Therapeutic Role of Marma Chikitsa in Polyendocrine Metabolic Ovarian Syndrome: A Review

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***Abstract*—Polyendocrine metabolic ovarian Syndrome (PMOS) is one of the most common endocrine and metabolic disorders affecting women of reproductive age. It is characterized by irregular menstruation, anovulation, hyperandrogenism, obesity, insulin resistance, and infertility. In Ayurveda, PMOS can be correlated with conditions involving imbalance of Vata, Kapha, and Meda dhatu along with dysfunction of Artavavaha srotas. Marma Chikitsa, an important therapeutic approach in Ayurveda, involves stimulation of vital energy points (Marma) to restore the balance of Doshas and improve physiological functions.**

Marma therapy helps in regulating hormonal imbalance, improving ovarian function, reducing stress, and enhancing blood circulation in the pelvic region. Specific Marma points such as Basti Marma, Nabhi Marma, Indrabasti Marma, and sthapani Marma play a significant role in balancing Apana Vayu, supporting reproductive health, and promoting menstrual regularity. The use of gentle pressure, massage, and medicated oils like sesame oil further enhances therapeutic outcomes.

This article aims to explore the therapeutic role of Marma Chikitsa in the management of PMOS and highlights its potential as a safe, non-invasive, and holistic treatment approach. By addressing the root cause and restoring systemic balance, Marma therapy offers a promising complementary modality for improving the quality of life in women suffering from PMOS.

***Index Terms*—PMOS, Marma chikitsa, Ayurveda, Artavavaha strotas, Hormonal imbalance, women's health.**

I. INTRODUCTION

Polyendocrine metabolic ovarian Syndrome (PMOS) formerly known as polycystic ovary syndrome (PCOS) is a hormonal imbalance that occurs when your ovaries (the organ that produces and releases eggs) create excess hormones. If you have PMOS, your ovaries produce unusually high levels of hormones called androgens. This causes your reproductive hormones to become imbalanced. As a result, people with PMOS often have irregular menstrual cycles, missed periods and unpredictable ovulation. Small follicle cysts (fluid-filled sacs with immature eggs) may be visible on your ovaries on ultrasound due to lack of ovulation (anovulation). However, you don't need to have cysts on your ovaries to have PMOS. The ovarian cysts aren't dangerous or painful. PMOS is one of the most common causes of female infertility. It can also increase your risk of other health conditions. Your healthcare provider can treat PMOS based on your symptoms and if you wish to become pregnant.

PMOS is very common up to 15% of females of reproductive age have PMOS.

Marma Chikitsa Marma Chikitsa is a specialized branch of Ayurveda that emphasizes the protection, manipulation, and therapeutic utilization of vital anatomical points known as Marmas. These Marmas are described in classical Ayurvedic texts such as the Sushruta Samhita and Charaka Samhita, which categorize them as critical junctures in the body where muscles, veins, ligaments, bones, and joints converge.

Traditionally, Marma Chikitsa has been employed to manage trauma, alleviate pain, enhance healing, and restore the balance of the body's vital energies. 2 Marma chikitsa works on the principle of regulating the flow of Prana and removing blockages in the body's energy channels. It not only helps in physical healing but also improves mental and emotional well-being. Marma Chikitsa involves the stimulation or manipulation of Marma points to address various ailments.

In gynaecological disorders like Polycystic Ovary Syndrome (PCOS), Marma Chikitsa plays an important role by improving hormonal balance, reducing stress, regulating menstruation, enhancing metabolism, and supporting reproductive health.

Thus, Marma Chikitsa serves as a natural and effective healing method that promotes overall health by balancing body, mind, and energy systems.

