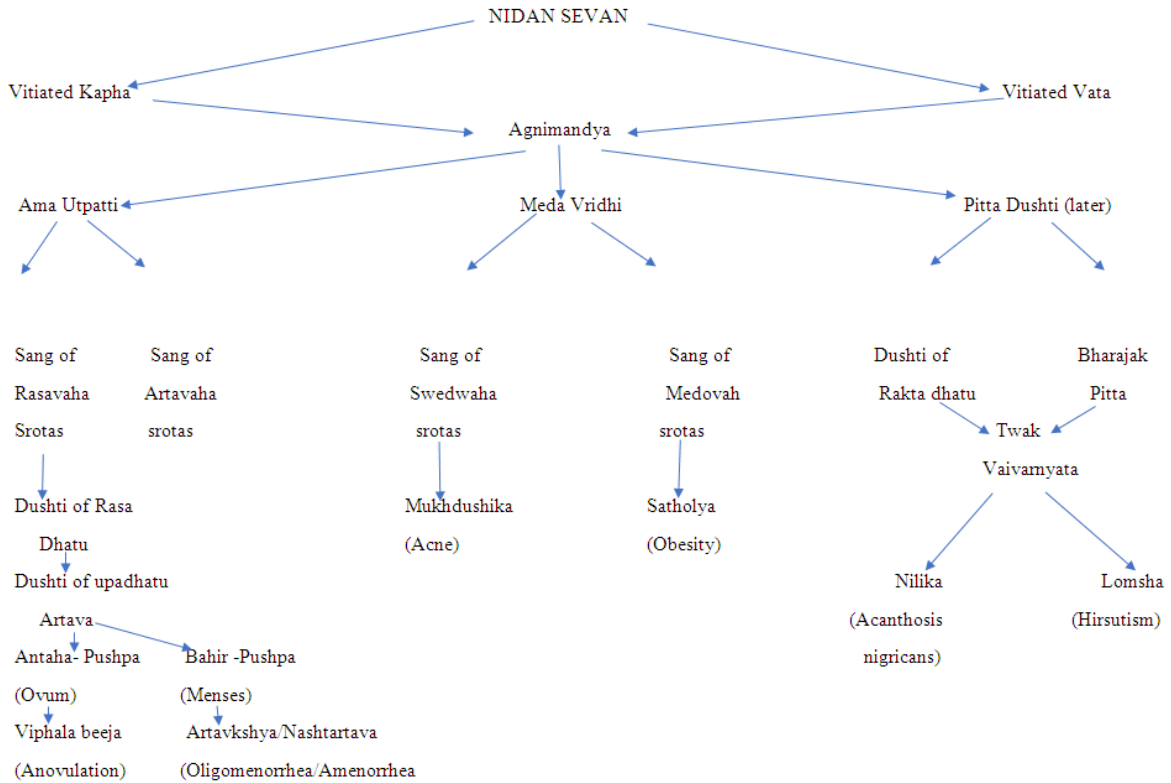
4. Daiva: Unknown or idiopathic causes comes under this heading. Each cause has its own causative process, potential and mode of action.

5.⁽⁹⁾ Rasavah srotas dusti hetu like consumption guru, sheet, snigdha, atimatra bhojan and chintyanat cha ati

HETU	KAPHA PRAKOPAKARA NIDANA	VATA PRAKOPAKARA NIDANA
Aahar	Rasa- Madhur, Amla, Lavana Guna- Snigdha, Guru Abhishyandi sheeta Dietary habits- Samashana, Adhyashana	Rasa- Katu, Tikta, Kshaya Guna- Laghu, Ruskha, Sheeta, Shushka , Alpa Dietary habit- Aanshana, Pramitabhojana (less quantity of food irrespective of need)
Vihar	Divaswapna, Avyayama, Asyasukha, Swapnasukha	Ratrijagarana, Vega udeerana and Dharana, Atiucha Bhashana, Atimaithuna
ANYA	Atiyoga of shodhana, Abhighataja Nidana, Beeja Dosha, Daiva, Visha	

