

# Ayurveda Management of Polycystic Ovary Syndrome; Conceptual study

S.H.K., Deepthika <sup>1</sup>, P.R., Waratenne <sup>2</sup>

<sup>1</sup> Lecturer - Department of Kaumarbhritya and Stri roga, Gampaha Wickramarachchi  
Ayurveda Institute, University of Kelaniya, Sri Lanka

<sup>2</sup> Senior Lecturer - Department of Allied Sciences, Institute of Indigenous Medicine,  
University of Colombo, Sri Lanka

**Corresponding Author:** S.H. K. Deepthika

## Abstract:

Polycystic ovary syndrome (PCOS) is a common hormonal abnormality found in women worldwide. Most Ayurveda Samhitas do not mentioned a disease or syndrome directly similar to PCOS, but there are so many closely related conditions such as, *Artavakshaya*, *Kshinartava*, *Kshinartava dushti*, *Vandya Yoni-Vyapad*, *Kaphaja Granthi* and *Pushpaghni revati*. This research was aimed to developed an own conceptual basic Ayurveda treatment modality for PCOS. The information was collected from Ayurveda authentic texts, scientific journals and through electronic media. Literature survey was done in search of following terms; *Artavakshaya*, *Kshinartava*, *Nashtartava/Anartava*, Oligo menorrhoea, Amenorrhoea, Polycystic ovary syndrome and *Pushpaghni revati*. Follicle maturity problems, anovulation and hormonal imbalances (*Ambuvishamata*) are arising due to decline of normal functions of *Vata* and *Pitta*. On the other hand decline of *Pitta* function was due to *Mandagni* (vitiation of *Jataragni* and *Dhatvagni paka*). It distressed normal *Dhatu* formation (*Rasa*, *Rakta*, *Medas*, *Asti*, *Artava*) and *Ambuvishamata* arises. *Mandagni* condition is due to aggravated *Kapha*. Hence PCOS is a *Kapha* aggravated, *Pitta* and *Vata* decline condition. While going through the classics, the probable causes of *Artavakshaya* are *Margavarodha* and the *Dhatukshaya*. In *Margavarodhajanya Artavakshaya*, involvement of *Dosha* were *Vata* and *Kapha*. When a peculiar *Dosha* is obstructed by another *Dosha* it will result in aggravated symptoms of that *Dosha* (*Avarakam*). But the *Dosha* (*Avrutam*) which gets obstructed by the other shows decline in their normal functions. Therefore it can be concluded as aggravated *Kapha* obstruct the *Vata* and *Pitta* and PCOS manifests. Hence the line of treatment for PCOS should be aimed at removing *Kaphavarana* immediately and after that, normalizing the *Vata* and *Pitta Doshas*. PCOS treatment should be plan in to 2 steps such as general treatment which should apply all PCOS patients and as specific treatment which should change according to preference of the patient. According to Ayurveda treatment basis, general treatment could be divided in to 2 as *Shodana* and *Shamana* and further clinical studies should be evaluated according to *Prakirti* and *Doshanubandata*.

**Key words:** Etiopathogenesis, *Pushpaghni revati*, Polycystic Ovary Syndrome

## 1. Introduction

Polycystic ovary syndrome (PCOS) was first reported in modern medical literature by Stein and Leventhal who, in 1935, described seven women suffering from amenorrhea, hirsutism, and enlarged ovaries with multiple cysts <sup>[1]</sup>. It is the most common hormonal abnormality found in present. The prevalence of PCOS is variable due to lack of a universal definition <sup>[2]</sup>. The highest reported prevalence of PCOS in a community survey was 52% in south Asian immigrants in Britain, of whom 49% had menstrual irregularity <sup>[3]</sup>. Prevalence of PCOS in Gampaha District, Sri Lanka was 6.3% <sup>[4]</sup>. The major endocrine disruption of this disorder is excessive androgen secretion or activity and a large proportion of women also have abnormal insulin activity.