II. MATERIAL

Histology of ovary

The ovary is a dense, almond-shaped organ that produces female gametes and reproductive hormones. Its tissue is organized into three distinct layers: the surface layer, the outer cortex (housing follicles), and the inner medulla (housing blood vessels)

1. Surface Layers

- Germinal Epithelium: The outermost layer, consisting of a simple cuboidal (sometimes squamous) epithelium.
- Tunica Albuginea: A protective, dense layer of irregular connective tissue that sits directly beneath the epithelium

2. Ovarian Cortex (Outer Region)

This outer region is the hub of oocyte development and contains ovarian follicles at various stages of maturation, all embedded within the stroma:

- Primordial Follicles: The earliest stage, featuring an oocyte arrested in prophase I, surrounded by a single layer of flattened follicular cells.
- Primary Follicles: The oocyte enlarges and is surrounded by a single or stratified layer of cuboidal cells (granulosa cells). A glycoprotein layer called the zona pellucida becomes visible between the oocyte and granulosa cells.
- Secondary (Antral) Follicles: The oocyte grows larger, and granulosa cells secrete fluid that accumulates to form a central cavity (the antrum). Surrounding stromal cells differentiate into the theca interna (steroid-producing) and theca externa(fibrous).
- Graafian (Mature) Follicles: A massive, fully mature follicle with a large, fluid-filled antrum. The oocyte sits on a mound of granulosa cells called the cumulus oophorus.

3. Post-Ovulation Structures

After the Graafian follicle ruptures and releases the ovum, it transforms into temporary endocrine structures:

- Corpus Luteum: A collapsed, folded structure formed by the remaining granulosa and thecal cells. It appears yellowish due to lipid accumulation and actively secretes progesterone and estrogen.
- Corpus Albicans: If fertilization does not occur, the corpus luteum involutes into a pale, whitish scar of dense hyaline connective tissue.

Main Cause of Pmos

The exact cause of PMOS is unknown. There's evidence that genetics play a role. Several other factors, most importantly obesity, also play a role in causing PMOS:

Higher levels of androgens: High androgen levels prevent your ovaries from releasing eggs, which causes irregular menstrual cycles. Irregular ovulation can also cause small, fluid-filled sacs to develop on your ovaries. High androgen also causes acne and excess hair growth in females.

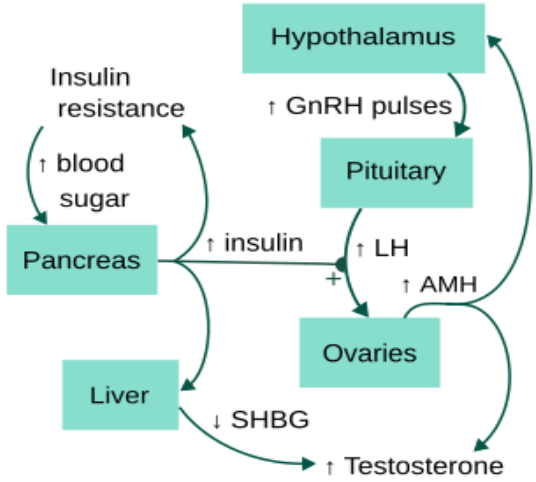
Insulin resistance: An increase in insulin levels causes your ovaries to make and release male hormones (androgens). Increased male hormones suppress ovulation and contribute to other symptoms of PMOS. Insulin helps your body process glucose (sugar) and use it for energy. Insulin resistance means your body doesn't process insulin correctly, leading to high glucose levels in your blood. Not all individuals with insulin resistance have elevated glucose or diabetes, but insulin resistance can lead to diabetes. Having overweight or obesity can also contribute to insulin resistance. An elevated insulin level, even if your blood glucose is normal, can indicate insulin resistance.

Low-grade inflammation: People with PMOS tend to have chronic low-grade inflammation. Your healthcare provider can perform blood tests that measure levels of C-reactive protein (CRP) and white blood cells, which can indicate the level of inflammation in your body.