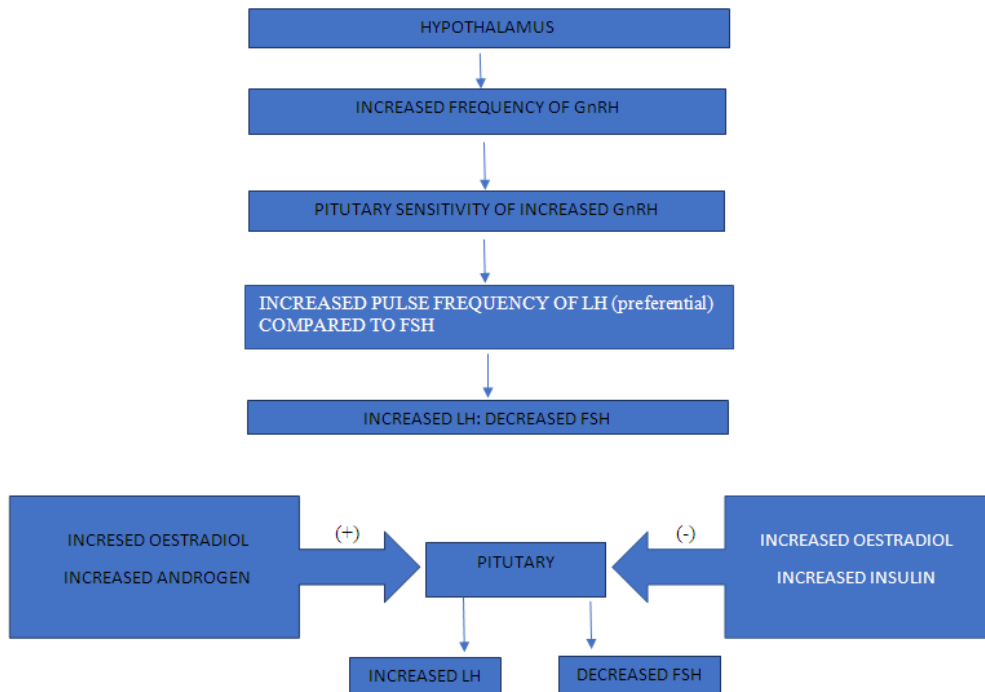
chintnat.⁽⁹⁾

SAMPRAPTI OF PCOS –

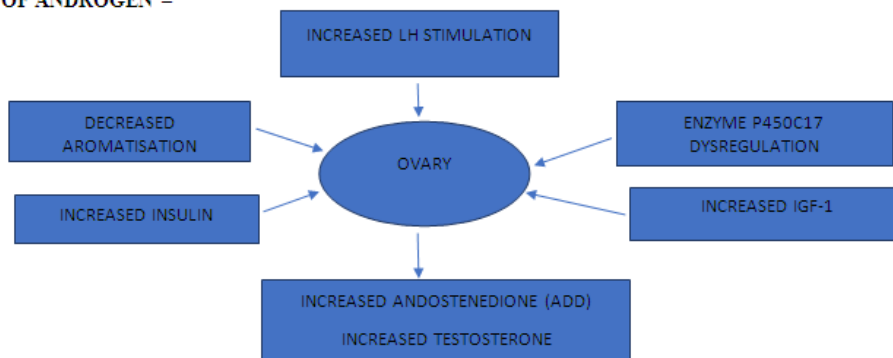


PATHOPHYSIOLOGY OF PCOS – The hyperandrogenism and anovulation that accompany PCOS may be caused by abnormalities in four endocrinologically active compartments (1) the ovaries (2) the adrenal gland (3) the periphery(fat) and (4) the hypothalamus pituitary compartment.

