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Yoga-Based Lifestyle Intervention in Polyendocrine Metabolic Ovarian Syndrome: A Case Report.

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Abstract

Background : Polyendocrine Metabolic Ovarian Syndrome (PMOS), is a heterogeneous endocrine-metabolic disorder characterized by reproductive, metabolic, dermatological and psychological manifestations.¹ Ovulatory dysfunction and irregular menstrual cycles are important reproductive manifestations and may make identification of fertile window difficult in women attempting conception.² Lifestyle intervention is an important component of holistic management, with increasing evidence supporting the role of structured physical activity and mind-body interventions.

Case Presentation : A 30-year-old woman with a 5 years history of irregular and scanty menstruation with previous diagnosis of PMOS presented on 20th January 2025 for consultation at Swasthavritta and Yoga OPD of Alva's Ayurveda Medical College and Hospital. Her menstrual cycles occurred at intervals of approximately 35-45 days, with scanty flow and dysmenorrhea. She also reported acne, facial hair growth, hair fall, difficulty with weight management and anxiety related to conception. A structured, supervised yoga-based intervention consisting of *Yogāsana* and *Prāṇāyāma* was initiated for approximately 80 days, with 60-minute sessions 6 days per week. Follow-up was performed and improvement was observed with ovulation, menstruation etc. BMI decreased from 26.1 to 24.6 kg/m², modified Ferriman–Gallwey score from 9 to 6, and dysmenorrhea VAS from 7/10 to 2/10. The recorded PCOSQS increased from 2.9 to 6.32. The patient subsequently conceived spontaneously. Ultrasonography dated 11th June 2025 demonstrated a single live intrauterine gestation corresponding to approximately 4 weeks and 3 days. The pregnancy progressed to delivery of a healthy female baby in January 2026.

Conclusion : This case suggests that a structured Yoga based lifestyle intervention may have a supportive role in holistic preconception care for women with PMOS, particularly with regard to menstrual symptoms and quality of life. The subsequent spontaneous conception and healthy live birth are clinically noteworthy; however, causality between the *yoga* intervention and conception cannot be established from a single

case. Prospective controlled studies incorporating objective endocrine, metabolic and reproductive outcomes are warranted.

Keywords: Polyendocrine metabolic ovarian syndrome; Polycystic ovary syndrome; *Yogāsana* ; Preconception care; Case report.

1. Introduction : Polyendocrine Metabolic Ovarian Syndrome (PMOS), previously known as Polycystic Ovary Syndrome (PCOS), is a common, heterogeneous endocrine-metabolic disorder affecting reproductive, metabolic, dermatological and psychological health.¹ The condition affects approximately one in eight women globally and is characterized by a broad spectrum of endocrine, metabolic, reproductive, skin and psychological manifestations.^{1,2} Reproductive dysfunction remains a clinically important component, with irregular menstrual cycles and ovulatory dysfunction frequently occurring in affected women.² Diagnosis was commonly based on Rotterdam criteria, which required the presence of at least 2 of 3 features—oligo/anovulation, clinical and/or biochemical hyperandrogenism, and polycystic ovarian morphology—after exclusion of other relevant disorders.³ Women with prolonged or unpredictable menstrual cycles may find it difficult to estimate the timing of ovulation and consequently identify their fertile window. Ovulatory dysfunction is an important contributor to reproductive difficulty in PMOS.² Current evidence-based recommendations emphasize healthy lifestyle behaviours, physical activity and individualized lifestyle management, with benefits potentially extending beyond body weight.² Yoga represents a multimodal mind–body intervention incorporating physical postures, movement, breathing regulation and relaxation. Despite increasing research interest, evidence specifically evaluating yoga in relation to fertility and live-birth outcomes remains limited. The present case describes a woman previously diagnosed with PMOS who presented with prolonged irregular menstrual cycles and difficulty identifying the fertile window while attempting conception. A structured *Yogāsana* and *Prāṇāyāma* protocol was implemented as a lifestyle-based intervention, followed by improvement in selected outcomes and subsequent spontaneous conception and healthy live birth.