Most Ayurvedia *samhitas* do not mentioned a disease or syndrome directly similar to PCOS, but there were so many closely related conditions such as; *Artavakshaya*, *Kshinarthavaya*, *Kshinartava dushti*, *Kapaja granthi*, and *Vandya yoni Vyapad*. *Pushpaghni revati* a disease mentioned in *Kashyapa Samhita* is mostly related with PCOS.

As mentioned in *Caraka Samhita*, the one who can't label a disorder with some name should not feel ashamed. Because all disorders have no established footing by name. The reason is that the same vitiated *Dosha* causes various disorders according to variation in etiology and location <sup>[5]</sup>. *Caraka Acharya* further mentioned that, one should initiate treatment after having complete knowledge about the nature of disorder (Pathogenesis), location and etiological factors. The one who initiates treatments, after knowing these three, rationally and according to prescribe procedure does not get confused in action <sup>[6]</sup>. Using this concept, present research was aimed to develop an own conceptual basic Ayurveda treatment modality for PCOS using Ayurveda treatment basics and previous research publications.

## 2. Material and Methodology

The information was collected from Ayurveda authentic texts, scientific journals and through electronic media and especially focused on treatment strategy. Due to lack of directly related Ayurveda literatures of PCOS, literature review was done without a specific time period.

Referred authentic Ayurveda texts were: (*Bruhat traya Laghu traya* and *Kashyapa Samhita*) Except authentic Ayurveda texts several research papers were used to develop the treatment concept.

Literature survey was done in search of following terms; *Arthavakshaya*, *Kshinarthava*, *Nashtartavaya/Anartava*, Oligomenorrhea, Amenorrhea (Which are main Menstruation symptoms of PCOS), Polycystic ovary syndrome and *Pushpaghni revati*.

### 3. Results and Discussion

#### 3.1. Ayurveda terms related with PCOS

##### **Artavakshaya:**

आर्तवक्षये यथोचितकालदर्शनसमल्पता योनिवेदना च ।<sup>[7]</sup>

Decrease of *Artava* gives rise to non-appearance at the appropriate time or scanty appearance and pain in the vagina.

One of cardinal sign of PCOS is Oligomenorrhea which is infrequent or/and very light menstruation. Considering Oligomenorrhic condition it can be correlated with *Artavakshaya*, *Kshinarthawaya* and *Kshinartawa dusti*.

##### **Vandya Yoni Vyapad:**

वन्धा न्यार्तव० विद्यात् ।<sup>[8]</sup>

In *Vandya Yoni* the woman does not menstruate at all.

Since PCOS has Amenorrhea and Un-ovulatory condition it can be associated with *Vandya Yoni-Vyapad*.

##### **Granthi/Cysts:**

*Vata* and other *dosas* associated with *Kapha*, getting aggravated, vitiate the muscle, blood & fat tissues and produce a round, bulged and hard swelling which is called as *Granthi*<sup>[9]</sup>

Ovarian Cysts in PCOS are similar to *Kaphaja Granthi*.

##### **Pushpaghni revati:**

वृथा पुष्पं तु या नारि यथाकालं प्रपश्यति ॥३३ ॥ २ ॥

स्थूललोमशगण्डा वा पुष्पघ्नी साऽपि रेवथी ॥३४ ॥ १ ॥<sup>[10]</sup>

That woman who observes her fruitless menstruation in appropriate time, has corpulent and hairy cheeks, she is known as *Pushpaghni revati*.

According to Rotterdam criteria of PCOS it can be correlated with *Pushpaghni revati* a disease mentioned in Kashyapa *Samhitha*.

#### 3.2. Causes of Polycystic ovary syndrome

The cause of polycystic ovary syndrome is unknown, but studies suggest a strong genetic component that is affected by gestational environment, lifestyle factors, or both<sup>[11]</sup>.

