Case Report

Ayurvedic Management of Obese PCOS-A Case Series

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Abstract

One of the most prevalent reproductive disorders in females is a Polycystic Ovarian Syndrome (PCOS). Polycystic Ovarian Syndrome (PCOS), affecting nearly 10% or more of women all over the world. PCOS is a significant issue that can lead to infertility and other medical issues in the future. The symptoms of PCOS range from irregular or absent periods, anovulation, obesity, insulin resistance, hyper androgenism, to even death. It is challenging to cure PCOS; the focus is just on the management of symptoms. The condition mimics some ayurveda gynecological terms. The purpose of this study was to assess the efficacy of shodhana and shamana therapy for the treatment of PCOS. The treatment lasted for six months. The response to the treatment was recorded, and symptomatic relief and ultrasonography were used to evaluate the therapeutic effects. The findings revealed that with the use of ayurveda regimen, PCOS could be managed effectively and surgical intervention are avoided.

Keywords: PCOS; Hyperandrogenism; Insulin resistance; Pushpaghni jataharini; Aartavakshya, Nashtartava; Ayurveda

Introduction

The prevalence of the polycystic ovarian syndrome is estimated to be between 3% and 10%. However, exact figures for specific subpopulations based on geographic location are unknown. The symptoms commonly associated with PCOS are irregular or no periods and an-ovulation, hyperandrogenism, and in some conditions, glucose intolerance and obesity. [1,2] It can be co-related with pushpaghni jataharini, [3] artavakshaya, and nashtartava [4] according to ayurveda. Polycystic Ovarian Syndrome (PCOS) is a common and multifactorial disease associated with menstrual irregularities and infertility. It is a syndrome of ovarian dysfunction along with the cardinal features of hyperandrogenism, hyperinsulinemia, and polycystic morphology. [5] Obesity and PCOS have a strong relationship. Relying on epidemiological data and more recently confirmed through genetic studies. The gene-disease network is denser for obese PCOS with a higher comorbidity score as compared to lean PCOS. [6] Many of the reproductive and metabolic abnormalities in PCOS are exacerbated by obesity. [7] It is associated with insulin resistance, impaired glucose tolerance, and increased risk of diabetes. [8] Weight gain and obesity contribute to the creation of PCOS. However, there are also mechanisms by which the development of PCOS can contribute to further weight gain and hinder efforts to establish effective weight loss. For Other causes for an-ovulation should also be excluded. [9] Considering these clinical features, this syndrome can be co-related with pushpaghnijataharini, artavakshaya and nashtartava. Pushpaghnijata hariniis characterized with clinical features of vrutha puspham (anovulation, fruitless/ non conception), sthulata (obesity), lomash ganda (hairy chin/ hirsutism). Aartavakshaya manifest with clinical features of deficiency of ovarian hormones (a potent estrogen), uchit kala adarshanam (oligomenorrhoea/polymenorhhoea), Alpa (hypo/oligomenorrhoea/oligo-ovulation), and nashtartava with anovulation or amenorrhea. Maharshi kashyapa describes pushpaghni under saadhya (curable) jataharini, but exact treatment is not given. Maharshi charaka opines that due to over eating, the use of heavy, sweet, cold and unctuous items, lack of exercise and sex act, day sleep and continual cheerfulness, lack of mental exertion, and inherited tendency causes obesity. The fat increases alone as compared to other body elements. Obstruction of strotasas (channels) by fat, results in depletion of rasa dhatu leading to decrease inshukra(artava) and vitiation of vata. [10] Modern science also admit that obesity (central) is recognized as a significant contributory factor to PCOS. Excess androgen production is also associated with reduced SHBG causing hyperandrogenism leading to hirsutism, anovulation. The excess androgen is peripherally aromatised to estrone (E1). Cumulative excess of estrone and oestradiol result in a tonic hypoestrogenic state causing endometrial hyperplasia. It also induces insulin resistance. [11] The faulty dietetic habits and sedentary lifestyle also cause mandagni resulting inamotpatti which further leads to rasa dushti and vitiation of kapha. This kapha obstructs vata hampering its normal functions. [12] Ayurveda classifies PCOS as a kaphavruttavata disorder along with vitiation of pitta as well as rasa, rakta, mamsa, meda, asthi and artavadhatu. The treatment was planned considering

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the samprapti (pathogenesis) and dosha-dushyadushti of nashtartava, aartavakshaya and prameha.