2. Case Presentation

2.1 Patient Information : A 30-year-old woman presented to the hospital on 20 January 2025 with a previous diagnosis of PMOS and a history of irregular and scanty menstruation for approximately 5 years. Her primary concern was conception. Because her menstrual cycles were prolonged and irregular, she reported difficulty identifying fertile windows and uncertainty regarding the timing of ovulation. She was trying for conception for 8 months hence anxious about her fertility and sought a holistic, non-pharmacological approach during the preconception period.

2.2 Associated complaints included: Light menstrual bleeding, painful periods, fatigue, hair loss, acne, difficulty managing weight, and anxiety about her ability to conceive for the past 1.5 years

2.3. Menstrual History : At the initial consultation, the menstrual history was documented as follows.

Table 1. Parameters on menstrual history at baseline :

PARAMETER	FINDINGS	APPROX. CYCLE LENGTH
PLMP	27 th October 2024	-
PLMP	1st December 2024	35 days
LMP	15th January 2025	45 days
Cycle interval	35 -45 days	-
Duration of flow	Approximately 2 -3 days	-
Menstrual flow	Scanty	-
Pads used	2 per day	-
Clots/ Abnormal Odour	Absent	-
Dysmenorrhea	VAS 7/10	-
Breast Tenderness	Moderate , recurrent during cycles	-

2.4. Past and Personal History : The patient reported painful and scanty menstruation for about 5 years and had been previously diagnosed with PMOS. She had been trying to conceive for 8 months.

3. Family History : No significant family history was documented.

4. Personal History

- **Bowel:** Regular, once daily, semisolid consistency.
- **Appetite:** Irregular to time
- **Micturition:** Normal; No burning sensation, 4–5 times/day and once at night
- **Sleep:** Subjectively sound
- **Dietary habits:** Tea, coffee and raw juices/smoothies, irregular meal timings.

5. General Examination At baseline:

- **Height:** 170 cm
- **Weight:** 75 kg
- **BMI:** 26.1 kg/m²
- **Pulse rate:** 79/min
- **Blood pressure:** 120/70 mmHg
- **Respiratory rate:** 16/min
- **Temperature:** Afebrile.

- The patient was conscious, oriented and clinically stable. Cardiovascular, respiratory and central nervous system examinations were unremarkable.

6. Diagnostic Assessment : The patient had a previous diagnosis of PMOS supported by ultrasonographic findings suggestive of polycystic ovarian morphology and clinical manifestations including menstrual irregularity, acne and facial hair. The patient was assessed using the established diagnostic framework derived from the Rotterdam criteria.³ The principal concern was difficulty in identifying the fertile window because of prolonged and irregular menstrual cycles.

7. Therapeutic Intervention : A structured Yoga-based lifestyle intervention was initiated following the assessment. The patient underwent approximately 60-minute sessions, 6 days per week, for approximately 80 days. Practice was discontinued during menstruation.

Table 2. Structured *Yogāsana* and *Prāṇāyāma*- Based Intervention Protocol

COMPONENT	PRACTICE	DURATION
Preparatory- <i>Sukṣma Vyayama</i>	Neck loosening, Shoulder loosening, Elbow movements, Finger movements, Wrist movements, Hip rotation, Knee rotation, Ankle loosening	5 round repetitions each
Dynamic <i>Asana</i>	<i>Surya namaskara</i>	3 rounds each
Standing <i>Asana</i>	<i>Tadasana, Ardha Chakrasana, Padahasthasana, Viparita Trikonaasana</i>	3 rounds each
Sitting <i>Asana</i>	<i>Malaasana, Chakki- Chalanaasana, Bhadrasana</i>	3 rounds each
Supine <i>Asana</i>	<i>Setu Bandhaasana, Pavanamuktasana</i>	3 rounds each
Prone <i>Asana</i>	<i>Bhujangasana, Marjaraasana</i>	3 rounds each
<i>Pranayama</i>	<i>Nadi Shodhana, Bhramari</i>	10 rounds each
Duration	Approx. 60 minutes per session	6 session per week
Intervention Period	Approx. 80 days	Supervised
Menstruation	Practice withheld	