Ayurveda considers involvement of four basic etiological factors i.e. unhealthy lifestyle, menstrual disorders, genetic facts and cryptogenic factors in the establishment of female genital disorders (*Yoni vyapad*)<sup>[12]</sup> And one among of them is *Pradustaartava* which includes the both *Bijarupa* and *Rajorupaartava*. According to Kashyapa *kalpasthana*, due to *Ushna veerya annapana*, *Artava* and *Beeja* becomes vitiated, the *Agni* gets decreased, *Rasa* is not formed and *Kapha* and *Pitta* get accumulated<sup>[13]</sup>.

### 3.3. Modern Pathogenesis of PCOS

The pathogenesis of PCOS is not clearly understood. According to allopathic medicine it can be discussed under following four headings.

1. Abnormality of Hypothalamus Pituitary Ovarian (HPO) axis
2. Hyperinsulinemia arising from receptor dysfunction.
3. Hyper-androgenemia (Adrenal/Ovarian)
4. Genetic inheritance.

Increased pulse frequency of GnRH leads to increased pulse frequency of LH. The LH: FSH ratio is increased. Due to genetic factor and insulin receptors dysfunction (Excessive serine phosphorylation of the insulin receptor) cells resist insulin and hyperinsulinemia condition arises.

In vitro and in vivo evidence offer support that high LH and hyperinsulinemia work synergistically, causing ovarian growth, androgen production, and ovarian cyst formation. Obesity, which is seen in 50% to 65% of PCOS patients, may increase the insulin resistance and hyperinsulinemia <sup>[14]</sup>.

Abnormal regulation of the androgen forming enzyme (P450 C 17) is thought to be the main cause for excess production of androgens from the ovaries and adrenals. The principal sources of androgens are ovary, adrenal and systemic metabolic alteration.

#### 3.3.1. Pathogenesis of Baldness and Hirsutism in PCOS

In Scalp, Testosterone convert to Dihydrotestosterone (DHT) by 5 alpha reductase and cause shrinkage of hair follicles and impact growth of hair.

It is not the amount of testosterone or DHT that causes baldness, it is the cause of individual's sensitivity of hair follicles, which determined by genetics. If hair follicle receptors are particularly sensitive, they are more easily triggered by even small amount of DHT. Age, stress and other factors also can influence hair loss.

Hair in different locations on the body can react differently to hormonal changes. Although body hair is increased by androgens while scalp hair is decreased. Excess androgen levels lead to increased terminal hair growth in most androgen-sensitive sites (e.g., upper lip, chin, chest, back, and upper abdominal area).

#### 3.3.2. Pathogenesis of Acne in PCOS

Androgens increase sebum secretion, resulting in increased oiliness of the skin and acne.

#### 3.3.3. Pathogenesis of Acanthosis nigricans and skin tags in PCOS

High androgen levels and high levels of insulin can cause darkening of the skin around the neck and other crease areas, a condition called acanthosis nigricans, often accompanied by skin tags.

### 3.4. Ayurveda Pathogenesis of PCOS

*Vata* is the principal in the body. *Vata* is not only mobile but also capable of keeping *Pitta*, *Kapha*, *Dhatu* and *Malas* in motion. If *vata* become constricted it in turn, stop both *Kapha* & *Pitta* from functioning property<sup>[15]</sup>. As Ayurveda *samhitas*, the *Vata dosha* indicates both *Gati* and *Gandhana*<sup>[16]</sup> (motor and sensory). According to *Charaka Samhita*, *Vata* controls the normal function of body. Hence, hormonal regulation can be co-related with the function of *Vata*. When considering menstruation *Vata* stands for proliferation, division of cells and rupture of the follicle etc<sup>[17]</sup>. *Apana vata* is responsible for the regulation of menstruation and also for the expulsion of ovum<sup>[18]</sup>. But the voluntary act of intercourse may be under the control of *Vyana vata*<sup>[19]</sup>. According to Ayurveda transformation/conversation is the function of *Pitta* and this conversation is possible by *Pachana* through *Agni* only<sup>[20]</sup>. *Pitta* convert androgens to estrogen in Graafian follicle and also done the maturity of follicle by its function of *Paaka Karma* with the help of *Samana vata*. *Samana vata* takes part in the metabolic activities inside the body and has a stimulating action on the *Agni* (digestive power)<sup>[21]</sup>.