Mechanism Pmos involves both hormonal and metabolic changes. Women with PMOS often have higher levels of androgens, mainly produced by the ovaries, as part of a disrupted hypothalamus–pituitary–ovarian axis. In the brain, the hypothalamus sends out gonadotropin-releasing hormone (GnRH) pulses with higher frequency. This raises luteinising hormone (LH), while follicle-stimulating hormone (FSH) stays the same or is slightly lower. The higher LH stimulates theca cells in the ovary to produce more androgens.6

The disrupted hormonal environment, including high levels of androgens, suppresses the growth and development of ovarian follicles ("cysts"). This leads to an accumulation of many small follicles, a feature referred to as polycystic ovarian morphology. The lack of ovarian follicle development also leads to a reduction in ovulation.5 Granulosa cells in these small follicles produce high levels of anti-Müllerian hormone, which reduces the conversion of testosterone to oestradiol (oestrogen).6

Metabolic changes are common in PMOS. Many women develop insulin resistance, which causes the pancreas to produce extra insulin. High insulin levels reduce liver production of sex hormone-binding globulin (SHBG), increasing free circulating androgens.



The most common signs and symptoms of PMOS include:

Irregular periods: Abnormal menstruation involves missing periods or not having a period at all. It may also involve heavy bleeding during periods.

Abnormal hair growth: You may grow excess facial hair or experience heavy hair growth on your arms, chest and abdomen (hirsutism). This affects up to 70% of people with PMOS.

Acne: PMOS can cause acne, especially on your back, chest and face. This acne may continue past your teenage years and may be difficult to treat.

Obesity: Between 40% and 80% of people with PMOS have obesity and have trouble maintaining a weight that's healthy for them.

Darkening of the skin: You may get patches of dark skin, especially in the folds of your neck, armpits, groin (between the legs) and under your breasts. This is known as acanthosis nigricans.

Cysts: Many people with PMOS have ovaries that appear larger or with many follicles (egg sac cysts) on ultrasound.

Skin tags: Skin tags are little flaps of extra skin. They're often found in your armpits or on your neck.

Thinning hair: People with PMOS may lose patches of hair on their head or start to bald.

Infertility: PMOS is the most common cause of female infertility. Not ovulating regularly or frequently can result in not being able to conceive.

PMOS may increase your risk for certain pregnancy complications, although most people with PMOS are able to successfully carry a pregnancy. Other complications of PMOS related to pregnancy include increased risk of:

Gestational diabetes, preeclampsia and high blood pressure.

Preterm birth (birth before 37 weeks of pregnancy) or C-section delivery due to obesity, diabetes or high blood pressure.

Ayurveda does not describe PMOS directly, but its symptoms resemble conditions such as Artava Kshaya, Nashtartava, Pushpaghni Jataharini, and Vandhyatva. According to Ayurveda, the pathology mainly involves Kapha-induced obstruction and Vata vitiation leading to disturbed ovarian function.

Marma Chikitsa is a non-invasive healing method involving gentle stimulation of specific Marma points to regulate Doshas, improve circulation, and restore health

Ayurvedic Perspective

In Ayurveda, PMOS is not described as a single disease entity, but its signs and symptoms can be understood through various Ayurvedic concepts.

PMOS is primarily considered a Kapha-Vata predominant disorder involving:

- Artava Vaha Srotas Dushti (disorder of the reproductive channels) The channels of transportation of menstrual blood seem to be the pathway of flow of menstrual blood during monthly periods in women i.e. the pathway from uterine canal to vaginal orifice.
- Artava = menstrual blood / ovum
- Vaha = carrying
- Srotas = channels / ducts of transportation

आर्तववहे द्वे, तयोर्मूलं गर्भाशयम् आर्तववाहिन्यश्च धमन्यः। आर्तववह स्रोतस दुष्टि - वन्ध्यात्वं मैथुनासहिष्णुत्वम् आर्तवनाशश्च। 8 (Su. Sha.9/12)

- Artava Kshaya (reduced or irregular menstruation)
- Pushpaghni Jataharini (a gynecological disorder resembling PMOS)
- Sthoulya (obesity)
- Vandhyatva (infertility)