Aim

Exploring the clinical efficacy of different ayurveda medications on obese PCOS.

Objectives

1. To evaluate the efficacy of the ayurveda drugs on obese PCOS
2. To study the recurrence rate.

Case Study

Literature related to PCOS was explored from both modern and classical books. Pharmacology of ayurveda drugs used in formulations and related research papers were also reviewed for their mode of action. Other research journals, papers, books on polycystic ovarian syndrome were also searched.

Case history

Case 1: A 23 year old female came to Government Autonomous Ayurveda College, Jabalpur, M.P. OPD on date 3-5-2013 (OPD No.5574) with complaints of 3 months amenorrhea. She had history of irregular menstruation and had been under allopathic treatment for PCOS and anxiety for 3 years. She had taken a course of hormones; however, the menstruation was regular only during hormonal therapy. She requested ayurvedic treatment as she faced recurrence. She had associated symptoms such as weight gain, dark hair growth in the face, constipation and anxiety. An intensive history was taken. She didn't have any known allergies or a substantial medical history. There was no significant family history. Her menstrual history included irregular menstruation. The duration of menstrual bleeding was 4 days-5 days with an interval of 3 months-4 months, the amount of bleeding was 1 pads-2 pads per day, sometimes scanty and sometimes excessive, *i.e.* 4 pads/day-5 pads/day that were completely soaked, no dysmenorrhoea was present. She required medication to induce menstruation.

Personal history the patient was a college student, used to eating junk food very often with sleep disturbances, history of constipation, and severe mood swings. Her physical examination revealed pulse-76/minute, regular; BP-130/80 mm of Hg, BMI-32, Hirsutism +, acne++. Ultrasonography showed bilateral PCOS, thyroid profile, and sr, prolactin were WNL

Case 2: A married female, 30 years, arrived at OPD on 02-07-2018 (OPD No.22291) with complaints of amenorrhoea since 2½ month. She was very keen to conceive. Urine pregnancy test was negative. Since the last 2 years she had a history of weight gain, irregular menstruation. Menstrual history included duration of flow 1 days-2 days with 1½ months-2 months inter menstrual period, irregular, scanty, no dysmenorrhoea. Obstetric history- $P_1L_1A_0$ full term LSCS female child of 6 years, PIH in previous pregnancy.

Personal history-Patient was house wife; Family history-Mother was diabetic; Her physical examination revealed pulse-84/minute, regular,BP-110/70 mm of Hg, BMI-28, no acne, hirsutism, thyroid profile and Sr. prolactin levels were normal. Ultrasonography showed bilateral PCOS.

Case 3: Unmarried female, 26 years old, came to OPD on 07-12-2019 (OPD No.41177) with complaints of irregular menstrual cycles since the last 2 years. She had a history of weight gain, facial hair growth. Her thyroid profile and Sr. Prolactin were within normal limits. Menstrual history included duration of flow 1 days-2 days and sometimes 7 days-8 days with an inter-menstrual period of 1½ to 2 months-4 months. Bleeding was scanty (just staining of pad) and sometimes severe with no dysmenorrhoea.

Personal history: The patient was a college student who used to eat junk food, spent more time on social media at night (ratri-jagarana). Family history was not significant. Her physical examination revealed pulse 84/minute, regular, BP-120/80, BMI 30, hirsutism+, acne+, ultrasonography report showed bilateral PCOS [Table 1].

Result

BMI decreased significantly, and a normal menstruation pattern was restored. Patients had normal duration and amount of menstrual bleeding along with 28 days-30 days of inter menstrual period. There was also significant relief in insomnia and anxiety. Hair loss stopped, there was no significant effect on hirsutism but it was observed that rate of excessive hair growth slightly decreased. Ultrasonography repeated after 6 months of treatment showed normal bilateral ovaries. Case 3 was conceived after 5 months of treatment, naturally, without giving any allopathic drugs for ovulation induction with an uneventful antenatal period.