Growth (*Upachaya*) is a function of *Kapha*. *Kapha* stands as a building and nutritive factor<sup>[22]</sup>. It binds all the cells together and gives nutrition for growth and development of the cells with the help of *Vyana vata*. *Vyana vata* makes *Rasa* to get forcefully ejected out of the heart and makes it circulate throughout the body<sup>[23]</sup>. Maintenance of homeostasis in the living human beings also done by *Samana* and *Vyana vata*.

When considering PCOS, Follicle maturity problems, anovulation and hormonal imbalances (*Ambuvishamata*) arises due to decline of normal functions of *Vata* and *Pitta*. On the other hand decline of *Pitta* function was due to *Mandagni* (vitiation of *Jataragni* and *Datvagni paaka*). It distressed normal *dhatu* formation and *Ambuvishamata* arises. *Mandagni* condition is due to aggravated *Kapha*<sup>[24]</sup>. Hence PCOS is a *Kapha* aggravated, *Pitta* and *Vata* decline condition.

Ayurveda believes *Panchamaha bhuta* concepts as basic principle to understand physiology as well as pathology. *Tridosha* theory is simplified from the same. According Ayurveda, collaborated *Vayu* and *Akasha* are considered as *Vata*. *Agni* is considered as *Pitta* and *Pritvi* along with *Jala* is considered as *Kapha*<sup>[25]</sup>. *Vata dosha* is lightest among all, *Pitta* is lighter and *Kapha* is heavy by nature. *Vata* possess *Chala guna* while *Pitta* possesses *Sara guna* and *Kapha* possesses *Sthira guna*<sup>[26]</sup>. As *Kapha* is heavier compared to other two, it naturally tend to obstruct *Vata* and *Pitta*<sup>[27]</sup>. Therefore it is not only the *Vata* which gets obstructed and results in disease. *Pitta* also may get obstructed by *Kapha* and produced disorders like *Shakhashrita kamala*<sup>[28]</sup>.

When considering pathogenesis of several conditions in Ayurveda which could be correlated with PCOS can be used to prove that PCOS as an *Avaranajanya vyadhi*. While going through the classics, the probable causes of *Artavakshaya* are *Margavarodha* and the *Dhatu kshaya*. In *Margavarodhajanya artavakshaya*, involvement of *Doshas* were *Vata* and *Kapha*. According to *Charaka* the vitiation of *Artavavaha srotas* occurs by means of *Sanga*. This *Vata avarodha* (*Avarana*) is caused by *Kapha*.

When the channel becomes obstructed by the *dosas*, then menstrual flow ceases.

छोसैराव्रतमार्गत्वादातव० नश्यति स्त्रियाः । [29]

When considering *Samprapthi* of *Anartava/ Rakta gulma*, *Vagbhata* also described about *Dosha* obstruction/*Avarana* as following.

If menstrual blood accumulate inside itself, due to obstruction of its passage by *Vata* or *Kapha*, it is should be treated with measures with increase *Pitta*.

वातकफावृतमार्गाणां चाप्रवर्तमानां पित्तलौरुपाचरेत् । [30]

*Kashyapa* also mentioned about *Avarana* when describing *Puspaghni revati* as mention below.

वृथा पुष्पं तु या नारि यथाकालं प्रपश्यति ॥३३॥ २॥ [31]

Here meaning of Sanskrit term "*Vrutha*" is Concealed, Hidden or Covered with [32] and "*Pushpa*" means menstrual blood [33].