Dosha Involvement

- Kapha Dosha: Obesity, cyst formation, insulin resistance
- Vata Dosha: Irregular menstruation and anovulation
- Pitta Dosha: Acne, inflammation, hormonal disturbances

Samprapti Chakra

Nidana → Agnimandya → Ama Formation → Kapha & Meda Vriddhi → Srotorodha → Apana Vata Vaigunya → Artava Dushti/Kshaya → Anovulation & Menstrual Irregularities → PMOS

DEFINITIONS OF MARMA

According to Acharya Sushruta

मर्माणि मांससिरास्नाय्वस्थिसन्धिसन्निपाताः; तेषु स्वभावत एव विशेषेण प्राणास्तिष्ठन्ति; तस्मान्मर्मस्वभिहतास्तास्तान् भावानापद्यन्ते|| (Su. Sha.6/16)

Marma points are the junction of five anatomical structures i.e. Mamsa (muscle), Sira (vessels), Snayu (ligament and nerve), Asthi (bone), and Sandhi (joints). Stimulation of Marma points optimises Prana Vayu and maintains equilibrium of Doshas.1

there are 107 Marma points distributed throughout the body, each having significant physiological and therapeutic importance.

- In PMOS commonly used Marma points include:
- Nabhi Marma – improves digestion and metabolism
- Menstrual regularity
- Gut–brain–hormone connection
- Stress response
- Circulation in the abdominal/pelvic region
- Vata and Pitta balance

पक्व आमाशययोः मध्ये सिरा प्रभवा, नाभिः तत्र अपि सध्यो मरणम्।(सु.शा.६)

- Modern Perspective (Practical anatomy) of Nabhi Marma
- Structures falling in the area of Nabhi Marma –
- Navel region, umbilicus
- Rectus abdominis muscle
- Rectus sheath (envelope which covers the rectus abdominis muscle)
- Inferior epigastric artery
- Inferior epigastric vein

Features	Details
Name	Nabhi marma
Location	In between Amashaya & Pakvashaya
Number	one
Type (predominant structures)	Sira Marma
Injury effect	Sadhyahara Pranahara
Measurement (Pramana)	Four angula

Basti Marma –

Regulation of Apana Vata (the downward-moving energy governing menstruation and reproduction)
Menstrual flow and cycle regularity

Pelvic blood circulation

Reduction of lower abdominal heaviness/bloating
Stress reduction and nervous system calming
Reproductive tissue nourishment (Artava Dhatu)

अल्प मांस शोणितो अभ्यन्तरतः कट्यां मूत्राशयो वस्तिः नाम, तत्र अपि सध्यो मरणम् अश्मरी व्रणाद्दते तत्र अपि उभयतो

भिन्ने न जीवति, एकतो भिन्ने मूत्र स्रावी व्रणो भवति, स तु यत्नेन उपक्रान्तो रोहति।(सु.शा.६)

Modern Perspective (Practical anatomy) of basti Marma

Structures falling in the area of basti Marma –

- Urinary bladder
- Ureters
- Urethra
- Renal blood vessels
- Nerves supplying the urinary bladder
- Structures of pelvic cavity

features	Details
Name	Basti marma
Location	Pelvic region (specifically in the area of the urinary bladder)
Number	One
Type (predominant structures)	Sira marma
Injury effect	Sadhyahara Pranahara
Measurement (Pramana)	Four angula

Indrabasti Marma – improves circulation and hormonal
regulation
Vata regulation
Improving circulation
Reducing stress and fatigue
Supporting digestion/metabolism

Calming the nervous system
पार्ष्णिं प्रति जङ्घा मध्ये इन्द्रवस्तिः नाम, तत्र शोणित क्षयेण मरणं।(सु.शा.६)
कूर्पर मध्ये पुरतः इन्द्रवस्तिः नाम, तत्र शोणित क्षये मरणम्।(सु.शा.६)