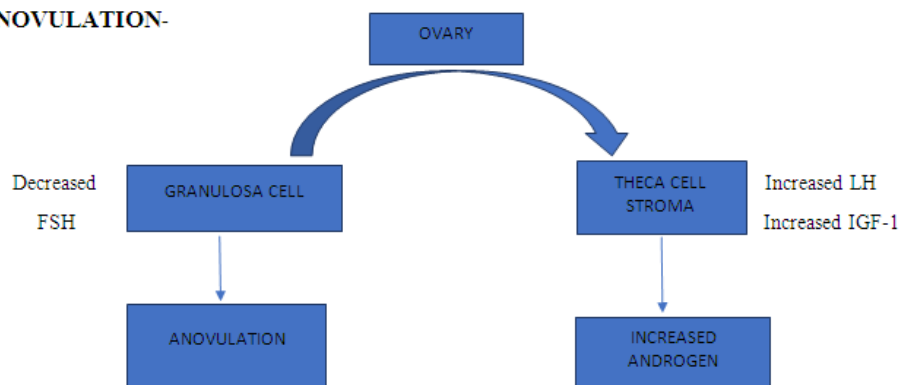
1. ⁽¹⁰⁾THE HYPOTHALAMIC PITUTARY COMPARTMENT –



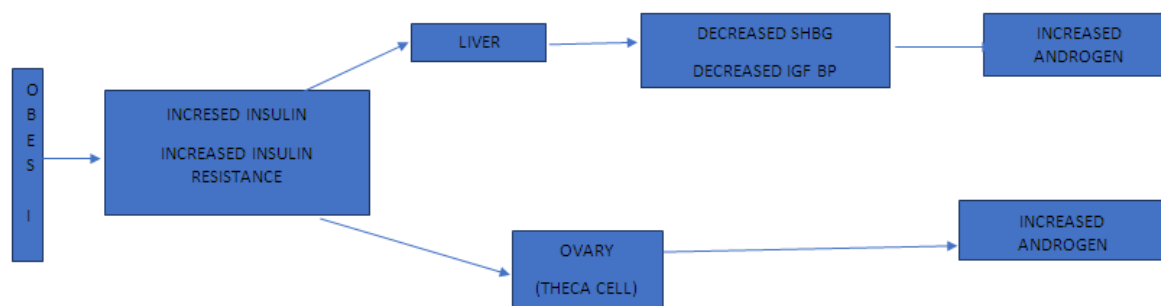
2. ⁽¹¹⁾EXCESS OF ANDROGEN –



3. ⁽¹²⁾ANOVLATION-



4. OBESITY AND INSULIN RESISTANCE –



CLINICAL FEATURES OF PCOS –

1. Menstrual dysfunction typically occurs in PCOS, ranging from oligomenorrhoea to amenorrhoea. As a rule, patients with PCOS exhibit anovulation. Even in hyperandrogenic women with regular menstrual cycles, the rate of anovulation is about 20 %.
2. Severe acne in the teenage years appears to be a common finding of PCOS.
3. Obesity is found in over 50% of patients with PCOS. The body fat is usually deposited centrally (android obesity), and a higher waist to hip ratio indicates an increased risk of Diabetes mellitus and cardiovascular disease in later life.

BIOCHEMICAL FEATURES OF PCOS –

- LH level is elevated and / or the ratio LH:FSH IS > 2:1.
- Raised level of oestradiol and estrone- the estrone level is markedly elevated.
- SHBG level is reduced.
- Hyperandrogenism – mainly from the ovary but less from the adrenals. Androstenedione is raised.
- Raised serum testosterone (>150 ng/dL) and dehydroepiandrosterone sulphate (DHEAS) may be marginally elevated.
- Insulin Resistance: Raised fasting insulin levels > 25 µIU /ml and fasting glucose/insulin ratio <4.5 suggests IR (50%)⁽¹²⁾.