When a peculiar *dosha* is obstructed by another *dosha* it will result in aggravated symptoms of that *dosha* (*Avarakam*). But the *dosha* (*Avrutam*) which gets obstructed by the other shows decline in their normal functions. As an example in *Kaphavritta vata*, the symptom of *Kaphavridhi* as well as deterioration of the symptoms of *Vata* is observed. This is because the *Vata* is not able to perform its function due to the *Avarana* caused to it. According to signs and symptoms of PCOS it could be clearly understood that functions of *Vata* and *Pitta doshas* decline there normal functions while *Kapha dosha* aggravated. Therefore it can be concluded as aggravated *Kapha* obstruct the *Vata* and *Pitta dosha* and PCOS manifests.

### 3.5.Samprapthighataka

*Dosha:* *Vata* (*Apana, Samana and Vyana*)

*Pitta* (*Pachaka*)

*Kapha* (*Kledaka*)

*Dushya:* *Rasa dhatu, Rakta dhatu, Medo dhatu, Asti dhatu*

*Artava Upadhatu*

*Agni:* *Jataragni and Dhatvagni*

*Srotas:* *Rasavaha, Raktavaha, Medovaha Astivaha and Artavavaha srotas*

*Srotodushti:* *Sanga and Shiragranthi*

*Udbhavasthana:* *Amashaya*

*Adishtana:* *Garbhashaya/Dimbhakosha*

*Sancharasthana:* *Sarwa shareera*

*Vyakta Sthana:* *Yoni*

### 3.6. Development of Basic Ayurveda Treatment Modality /Cikitsa Muladarma (Conceptual Study)

Hence the line of treatment for PCOS should be aimed at removing *Kaphaavarana* immediately and after that, normalizing the *Vata* and *Pitta dosha*.

PCOS treatment should be plan in to 2 steps such as General treatment which should apply all PCOS patients and as specific treatment (Symptomatic treatment) which should change according to preference of the patient.

#### 3.6.1. General Treatment

According to Ayurveda treatment basis General treatment could be divided in to two as *Shodana* and *Shamana*.

As explain above PCOS is an *Avaranajanya* disease. Hence first we have to remove obstruction of *Kapha*. As mentioned in Caraka Samhita, *Kaphavritavata cikitsa*, *Kapha* alleviating and *Vata* carminative remedies should be administered [34].

As there are many treatment modalities which can remove *Avarana* of *Kapha*, they need to be selected based on the amount of provoked *Kapha*. If *Kapha* is provoked too much *Vamana karma* is the best choice. Whereas if the provoked *Kapha* is in moderate level other *Kaphahara* treatments like *Udvarthana*, *Utsadana*, *Dhanyamla dhara* or *Churna pinda sweda* may be selected. Risk lies in treating the *Avarana* where, *Kapha* is obstructing *Vata* as they possess difference qualities. The stage where *Kapha* obstruction is removed, all the *Kaphahara* treatments have to be stopped and *Vatahara* treatments need to be carried out. If without proper analysis of stage of *Avarana* same treatment is continued then, *Vata* may get provoked and may lead to serious complications [35].

After considering all those factors mentioned above, PCOS line of treatment should be started by a *Vamana karma*.

*Vamana karma* consist with 3 steps, such as *Purva karma*, *Pradhana karma* and *Pashchat karma*. *Deepana*, *pachana* is doing prior to the *Vamana karma* as *Purva karma* and here it also beneficial as a stimuli of *Jataragni* and *Dhatvagni*.

After *Vamana karma*, *Vatanulomana* treatments should be used to normalize the *Apana Vata*. If further *Agni deepana* can be used as required.

*Vata*, *Pitta*, *Kapha Shaman* treatments could be administered according to *Dosanubanda lakshana* and *Prakrthi* of the patient.

### 3.6.2. Specific treatments

Specific treatments should be done after the general treatment and basically focus it in to reduce the signs and symptoms of PCOS according to given priority.