Discussion

PCOS is one of the most common endocrinopathies with unknown etiology. It might be a complex multigenic disorder with strong epigenetic and environmental influences, including diet and lifestyle factors. [13] It impairs women's fertility and also harms their mental health. The disorder typically emerges during adolescence. It has recently been estimated in two populations that 18.5%-26% of adolescent girls have PCOS, making it a relatively common syndrome. In women, the risk of PCOS is more among those who are obese, and it is also elevated among obese adolescents. [14]Although a tendency towards PCOS Morphology (PCOM) and enlarged paratubal cysts is found in obese pubertal adolescents, the condition varies with ethnicity. It has low predictive value of hyperandrogenism in adolescence. [15] Obesity is frequently associated with higher circulating levels of insulin, with subsequent increased ovarian androgen production. [16] The excess adipose tissue is responsible for the aromatization of these androgens to estrogen, leading to negative feedback on the HPO axis and affecting gonadotropin production. [17] These alterations are responsible for ovulatory dysfunction and menstrual abnormalities. Hyperinsulinemia plays a fundamental role in the pathogenesis of PCOS, characterized by oligomenorrhea and hyperandrogenism. The concomitant presence of obesity further increases insulin resistance and exacerbates the symptoms of PCOS. [18] On the other hand, the increased androgen production in PCOS causes

deposition of visceral fat, which in turn accentuates insulin resistance and hyperinsulinemia, further fuelling this vicious cycle. [19] Management includes education, healthy lifestyle interventions, and therapeutic interventions targeting their symptoms. Interventions can include metformin, combined oral contraceptive pills, spironolactone, and local applications for hirsutism and acne. As it is said, all the diseases that cannot be named should be treated by postulating their samprapti with the help of involved dosha, dushya, strotasa, agni etc. with thorough examination of the sign and symptoms. In obese PCOS kaphavruttavata samprapti is main causative factor. Considering this fact, the treatment should be kaphavataghna, granthihar, shothahar, vataghna and pramehaghna which can work out at the different levels of samprapti as follows

Nidanparivarjana

Eradication of cause is very important in the management of all disorders. Lifestyle modification is very important in PCOS. Exercise brings about lightness, ability to work, brings stability, stimulates digestion, reduces fats, gives proper shape and strength to all body organs. [20]

Rajaprvartinivati

It is a well-known formulation for rajorodha, rajakshaya. It can be used for withdrawal of menstrual bleeding in amenorrhea. It is kaphavataghna with hot potency. It contains kanyasara (aloe vera), kasisa (purified green vitriol), tankana (borax), ramatha (asafoetida) with bhavna of aloevera juice. The drugs kanyasara [21] and kasisa are emmenagogue. [22] Aloevera has anti-inflammatory, antimicrobial properties and useful in uterine and liver disorders; it improves the hypoglycaemic effect. It contains the compound anthraquinone glycosides known as aloin which in high doses increases peristaltic contractions. [23] In patients with PCOS, who have chronic an-ovulation, persistently elevated estrogen levels, unopposed by progesterone, increase the risk of endometrial carcinoma. [24] Likewise, the hyper estrogenic state is associated with an increased risk of breast [25] and ovarian cancer. [26] So regular secretory transformation and menstruation should be induced.

Udvartana

Udvartana is helpful in pacifying kapha and reducing media, so weight reduction can be achieved. [27]

Deepan-pachana

The drug of deepanapachana category such as chitrakadivati, is useful for raising jatharagni, dhatwagni, as well as aartavagni. [28]

Shodhan therapy

As PCOS is a metabolic disorder virechana was planned for normalizing pitta and vata followed by yoga basti. Shodhana along with shaman therapy is very useful to relieve obstruction in strotasa. There is no chance of recurrence of vitiation of dosha after shodhana. [29] Maharshi charaka says that in all gynaecological disorders vamana, virechana, etc., all five purifying measures should be used after proper oleation and sudation. [30] Gynaecological disorders do not occur without vitiation of vata. Thus, first of all, vata should be normalized. [31]

Virechana

Maharshikashyapa opines that virechana (purgation) enhances ovulation and thus infertility gets cured. [32] In this study aaragvadha kashaya was used for virechana. Ithasguru, snidhaguna (property) with madhuratiktarasa (taste), madhurvipaka (sweet taste after digestion) and sheetaveerya (cold potency). It balances all the three doshas. It has antioxidant, anti-inflammatory, hypocholesterolaemic, hypoglycaemic as well as anti-tumour activity. [33]