Modern Perspective (Practical anatomy) of Indrabasti Marma

Structures falling in the area of Indrabasti Marma –

Upper Limb:

- Ulnar artery
- Median nerve
- Radial artery with its palmar branches
- Palmar inter-osseous branches of ulnar artery
- Pronator teres muscle
- Flexor digitorum profundus muscle
- Flexor carpi radialis muscle

Lower Limb:

- Gastrocnemius muscle
- Soleus muscle
- Plantaris muscle
- Peroneal arteries
- Posterior tibial arteries
- Tibial nerve

features	Details
Name	Indrabasti marma
Location	In upper limb – middle of the forearm between the wrist and elbow joint In lower limb – middle of the leg (calf region) between theankle and knee joint
Number	Four – 2 in upper limbs 2 in lower limbs
Type (predominant structures)	Snayu marma
Injury effect	Vaikalyakara marma
Measurement (Pramana)	Half angula

Gulpha Marma – supports lower limb circulation and Vata balance
Balance Apana Vata
Improve pelvic and lower-body energy flow
Reduce swelling/heaviness
Improve circulation
Relax the nervous system

Support hormonal balance indirectly
पाद जङ्घयोः सन्धाने गुल्फो नाम, तत्र रुजः स्तब्ध पादता खञ्जता वा।(सु.शा.६)

Modern Perspective (Practical anatomy) of Gulpha Marma

Structures falling in the area of Gulpha Marma –

- Ankle Joint
- Distal tibio-fibular articulation
- Medial malleolar ligament
- Anterior ligament
- Longus ligament
- Deltoid ligament
- Posterior ligament
- Anterior Talo-fibular ligament
- Posterior Talo-calcaneal ligament
- Fibulocalcaneal ligament

- Lateral Talo-calcaneal ligaments
- Tarsal articulations

features	Details
Name	Gulpha marma
Location	At the ankle joint of both feet
Number	Two
Type (predominant structures)	Sandhi marm
Injury effect	Vaikalyakara marma
Measurement (Pramana)	2 angula

- Kshipra Marma – reduces stress and improves energy flow
- Calm stress and anxiety
- Improve circulation
- Support endocrine balance indirectly
- Balance Vata and Kapha
- Improve energy and fatigue
- Support reproductive health through systemic regulation'

तत्र पादस्य अङ्गुष्ठा अङ्गुल्योः मध्ये क्षिप्रं नाम मर्म, तत्र विद्धस्य आक्षेपेण मरणम्।॥(सु.शा.६)

Modern Perspective (Practical anatomy) of Ksipra Marma

Structures falling in the area of Kshipra Marma –

Upper Limb:
- First inter-metacarpal space
- 1st dorsal inter-osseous muscle
- Tendons of Abductor pollicis and deep portion of Flexor pollicis brevis
- Branches of Radial artery and Deep Palmar arch
- Radialis indicis artery
- Digital branches of Median nerve

Lower Limb:
- First inter-metatarsal space
- Deep peroneal nerve branch to great toe
- Combined tendon of abductor hallucis and flexor hallucis brevis muscles
- Bifurcation of first common digital nerve
- Bifurcation of first dorsal metatarsal artery

Features	Details
Name	Kshipra marma
Location	In hand – between the thumb and index finger
	In foot – between the great toe and second toe
Number	2 in the hand 2 in the feet
Type (predominant structures)	Snayu marma
Injury effect	Kalantara pranhara marma
Measurement (Pramana)	Half angula

- Sthapani Marma – calms the mind and reduces anxiety
- Reduces stress and anxiety Emotional stress can worsen hormonal disturbances associated with premature menopause.
- Supports neuroendocrine balance: Marma stimulation may help regulate communication between the hypothalamus, pituitary gland, and ovaries.
- Improves sleep quality: Helps relieve insomnia and mental restlessness commonly seen in menopausal women.
- Alleviates menopausal symptoms: May help reduce headaches, irritability, mood swings, and hot flashes through its calming effect.
- Promotes mental well-being: Enhances relaxation, emotional stability, and overall quality of life.