#### a) Treatment basis for PCOS patient with *Vandyatva* (Subfertility)

Pre-requisites for healthy pregnancy described in Ayurveda as *Ritu* (Fertile period), *Kshetra* (Uterus), *Ambu* (*Ahara rasa*/ nutrient), *Beeja* (*Shukra* and *Artava* / sperm and ovum), *Marga* (genital passage), *Hridi* (pure controlled consciousness) [36]. When considering PCOS patient, *Ambu* and *Beeja* was vitiated and fertile period is very difficult to measure due to irregular cycles. *Apana vata anulomana* drugs and *Agneya aushada* should be used to *Arthava* and *Beeja janana*. To increase the effectiveness, treatment should be varies according to *Arthava chakra* as below.

- Treatments for *Pushpa janana* (For follicular maturity) –on *Rajah kalala* and *Ritu kaala* (On follicular phase)
- Treatments for *Pushpa dhana* (For Ovulation)-on *Ritu kaala* (On Ovulatory phase)
- *Pathyapatya* for *Garbhadaana* – On *Rituvyathitha kaala* (On luteal phase)

Normally, used *Tarpana* treatments on *Garbhadana kaala*, but in some cases it could be elevated the disease due to further *Kapha prakopa* on *Kapha prakirtika* PCOS patients.

#### b) Treatment basis for PCOS patient with Hirsutism

As *Panchamahabhuta* concept, collaborated *Vayu* and *Akasha* are considered as *Vata* and according to *Ashraya Ashrayi Bhava* *Vata* resides in *Asthi*. If *Vata dosa* gets vitiated *Asthi dhatu* will decreased and if *Vata* decreased *Asthi* will increased. *Loma* is produced as waste product of *Asthi dhatu*. If *Asthi dhatu* production increased, its waste production also increased simultaneously. PCOS is a *Vata* decreased conditions. Therefore *Asthi dhatu* increased and hence, as mention above *Loma* (Waste product of the *Asthi*) production increased and it leads to Hirsutism.

Sometimes, *Shmashru* is considered as the mala of *Shukra Dhatu*. Even women have *Shukra* in the entire body. Hence, there is a small amount of testosterone in a woman's body. If PCOS patient has genetic stimulant for dihydrotestosterone, then because of the affinity of the hair follicle for dihydrotestosterone, the fine hair becomes virulent and it results in hirsute hair appearance. Therefore treatment basis should be focus in to remove *Ambuvishamata* (to reduce testosterone level and to increase estrogen levels). Phytoestrogen drugs such as *Shathavari* could be used to increase estrogen level and foods such as milk products, tuna, and beef should not be consumed.

*Romasathana yogas* mentioned in Ayurveda could be used to remove unwonted hair, because after removing of *Ambuvishamatha*, terminal hair could be replaced again by vellus hair.

**c) Treatment basis for PCOS patient with male pattern baldness**

As mention above the same testosterone when acted upon the hair follicles on the scalp it results in frontal balding or loss of hair over the scalp which is seen in the PCOS women.

Treatment basis should be focus in to remove *Ambuvishamata* and *Rakta, Pitta Shamaka* treatments should be applied.

External applications like oil, could be apply on scalp and head massage can be used to soften the roots of hair follicles and improve local nutrition for hair growth. Except *Ambuvishamatha*, other positive factors like age, stress, etc. also can influence hair loss.

**d) Treatment basis for PCOS patient with Acne**

High testosterone levels also cause acne. Treatment should be focused to correct *Ambuvishamatha, Pitta Shaman* and *Rakta Shodana*.

*Varnya aushada* could be used as external application for reduce scar formation. Controlling other positive factors should be beneficial same as hair loss.