Basti

Basti is mainly indicated forvata dominant disorder, avarodhjanya and dhatukshayajsamprapti. PCOS is kaphavruttavatik disorder. Here yoga basti was prescribed which consists of niruha and anuvasana basti. Niruha basti (cleansing) is like a nector to infertile women. The woman having alpapushpa (scanty menstruation), nashtapushpa (amenorrhoea), nashtabeeja (anovulation), akarm-anyabeeja (ovum with minimal or paucity of fertilization capacity) should be cured by anuvasana basti. [34] By using basti the yoni (entire reproductive system) becomes healthy and even sterile women can conceive. [35] It may be considered that niruhabasti is hyperosmotic which facilitates the absorption of morbid factors into the solution, whereas sneha basti contains hypoosmotic solution which facilitates absorption into the blood. [36] Despite the fact that the organs are molecularly related, the molecular event is changed at the cellular level to the tissue level, and then to the organ level. [37] So obviously, the drug can act on this principle. It also acts by means of the Entero-Nervous System (ENS) which is a substantial group of neurons and is capable of autonomous reflex without the influence of the CNS. More than 500 million neurons are present in ENS. [38] It has many similarities with CNS regarding cellular structure, neuro pepti desecretion and specific functions. [39] Hence also referred to as second brain. When basti enters pakwashaya, there is direct action of active principles of drug on ENS related receptors in GI tract, which helps to regulate hormones. In this study yoga basti was used in which triphala qwath niruha and dhanwantar taila anuvasana was used. Triphala qwatha niruha has the property of scrapping of meda dhatu so cleanses the strotasa(channels) and is used for weight reduction in obese patients. [40] Research studies show that dhanwantartaila has significant effect in anovulation and menstrual disorder. [41] Thus virechana and basti together help to regulate all three doshas and removes strotodushti at the level of rasa, raktamamsa, meda, asthi and artavavahastrotas. Enhancing the proper functioning of hormones, normalizing metabolism, regulating ovulation and the menstrual cycle.

Shaman therapy

The drugs used in this study are kanchanar guggul with anupanshi gruvarunkashay, arogyavardhinivati brahmi vati was used only in case 1 who was suffering by anxiety.

Kanchanarguggula

Kanchanarguggula contains 11 different plants and guggula. The main content is kanchanar (Bauhinia variegata), shunthi (zingiber officinale), maricha (piper nigrum), haritaki (terminalia chebula), vibhitaka (terminalia bellerica), amalaka

(Embelicaofficinalis),varuna (Crataevanurvala).

Tejpatra(Cinnamomumtamala),Elaichi(Elletariacardemomum), Dalchini (Cinnamomum zeylanicum) and shuddhaguggulu (commiphoramukul). [42] It is effective in mamsa, medapachana and reduction of excessive kleda and lekhana due to kanchanar, varuna, triphala. It is a classical ayurvedic formulation, used for kapha accumulations in the tissues. Askapha moves deeper within the system, it may manifest as swollen lymph nodes, cysts or growths. It helps in proper functioning of the lymphatic system. [43] It is a useful drug for gandamalaapache, arbuda (tumour), granthi (Cysts). Study shows that it exhibit a cytotoxic effect by inhibiting cell division (antimitotic) and reducing cell proliferation. [44] These findings reinforce its potential for the treatment of cancer, tumors, and cysts. Guggula contains essential oils, it is ushna, snigdha, and picchila, pittaghna by kashaya and madhura rasa, kaphaghna by katu, tikta, tikshnaguna. It is tridoshhara, medohar, hridya (cardio protective), lekhana (scrapping) and raktaprasadana (blood purifyer). It is analgesic, good appetizer, liver stimulant hence valuable for liver disorder. The phyto constituents of guggulu (commiphora mukul) include guggulusterone, which has hypolipidemic and hypoglycemic activity. In addition, the cembranoids control the gastrointestinal absorption of fat and cholesterol. [45] It helps in edema, glandular enlargement, dysmenorrhoea, leucorrhoea and other gynecological disorders, rejuvenates the body tissues and increases strength. It is good rasayna. [46] It is useful in obesity and diabetes, and other diseases associated with sthaulya (obesity)