8. Outcome Measures

1. Dysmenorrhea assessed using visual analogue scale (VAS)
2. Body mass index
3. Modified Ferriman–Gallwey (mFG) score
4. PCOS-specific quality of life questionnaire
5. Pregnancy outcome and live birth

6. Objective ovulation was done by Ovulation kit tracking and not assessed using follicular ultrasonography.

9. Follow-up Outcomes :

Table 3. The quantitative outcomes documented during the follow-up period were:

PARAMETER	BASELINE	FOLLOW UP APRIL
BMI	26.1 kg/m ²	24.6 kg/m ²
Modified Ferriman Gallwey Score	9	6
Dysmenorrhea VAS	7/10	2/10
PCOSQ	2.9	6.32

Table 4. The Timeline :

MONTH	OVULATION KIT TRACKING	MENSTRUATION DATE	APPROX. CYCLE LENGTH
OCTOBER 2024	-	27th	35 days
DECEMBER 2024	-	1st	35 days
JANUARY 2025	-	15th	45 days
FEBRUARY 2025	10-12 th	22nd	38 days
MARCH 2025	8th-10th	24th	30 days
APRIL 2025	9th- 11th	25th	32 days
MAY 2025	10th-12th	24th	29 days
JUNE 2025	11th- Pregnancy confirmed		

10. Reproductive Outcome : After the intervention, the patient conceived spontaneously. Ultrasound on 11 June 2025 showed a single live intrauterine pregnancy approximately 4 weeks and 3 days. No other medicines, ovulation-inducing treatments or assisted reproductive procedures were used during the intervention period. The pregnancy progressed without any reported major complications, and the patient gave birth to a healthy female baby in January 2026. The outcome extended from preconception care through confirmed intrauterine pregnancy to live birth.

11. Discussion : In the present case, the patient had menstrual cycles occurring approximately every 40–45 days, with scanty menstrual flow and dysmenorrhea. Her prolonged cycle length made prediction of ovulation and identification of the fertile window difficult. This difficulty was clinically important because

the patient was actively planning pregnancy for 8 months and experienced anxiety regarding conception. Contemporary evidence-based guidance recognizes psychological health and quality of life as important components of PMOS care.²

11.1. Role of Lifestyle Intervention : Lifestyle intervention is a core component of management of PMOS. The 2023 international guideline emphasizes healthy lifestyle behaviours and recommends individualized lifestyle management for women with PCOS.² The beneficial changes observed in this case may be explained by multimodal effects of regular *Yogāsana* and *Prāṇāyāma*, rather than by a single posture or breathing technique. The *Asana* provided regular physical activity and may have contributed to improved energy expenditure, insulin regulation, body composition and metabolic function. In women with PCOS, Yoga-based interventions have demonstrated improvements in parameters including insulin resistance, fasting insulin and glucose metabolism.² A recent systematic review also reported potential benefits of yoga in anthropometric, metabolic, endocrine, menstrual and psychological outcomes, although heterogeneity between studies limits definitive conclusions.³ In the present case, the reduction in BMI from 26.1 to 24.6 kg/m² may therefore have contributed to improvement in the overall metabolic–reproductive improvement. The *Prāṇāyāma*, particularly *Nāḍī Śodhana*, may have contributed through autonomic and stress-regulatory mechanisms. Improved metabolic and stress-related regulation may potentially influence the hypothalamic–pituitary–ovarian axis, thereby supporting more favourable reproductive physiology. *Bhramari* is the only *Pranayama* which controls all the negative domains such as stress, strain, anxiety, tension, depression, etc. So, it is helpful in contending your mood swings. *Bhramari Pranayama* prevents the hypothalamic – pituitary axis from receiving estrogen-negative feedback by inhibiting estrogen biosynthesis, thus increasing follicle – stimulating hormone (FSH) production and promoting follicle growth. Thus the FSH/LH ratio became normal. Ovulation occurs at proper time and menses get regular.⁸ However, this remains a probable mechanistic explanation. Thus, the observed improvement in menstrual symptoms, BMI, quality of life and subsequent conception may reflect the combined effects of regular physical activity, improved metabolic health, stress regulation and behavioural adherence.