**e) Treatment basis for PCOS patient with Acanthus nigrans**

Skin pigmentations mainly appear in root of the neck and axillary areas, occur when epidermal skin cells begin to reproduce rapidly. This abnormal skin cell growth is most commonly triggered by high levels of insulin in the blood. Insulin is an enzyme and enzymes can be said as pitta substance in Ayurveda. Androgen production also risen due to hyperinsulinemia. Hence treatment basis should be focus in to remove *Ambuvishamatha* and *Pitta Shaman*.

External applications with *Varnaya dravya* could be used to remove those pigmentations and other positive factors should be controlled same as above.

**f) Treatment basis for PCOS patient with skin tags**

Skin tags also develops due to *Ambuvishamatha*. Therefore need to do treatments for remove *Ambuvishamatha* and *Rakta Shodana*.

*Agni karma* is the best treatment option for removal of tags in a short period.

**g) Treatment basis for PCOS patient with menstrual disorders**

If further *Anarthava* (Amenorrhea) and *Arthavakshaya* (Oligo menorria) condition persist *Arthava janana* treatments should be done with *Agneya aushada* followed with *Vatanulomana*.

In some cases, there could be seen *Athyarthawa* condition. For *Athyarthawa* condition, *Sthambhana aushada* should be prescribed.

#### 4. Conclusion

It can be concluded as aggravated *Kapha* obstruct the *Vata* and *Pitta dosa* and PCOS manifests. Due to *Kapha avarana* normal functions of *Vata* and *Pitta* declined. Hence the line of treatment for PCOS should be aimed at removing *Kaphaavarana* immediately and after that, normalizing the *Vata* and *Pitta dosa*. PCOS treatment should be plan in to 2 steps such as general treatment which should apply all PCOS patients and as specific treatment which should change according to preference of the patient. According to Ayurveda treatment basis, general treatment could be divided in to 2 as *Shodana* and *Shamana* and prior to *Shamana*, *Shodana karma* should be initiated.

#### 5. Acknowledgement

I wish to express my sincere gratitude to Senior lecturer of Department of *Prasutitantra Kaumarabhritya*, Dr. (Mrs.) K. P. K. R. Karunagoda for her kind advices for improving subject knowledge and valuable time allocation for edit the manuscript.

#### 6. Reference

1. Stein IF, Leventhal ML. (1935), Amenorrhea associated with bilateral polycystic ovaries. American Journal of Obstetrics and Gynecology, 29 (2), 181 – 191.
2. Solomons CG. (1999), The epidemiology of polycystic ovary syndrome - prevalence and associated disease risks. Endocrinology and Metabolism Clinics of North America, 28: 247-63.
3. Rodin DA, Bano G, Bland JM, Taylor K, Nussey SS. (1998), Polycystic ovaries and associated metabolic abnormalities in Asian women. Clinical Endocrinology; 49: 91-99.
4. Kumarapeli V, Seneviratne, R de A, Wijeyaratne, C N, Yapa RMSC, Dodampahala SH. (2008), A Simple Screening Approach for Assessing Community Prevalence and Phenotype of Polycystic Ovary Syndrome in a Semiurban Population in Sri Lanka, American Journal of Epidemiology, 188(3), 321-328.
5. Sharma PV., (2014), Caraka Samhita ed., Sutrasthana, Trishothiya Adyaya 18/44-45, Chaukambha Orientale, Varanasi, India, 130.
6. Ibidem Caraka Samhita, Sutrasthana, Trishothiya Adyaya 18/46-47, 131.
7. Buddhadasa R. (1962) Susruta Samhita ed., Sutrasthana, Dosa datu mala kshaya vriddhi vighaniya Adyaya 15/16, Department of languages, 421, bulars road, colombo, 07, Sri Lanka, 60.
8. Ibidem Susruta Samhita, Uttarasthana, Yonivyapad pratisheda Adyaya 38/10; 781
9. Ibidem Susruta Samhita, Nidanasthana, Granti Apachi Arbuda Galaganda nidana Adyaya 11/6; 311.
10. Tewari PV. editor. Kasyapa Samhita or Vrddhajivakiya Tantra, Kalpasthana, Revati kalpa Adyaya 33.2-34.1. Chaukambha Visvabharati Oriental Publishers and Distributors, Varanasi, India 2008; 357-358.
11. Norman RJ, Dewailly D, Legro RS, Hickey TE, Poly cystic ovary syndrome, The Lancet 2007; 370 (9588), 685–697.