भ्रुवोः मध्ये स्थपनी, तत्र उत्क्षेपवत्।
शंखयोः उपरि केशान्त उत्क्षेपौ, तत्र स शल्यो जीवेत्, पाकात् पतित शल्यो वा, न उद्धृत शल्यः।(सु.शा.६/२७)

Modern Perspective (Practical anatomy) of Sthapani Marma

Structures falling in the area of Sthapani Marma –
- Glabella i.e. the projection or protuberance at the centre of the forehead
- Frontal vein
- Frontal sinus
- Nasal notch

Features	Details
Name	Sthapani
Location	In the center between the two eyebrows
Number	one
Type (predominant structures)	Sira marma
Injury effect	Vishalyaghna marma
Measurement (Pramana)	Half angula

Regular stimulation of these Marma points helps in balancing endocrine function and reproductive health.

III. METHOD

The patient lies in a comfortable supine (lying on the back) position in a calm environment.

1. Application of Oil
   - Warm sesame oil (Tila Taila) or medicated oil is applied over the selected Marma points.
2. Marma Stimulation
   - Gentle pressure is applied using the thumb, index finger, or middle finger.
   - Pressure should be steady, rhythmic, and painless.
   - Circular clockwise movements may be used.
3. Duration
   - Each Marma point is stimulated for 1–3 minutes.
   - Total treatment time is usually 15–30 minutes per session.
4. Important Marma Points for PMOS
   - Sthapani Marma – between the eyebrows
   - Nabhi Marma – umbilical region
   - Basti Marma – suprapubic region
   - Indrabasti Marma – middle of the calf
   - Kshipra Marma – between thumb and index finger; between great toe and second toe
   - Gulpha Marma – ankle region
5. Frequency
   - Performed daily or 3–5 times weekly.
   - Continued for 8–12 weeks depending on the patient's condition.

This protocol is intended to promote Dosha balance, improve pelvic circulation, reduce stress, and support hormonal regulation in PMOS.

IV. RESULTS

The following outcomes may be observed after regular Marma Chikitsa in women with PCOS:

1. Improved Menstrual Regularity
   - More regular menstrual cycles.
   - Reduction in delayed or absent menstruation.
2. Enhanced Ovarian Function
   - Improved follicular development and ovulation.
   - Better reproductive health.
3. Hormonal Balance
   - Reduction in symptoms associated with hormonal imbalance, such as acne and excessive hair growth.
   - Improved endocrine regulation.
4. Reduction in Stress and Anxiety
   - Calming effect on the nervous system.
   - Better emotional well-being and sleep quality.
5. Improved Metabolism
   - Enhanced digestive fire (Agni).
   - Better weight management and reduction of Kapha-related symptoms.
6. Improved Pelvic Circulation
   - Better blood flow to reproductive organs.
   - Support for normal uterine and ovarian functions.
7. Enhanced Fertility Potential
   - Improved chances of conception by supporting ovulation and reproductive health.

V. SUMMARY OF RESULTS

Marma Chikitsa may help reduce the major symptoms of PMOS by balancing Doshas, improving neuroendocrine function, enhancing pelvic circulation, and promoting physical and mental well-being. However, its effectiveness is greatest when combined with appropriate diet, lifestyle modifications, yoga, and other Ayurvedic therapies. Further clinical research is needed to establish scientific evidence for these benefits.

VI. DISCUSSION

Marma Chikitsa may be beneficial in PMOS by balancing Vata and Kapha Doshas, improving Artavavaha Srotas function, and promoting hormonal balance. Stimulation of Marma points such as Sthapani, Nabhi, Basti, and Indrabasti may help regulate menstrual cycles, improve metabolism, reduce stress, and support ovarian function. As a safe and non-invasive therapy, it can be used as a complementary approach in PMOS management. However, further scientific studies are needed to confirm its effectiveness and establish standard treatment protocols.

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