11.2. Evidence for Yoga in PMOS : Previous research provides preliminary support for investigating yoga as an adjunctive intervention. Nidhi et al. conducted a prospective randomized controlled trial involving 90 adolescent girls with PCOS who practiced a holistic yoga program for one hour daily for 12 weeks. The study reported significantly greater changes in AMH, LH, LH/FSH ratio, testosterone, modified Ferriman–Gallwey score and menstrual frequency in the yoga group compared with the physical-exercise control group.⁴ In another randomized controlled study involving women with PCOS, regular mindful yoga practice three times weekly for three months was associated with improvements in selected androgenic parameters and psychological outcomes.⁵ These studies provide biological and clinical plausibility for the use of structured *yoga* as an adjunctive lifestyle intervention. Therefore, the present case should be interpreted as a clinically relevant observation that may generate a hypothesis for future research.

11.3. Quality of Life and Psychological Well-being : The patient's recorded PCOSQ score improved from 2.9 to 6.32. Psychological concerns are particularly relevant in PMOS. In this case, anxiety was specifically related to fertility and uncertainty regarding ovulation. The regular structure of supervised yoga sessions, together with breathing practices and physical activity, may have provided supportive behavioural and psychological benefits.

11.4. Preconception Care : The most clinically notable outcome was spontaneous conception following the period of structured intervention. The patient's prolonged menstrual cycles had made identification of

the fertile window difficult. The subsequent pregnancy indicates that conception occurred during a cycle in which ovulation was sufficient for fertilization. Furthermore, conception is influenced by several factors, including intercourse timing, partner fertility, cycle variation and metabolic factors.

12. The major strengths of the present case include:

1. A documented preconception clinical problem.
2. A structured and reproducible yoga protocol.
3. Quantitative assessment of BMI, mFG score.
4. Assessment of disease-specific quality of life with questionnaire.
5. Documentation of spontaneous conception and Follow-up till pregnancy and live birth.

13. Limitations : Several limitations should be acknowledged. First, this is a single-patient case report and cannot establish causality. Second, objective ovulation was not documented through follicular monitoring methods, only ovulation tracking kits were used. Third, other parameters such as serum testosterone, LH, FSH, AMH, etc were not documented in the presented record. Fourth, dietary intake was not quantified, just maintaining meal timings, avoidance of junk & fast food.

14. Patient Perspective : The patient reported improved energy, reduced tiredness, feeling of physical lightness, improved sleep quality and overall well-being during the intervention period. She also reported reduction in menstrual discomfort and felt that the structured yoga practice provided psychological support during her preconception journey. After confirming pregnancy and delivering a healthy female baby, she viewed the intervention as a positive part of her preconception care.

15. Conclusion : This case illustrates the potential role of a structured yoga-based lifestyle intervention as an adjunctive component of holistic preconception care in a woman with Polyendocrine Metabolic Ovarian Syndrome (PMOS). Regular supervised yoga practice was associated with improvement in dysmenorrhea, BMI, disease-specific quality of life and subjective well-being. The patient subsequently conceived spontaneously and delivered a healthy female baby in January 2026. The temporal association between the intervention and conception is clinically noteworthy but does not establish causality.

16. Conflict of Interest : The author declares no conflict of interest.

17. Data Availability: The clinical information presented is derived from the patient's clinical records. Additional identifiable patient information is not disclosed.

18. Challenges :

- a. **Heterogeneity of PMOS:** PMOS can manifest differently in individuals depending on their age, BMI and other associated ailments. It may be challenging to find a one-size-fits-all approach. Managing PMOS often involves changes in diet, exercise, and stress management in addition to yoga. It can be challenging to isolate the specific impact of yoga from these other lifestyle modifications.
- b. **Limited Scientific Research:** While there is growing interest in yoga as a complementary therapy for PMOS, there may still be a limited amount of scientific research and clinical trials specifically examining its effectiveness.

19. Acknowledgements : We acknowledge the diagnostic services and subject's unwavering commitment to her yoga practice. It not only served as a source of physical relief but also a catalyst for a transforming journey towards overcoming challenges posed by PMOS.

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