12. Ibidem Caraka Samhita, Chikitsastana, Yonivyapadcikitsa Adyaya 30/7-8;502.
13. Ibidem Kashyapa Samhita, Kalpastana, Bojanakala Adyaya, 7/32;381.
14. Poretsky L, Piper B, (1994), Insulin resistance, hypersensitivity of LH, and dual defect hypothesis for the pathogenesis of polycystic ovary syndrome. *Obstetrics and Gynecology*, 84 (4), 613-621.
15. Kumaradasa A., (1962), Sharangadara Samhita ed., Department of Languages, Colombo, Sri Lanka, 25.
16. Ibidem Susruta Samhita, Sutrastana, Dosa datu mala kshaya vrudhhi vighaniya Adyaya 15/4;58.
17. Ibidem Caraka Samhita, Sutrastana, Vatakalakaliya Adyaya 12/8;82-83.
18. Buddhadasa R. (1964), Ashtanga Hridaya, Sutrastana ed., Dosabhedhiya Adyaya 12/9 Department of Languages, Colombo, Sri Lanka,83.
19. Ibidem Ashtanga Hridaya Samhita, Sutrastana, Dosabhedhiya Adyaya 12/7;82.
20. Ibidem Susruta Samhita, Sutrastana, Dosa datu mala kshaya vrudhhi vighaniya Adyaya 15/5;58.
21. Ibidem Ashtanga Hridaya Samhita, Sutrastana, Dosabhedhiya Adyaya 12/8;82.
22. Ibidem Caraka Samhita, Sutrastana, trishotiya Adyaya 18/49-50;131.
23. Ibidem Ashtanga Hridaya Samhita, Sutrastana, Dosabhedhiya Adyaya 12/7;82.
24. Ibidem Ashtanga Hridaya Samhita, Sutrastana, Ayushkamiya Adyaya, 1/9;2.
25. Murthy, S.K., (2005), Ashtanga Samgraha, Vol.I. ed., Sutrastana, Doshabhedhiya Adyaya, 20/1, Chaukambha Orientale, Varanasi, India,367.
26. Ibidem Ashtanga Hridaya Samhita, Sutrastana, Ayushkamiya Adyaya, 1/12;3.
27. Praveen BS. (2012), Clinical Approach to Avarana, *International Journal of Research in Ayurveda Pharmacy*, 3 (6),765.
28. Ibidem Caraka Samhita, Cikitsastana, Panduroga cikitsa Adyaya 16/124-127;284.
29. Ibidem Susruta Samhita, Sharirastana, Shukra shronita shuddhi sharira Adyaya 2/22;341.
30. Murthy, S.K., (2005), Ashtanga Samgraha, Vol.II.ed., Sharirastana, Putrakamiya Adyaya, 1/6, Chaukambha Orientale, Varanasi, India, 4.
31. Ibidem Kashyapa Samhita, Kalpastana, Revati kalpa Adyaya, 7/33.2;357.
32. Williams MM. (1999), *Sanskrit English Dictionary*, Munshiram monoharlal Publishers, New Delhi, India,1007.
33. Ibidem *Sanskrit English Dictionary*;507
34. Ibidem Ashtanga Hridaya Samhita, Chikitsastana, Vataashronita cikitsa Adyaya, 22/49;519.
35. Ibidem Clinical Approach to Avarana, *International Journal of Research in Ayurveda Pharmacy*;766.
36. Ibidem Susruta Samhita, Sharirastana, Shukra shronita shuddhi sharira Adyaya 2/33;343.