This particular disease is not described word to word in ayurveda. Associated features of PCOS are closely resembling with Bandhya Yonivyapada, Artavavahasrotasa-vidhha lakshana, nastartava and Ksheenaartava described by Acharya Sushruta and Pushpghani Jatharini and Vikuta Jatharini mentioned by Acharya Kashyap. In ayurveda PCOS can be classified as a kaphaj vikara. PCOS is due to the Kapha blocking Vata and Pitta, hence the movement is obstructed and the transformation process is suppressed. Kapha having first affected the digestive fire, jathara agni starts to affect the metabolic aspect of the seven tissues of dhatu agni.⁽¹³⁾ Each dhatu agni is responsible for the nourishment and formation of that particular tissue.so featuses of PCOS can be corelated with dhatu dusthi lakshan –

SROTAS	DUSTI LAKSHAN	
RASAVAH	Srotas avarodha, agni nash, palit, sada (stanya & artava updhatu)	Oligomenorrhoea, Amenorrhoea, hair fall,
RAKTAVAH	Gulma, Asrigdara, dadru, pama	Anovulatory bleeding, Skin Disease
MANSAVAH	Adhimas, arbuda, upadhatu- vasa	Obesity, multiple ovarian cyst
MEDAVAH	Pramehanam cha purvarupani, pidika	Hyperinsulinemia, insulin resistance, acne
ASTHIVAH	Kesh, loma, nakha, sramshu roga	Hirsutism
MAJJAVAH	Bhrama, Murcha, Tamodarshana, Parvaruka	Delusion, Dizziness, Pain in joints of pelvic bone
SUKRAVAH	Klaibya	Infertility due to anovulation

⁽¹⁴⁾ DIAGNOSTIC CRITERIA-

- In 1990NIH sponsored PCOS conference, diagnostic criteria were formulated. It was based on consensus rather than clinical trial evidence. Their diagnostic criteria recommended clinical and/or biochemical evidence of Hyperandrogenism, chronic anovulation and exclusion of other known disorders.
- According to Androgen Excess Society (AES), PCOS should be considered a disorder of androgen excess and the NIH criteria should be used.

- This criteria was revised by Rotterdam European Society for Human Reproduction/American Society of Reproductive Medicine (ASRM) sponsored PCOS consensus workshop group in 2003, where the following criteria were established: oligo/ amenorrhoea, hyperandrogenism (clinical or biochemical) and sonographic appearance of poly cystic ovaries.[20] [The sonographic criteria for PCOS requires the presence of 12 or more follicles in either ovary measuring 2-9mm in diameter and /or increased volume>10cc.] Two out of three are required for diagnosis.

Acharya Charaka has mentioned in Sutra sathana 18/42-45 that there are Aparisankheya (uncountable) diseases on the basis of Rujā, Varna, Samuthan, Sathan, Sansthan. [21] It is not necessary all the time that a disease will have all symptoms. So, one should not hesitate to consider and treat unnamed disease.

All the abnormalities associated with PCOS can be seen in different pathological conditions of Doshas, Dushya, Agni. So only the variation in combination of these constituents, results variation of the disease in onset, symptoms, aetiology. These pathologies should be studied under three parameters.

1. Vikaraprakriti (Disease and its prominent constituents)- Amenorrhoea or oligomenorrhoea, continues bleeding after a certain period of amenorrhoea.

2. Adhishtanantara (Variation in the site of disease)- Ovary, Skin.

3. Samuthanvishesha (Specific onset of the disease with specific aetiology)- previously mentioned Nidana of Yonivyapda manifest the disease. These parameters can play a very important role to get the knowledge of disease.