Varunshigruqwatha

It contains two drugs varun (crativanurvala/cmagna) and shigru (moringa pterygosperma/M.oleifera). Varunaistikta, kashay in taste, havinglaghu, rukshaguna (property), Ushnaveerya and katuvipaka. Shigru has also nearly same properties *viz*. katutiktarasa, laghu, ruksha, tikshnaguna, ushnaveerya and katuvipaka by the virtue of these properties both drugs are kaphavatashamaka. Kwatha has antibacterial properties due to the presence of pterygospermin in shigru. The bark of varuna contains tannin, saponin, flavonoids, glucosinolates and plant sterols including lupeol. [47,48] Lupeol, a triterpenes member, hasanti-inflammatory, antioxidant, antimicrobial, anti-cancer and cell proliferative properties. The impact of lupeol on PCOS has been investigated earlier by rezaei-golmisheh et al. [49] In that study; lupeol decreased the endometrial hyperfibrosis and hyperplasia was induced by DHEA. Therefore such outcome may be related to the role of lupeol as an androgen receptor inhibitor reported previously Siddique et al. [50] The drug varuna helps to clear the channel and reduce the cyst size, carminative and useful in obesity. The action of the second drug shigru is deepan, hridya, kaphaghna, medoharshophaghna, vataghna, shukrala, vishghna, rochana useful in granthi, medoroga shopha. It is analgesic and anti-inflammatory. Along with other therapeutic applications ayurved pharmacopia of India indicated the use of dried root bark in goitre, glycosuria and lipid disorders. The leaves contains glycosides which showed hypotensive effect. The leaves exhibit hypoglycemic activity, although the plasma insulin level does not alter much. Concept of varuna-shigrukwatha is seen first time in yogaratnakar in ashmarichikitsa though it is ashmarihar but according to the action, properties of drugs and samprapti of PCOS this drug can be used effectively. In PCOS the patient is more prone to develop type II diabetes mellitus (15%) because of insulin resistance; there is a risk of developing endometrial carcinoma due to persistently elevated levels of estrogens. Because of the persistent anovulatory state and increased risk of hypertension and cardiovascular disease due to altered lipid profile, progesterone does not counteract estrogen effects. The use of shigru varunqwath can prevent these sequelae.

Aarogyavardhinivati

The drug has been mentioned in rasaratnasamucchaya in the context of kustha (skin disorder and in the context of yakritvikara (liver ailment) in bhaishyajyaratnavaliin the context of yakritvikara (liver ailment) in bhaishyajyaratnavali rasaratnasamucchaya mentioned arogyavardhini vati as sarvarogaprashamani (can pacify all type of disorders). Shuddha parada (herbal purified mercury), shuddha gandhaka (herbal purified sulphur), loha bhasma (ash prepared from iron), abhraka bhasma (purified and processed mica), tamra bhasma (ash prepared from copper), triphala (haritaki-bhibhitak, aamalak), shilajatu (mineral itch), guggulu (commiphora mukul), chitrakmool (plumbago zeylanica linn) tikta-katuki (picrorhizakurroa) juice extract of nimba leaf (azadirachta indica) quantity as per need for making pill. The formulation has medoghna, kaphagna property. It acts as hepato protective, strengthens the heart; the drug has It has anti oxidative and immune modulator properties. By boosting the digestive system, it improves digestive fire, clears bodily channels for nutrients to reach the tissues, and help to remove toxins. The long-time use of arogyavardhani vati affects functions of endocrine glands (low or high hormonal production.) It promotes comprehensive health, rids the body of all ailments, and restores the balance between the three doshas. According to studies, arogyavardhinivati reduces blood cholesterol, triglycerides, LDL, and C-Reactive Protein (CRP) levels while also increasing blood HDL levels in a dose-dependent way. Brahmi vati-It is an ayurvedic poly herbal formulation used since ancient times and has been prescribed as medhya drug. Anxiety, insomnia, psychological disturbances are found in PCOS which in turn can land into hypertension, sleep disturbance, dyslipidemias and anxiety have closer association with HTN. Short sleep duration is associated with HTN. Study shows that Brahmivati improves maintenance and duration of sleep. It improves systolic and diastolic blood pressure, mean arterial pressure, anxiety and sr. creatinine level. A number of related studies on different ovarian disorders were reported. Some of the key studies were reviewed.

Conclusion

The above treatment protocol was found to be effective in obese PCOS. There is no recurrence of symptoms to date. These findings explain encouraging result in the said syndrome and the need for further study for its scientific evaluation.

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