IMPORTANCE TO RAISE THIS TOPIC

- With the advancement of civilization and change in lifestyle, PCOS is the one of the most common arising and burning disorder under women of reproductive age group.
- 15 times more likely to report infertility.
- If conceive- high risk pregnancy- pregnancy induced hypertension, gestational diabetes mellitus and preeclampsia.
- Excessive dermatological problems (Hirsutism, balding, acne, skin discolouration) cause depression and anxiety.
- In modern science, only symptomatic treatments like hormonal therapy for – irregular menstrual cycles & anovulation (shut down mechanism) is available.
- Hormonal therapy mainly oestrogen and progesterone are used, which have their own side effects like:
 - Hot flushes
 - Weight gain
 - Hepatotoxicity
 - Nephrotoxicity
 - Depression
- Chances of reoccurrence also there.
- Hormonal therapy may also produce iatrogenic problems such as –
 - Breast Cancer
 - Endometrial cancer
 - Ovarian cancer
 - Gallbladder disease
 - Venous thromboembolism
- Long term history of PCOS – more prone to have endometrial cancer
 - DM-2
 - Dyslipidaemia
 - Cardiovascular risk factors
 - Severe hirsutism

TREATMENT –

The line of treatment for PCOS patient depends only on the basis of symptoms. Symptomatically there are three types: menstrual disturbances, symptoms due to hyperandrogenism and infertility. Modern view for treatment is Oral contraceptive pills in menstrual irregularities, anti-androgens and other ovulation induction related drugs in infertility. Careful history taking and minute observation during a clinical examination is the main source for diagnosing.

PCOS needs early diagnosis for avoiding long term complications. Herbal drugs of ayurveda can help in this problem. Ayurveda provides a variety of specific and individualized treatment that assist in alleviating and eliminating the symptoms of PCOS. Ayurveda treats disease through diet, herbal medication and lifestyle changes. Treatments for the disease are indicated based upon the nature, site and aetiology of the symptoms. PCOS affects all three of the doshas, so treatment of all three doshas is cornerstone in being able to treat and

manage this disease. Treatment protocol includes clearing the obstruction, regulating menstruation and normalizing agni and metabolism. Other symptoms associated with PCOS are seen to improve as the primary symptoms are treated. Primary lifestyle treatments should focus on creating steady routines in both eating and sleeping, which help in stabilizing vata dosha and the hormone levels so treatment principles are-

- Normalize metabolism (correction of agni)
- Cleansing of the bowel
- Regulate Artava
- Reducing circulating androgen
- Optimising ovarian function
- Supporting optimal endocrine function

AYURVEDIC TREATMENT FOR PCOS -1. Life style modification

- Diet
 - Yoga
2. Bahiparimarjan chikitsa
 3. Antahparimarjan chikitsa

DIET – PCOS diet should include natural and unprocessed food like chia seeds, flax seeds, fishes, organic brown eggs, spinach, raw guava, gooseberries. Food that should avoid or minimize High GI (glycaemic index) foods, dairy products, white sugar, white flour and white rice, caffeine, hydrogenated oils, red meat, alcohol.

YOGA-

- Anuloma villoma pranayama
- Surya Namaskar
- Supta Badhakonasana
- Butterfly Pose (Baddha Konasana)
- Bhadravajasana
- Bhujangasana
- Balasana
- Shavasana

Weight loss by combined effect of diet and yoga. 5-10% of weight loss will improve the androgen level and help in resume of ovulation.

BAHIPARIMARJAN CHIKITSA-

- UDVARTAN - *kaphamedo shamana by kolkulathyadi churna.
 - *Rigorous dry powder massage to the entire body
 - *By boosting circulation of blood and lymph, Udvartan helps to detoxify skin (largest organ)
 - *Boost metabolism
 - *Regulate fat metabolism thus help in faster weight loss.
- SARVANG SVEDANA / AVAGAHANA SVEDANA
- SHIRODHARA
- SHIROPICHU

ANTAHPARIMARJAN CHIKITSA-

- Deepan/ Pachan- *Trikatu churna
 - *Panchakol fanta
- Abhyantar Snehana- *Falaghrit
- Shodhan- *Vamana – for kapha chedana and aavaran chikitsa
Vamana karma is the best therapy for the elimination of kapha dosha, vamana help to increase metabolism of the body, thereby reducing weight and specifically act on liver metabolism which is the main site of hormone formation.

*Virechan - For kapha nissaran, vata anuloman

Virechan normalises the functions of pitta and agni.

It helps to eliminate the vitiated doshas and remove the srotodushti existed at the level of rasa, rakta, mamsa and artavavahasrotas.

It helps in removing the sanga, corrects the agni and help to normalise the function of apan vayu, leading to normal excretion of aartava (regularisation of menstrual cycle and ovulatory cycle).

*Basti – Most effective therapy for PCOS especially for boosting fertility.

Balance Apana Vayu

Sahachar tail & Shatpushpa tail basti- help in normal functioning of H-P-O axis & ovulation

Mode of action of basti is probably based on concept CNS resembles ENS.

*Nasya – As PCOS caused due to defect in H-P-O axis which cause hormonal imbalance.

Charak said that “nasa hi shirso dwaram”

Nose is connected through vascular system and nerve plexus of olfactory nerve and branches of trigeminal nerve to brain.

So, the drug administered here to stimulate the higher centre of brain and regulate the endocrine and nervous system.

SOME POLYHERBAL DRUGS USED IN PCOS-

- WEIGHT LOSS IN PCOD –1. Zingiber officinal
- 2. Plumbago zeylanica
- 3. Piper nigrum
- 4. Embelia ribes
- 5. Garcinia indica
- 6. Cyperus rotundus

- RESTORATION OF REGULAR MENSTRUATION -

ESTROGEN	RAKTA DHATU
Asparagus racemose	Picrorhiza kurroa
Anethum sowa	Phyllanthus niruri
Saraca asoca	Hemidesmus indicus
Glycyrrhiza glabra	Rubia cardifolia

- RESTORATION OF FERTILITY – 1. Ferula narthex
- 2. Caesalpinia crista
- 3. Symplacos racemose
- 4. Embelica officinalis
- 5. Cynodon dactylon
- 6. Tribulus terrestris
- 7. Gmelina arborea

- TREATMENT OF HIRSUTISM, HAIR FALL & ACNE-

ANTIANDROGEN	KESHYA DRAVYA	RAKTASHODHAK DRAVYA
Yastimadhu	Tila (Krushna)	Neem
Mentha	Amalaki	Usheera
Shatapushpa	Narikela	Shalmali

- LOWERING OF SERUM INSULIN LEVEL (RESTORING NORMAL HORMONAL LEVEL) –

1. Shilajit
2. Curcuma longa
3. Cinnamomum zeylanicum
4. Tinospora cordifolia
5. Gymnema sylvestre

- LOWERING SERUM INSULIN LEVELS (MANAGE THE INFLAMMATION) –

1. Castor oil
2. Cedrus deodara
3. Terminalia chebula
4. Barleria prionitis
5. Boerhaavia diffusa

6. Gmelina arborea

➤ **MANAGE THE IRRITABILITY OR DEPRESSION-**

1. Bacopa monnieri
2. Nordostachys jatamansi
3. Withania somnifera
4. Centella asiatica
5. Convolvulus pluricaulis

IV. Conclusion

It is good idea to wind up this article with such understanding of PCOS in Ayurveda pretext. Better understanding of any disease enables physician to treat it more efficiently. PCOS not explained vis-a-vis in Samhita but Acharya have made their point regarding treatment. Unnamed disease should be understood by their Dosha and Dushya thus treatment should be planned accordingly. Out of all Yonivyapada, Bandhyayonivyapada shows maximum congruence with PCOS. Expanded meanings of Aartava i.e., menstrual blood, ovum and hormones help to elaborate PCOS symptomatology in Ayurveda context and plan its line of treatment. So, it can be concluded that ayurveda treatment can be successfully applied in PCOS and infertility in today's era for better outcome and with no side effects.

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